

LIFTKAR[®] PT

SANO
makes life easier.

Electric-Powered Stairclimbers For People with Walking Difficulties

Liftkar PT-U

Liftkar PT-S

Liftkar PT-A

INSTRUCTION MANUAL

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1 Introduction

Congratulations!

Your new Sano Liftkar PT-U and PT-A provides you with an easy method of conveying wheelchair users up and down stairs safely. The Liftkar PT-S provides you with a method of transporting a disabled person up or down the stairs while seated on the device and not in a wheelchair. The Liftkar PT is a mobile stair-climber, meaning you can take it with you to use on any stairs. Liftkar PT gives you more freedom as a result. At the same time, professionals or caregivers that have been trained and certified, no longer need to strain their backs on the stairs.

Releasing a lever that is easily accessible without the operator having to bend down lets the Liftkar PT be dismantled into 3 handy parts: the climber unit approximately (15 kg/ 33 lbs) and the battery pack and handle unit approximately (4 kg/ 9 lbs each). All parts are easy to stow away because they are lightweight and compact.

On stairs the Liftkar PT is remarkably smooth to operate and safe to handle. As a mobility provider, partner, relative or friend, Sano wishes you all the best in using this stair-climber. We hope you will find this instruction manual useful in finding out how to operate your Liftkar PT.

In order to update you about product news as well as technical changes (e.g. options, accessories) we ask you to register your product online.

<http://www.sano.at/en/product-registration>

2 General Safety Guidelines

- Read these instructions carefully. Make sure you comply with all instructions in this manual and on signs fitted to the equipment. Climbing stairs presents a risk in itself and not complying with these instructions could cause accidents.
- The stairclimber may only be used for the purpose for which it has been designed – transporting people on stairs.
- Maximum weight should be honoured and never exceed the maximum capacity.
- The Liftkar PT may only be operated by people who
 - have proof of having been trained in how to operate the stairclimber
 - can walk upstairs backwards
 - are both physically and mentally sound
 - are able to maintain balance without great physical strain.
 - are not under the influence of alcohol or substance abuse.
- Never operate the Liftkar PT on surfaces that are wet, slippery, polished or waxed, smooth, icy or generally do not give the operator sufficient stability, and impair the braking performance of the brakes on the transport wheels. Rugs and carpets can also present a risk and must be secured.
- Under no circumstances may you let go of the handle while operating the stairclimber on the stairs.

- Make sure that nobody is below the Liftkar PT while in operation on stairs.
- A safety belt must always been used when transporting people with Liftkar stairclimbers.
- The safety belt must always be in the closed position regardless of whether a person is being transported or not. **Never allow the safety belt to hang** over the side to the left or right. Risk of jamming the wheels – danger of falling. Risk of damaging the stairclimber.
- For transporting people using Liftkar stairclimbers, only use wheelchairs fitted with a safety belt or other personal retention system.
- **Make sure you always wear closed, non-slip shoes when operating the Liftkar PT.**
- **Do not use the Liftkar PT with a passenger until trained by a certified Liftkar PT trainer and have taken ample time to perfect the use of the product on your own.** Once trained begin practicing without a payload. Next, try operating it again with somebody as lightweight as possible who is not disabled. The test passenger should hold onto a handrail or a second person during the climb.
- Always start by using the lowest speed first (setting 1). Do **not** switch from single step mode to continuous mode.
- Never reach into the transport mechanism with your hands while the battery pack is connected. (Risk of injury may result).
- When transporting the Liftkar PT itself, Sano recommends undoing the lever screw (stays on handle, so there is no risk of losing it) and taking the stairclimber apart. This will prevent it from being switched on inadvertently and in this form the Liftkar PT is easier to transport.
- The Liftkar PT is supplied with a powerful, replaceable 5 Ah / 24 Volt battery pack, which should always be fully charged before using the stairclimber. If, for whatever reason, the battery pack should run out of power while in operation on stairs, move the stairclimber down the stairs and replace or recharge the battery. **It is always possible to move down at least one flight of stairs, even with an empty battery pack.** The first sign of the battery pack running out is indicated by the stairclimber's performance. The Liftkar PT becomes slower and appears to be struggling. Inexperienced operators are warned by the LED display: if the battery pack needs to be recharged the LED display starts flashing, alternating between red and green and an intermittent acoustic warning signal.
- Do not use the stairclimber if unusual noises and/or vibrations occur while the Liftkar stairclimber is in operation. Withdraw the stairclimber from use and have it inspected by an authorized technician.
- Please observe the following instructions regarding storing and operating your Liftkar stairclimber:
Avoid exposing the stairclimber to high temperatures such as direct sunlight and high humidity, e.g. due to use in saunas, in the rain etc, because there is a risk of overheating, burning and damaging the stairclimber. Avoid exposing the stairclimber to very low temperatures below 5°C/41F.

3 Description/Technical Data

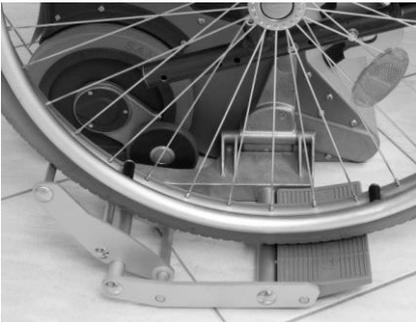
3.1 PT-U model for a wide range of wheelchairs

This model enables you to transport almost any (non-motorized) standard and transport wheelchair (including children’s and sports wheelchairs) up and down stairs without any modifications. Features folding platforms on either side for supporting the wheels of the wheelchair and a handy, easy-to-use adjustable retainer which clamps the backrest in place (*maximum width 495 mm/ 18 inches*).

Suitable for professional mobility providers and private users. Takes up slightly more space on the staircase than the other models. Loading and unloading the wheelchair takes less than a minute at each end of the journey.

Note: *with some wheelchairs it may be necessary to raise or remove any anti-tip devices. If the anti-tip devices are fixed then they will need to be modified to the removable or foldable type.*

Liftkar PT-U.....item no. 045 728



3.1.1 Technical data for PT-U model

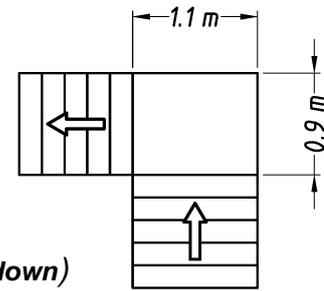
- **Safe working load:** 130 kg
(incl. wheelchair) 160 kg/ 352 lbs
Maximum weight never to be exceeded
 - **Maximum width of backrest:** 495 mm/ 19.49 in.
 - **Maximum track width of wheelchair:** 730 mm/ 28.74 in. (measured on outside of wheels)

 - **Wheel diameter:** 200 mm/7.87 inches
 - **Track width (outside):** 297 mm/11.69 inches

 - **Weight (total):** 27,6 kg/60.72 lbs
 - **Weight (climber unit):** 16,7 kg /36.74 lbs
(incl. side platforms)

 - **Overall height:** 1130 mm/ 44.49 in.
 - **Overall width:** 760 mm/ 29.92 in. (platforms down)
395 mm/ 15.55 in. (with side platforms up)
482 mm / 18.98 in. (handle unit)

 - **Overall length:** 385 mm/ 15.15 in.
(without wheelchair)
 - **Any Stair depth:** 6 inches include winding
 - **Riser Height:** 8.26 inches
- Manueverability on stairs is the width of Liftkar plus 4 inches.



Space requirements on all landings including u-shaped (1.1m/ 43.3 in. x .9m/ 35.4 in.)

NEVER LEAVE A PERSON UNATTENDED ON THE STAIRS UNLESS IN AN EMERGENCY

3.1.2 Scope of supply for model PT-U

On delivery the box should contain the following components:

- Climber unit with folding side platforms
- Handle unit including backrest clamp
- Headrest
- Battery pack
- Charger
- Instruction manual

If one of these components is missing or damaged, please contact your dealer.

3.2 PT-S model with integrated seat

This model includes an integrated chair with adjustable backrest and armrests attached to the handle unit. The handle unit, battery pack and climber unit can be quickly dismantled by releasing a single lever screw (stays on handle, so there is no risk of losing it). The seat folds down to save space. The maximum passenger weight is 160 kg/ 352 lbs.

Highly suitable for very steep, narrow and spiral staircases. This compact design of seat and main wheels with a diameter of just (200 mm/ 7.87 inches) allows for plenty of clearance.

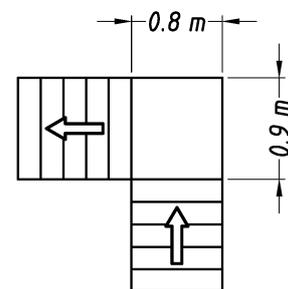
Liftkar PT-Sitem no. 045 724



3.2.1 Technical data for PT-S model

- **Safe working load:**
(passenger weight) 160 kg/ 352 lb.
Maximum weight never to be exceeded
- **Wheel diameter:** 200 mm/ 7.87 in.
- **Track width (outside):** 297 mm/ 11.69 in.
- **Weight (total):** 30,5 kg/ 67.1 lb.
- **Weight (climber unit + seat):** 18,5 kg/ 40.7 lb.
- **Overall height:** 1130 mm/ 44.49 in.
- **Overall width:** 505 mm/ 19.88 in. (incl. armrests)
- **Overall length:** 675 mm/ 26.57 in. (600 mm/23.62 in. with seat and armrest folded away)
- **Any Stair Depth:** 6 inches
- **Riser Height:** 8.26 inches

Manueverability on stairs is the width of Liftkar plus 4 inches.



Space requirements on all landings including U-shaped
(.8m. X .9m)
(31.5 in.x 35.4 in.)

NEVER LEAVE A PERSON UNATTENDED ON THE STAIRS UNLESS IN AN EMERGENCY

3.2.2 Scope of supply for model PT-S

On delivery the box should contain the following components:

- Climber unit
- Handle unit including: seat, backrest and folding armrests
- Battery pack
- Safety Belt
- Headrest
- Charger
- Instruction manual

If one of these components is missing or damaged, please contact your dealer.

3.3 PT-A model

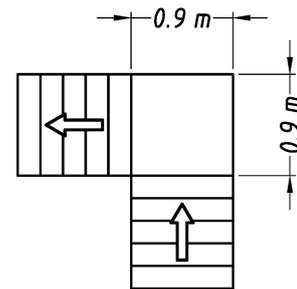
This model is designed to accommodate all Quick Release wheelchairs by use of special adapters. Each adapter is specific to the wheelchair brand and model. Passenger weight with wheelchair is 160kg/ 352 lbs.

Liftek **PT-A** item no. 045 722



3.3.1 Technical data for PT-A model

- **Safe working load:**
(incl. wheelchair) 160 kg / 352 lb.
Maximum weight never to be exceeded
 - **Minimum wheelchair width
(inside frame):** 320 mm/ 12 in.
 - **Wheel diameter:** 200 mm/ 7.87 in.
 - **Track width (outside):** 297 mm/ 11.69 in.
 - **Weight (total):** 24,7 kg/ 54.34 lb.
 - **Weight (climber unit):** 15,2 kg/ 33.44 lb.
 - **Overall height:** 1130 mm/ 44.49 in.
 - **Overall width:** 482 mm/ 18.98 in. (without wheelchair)
 - **Overall length:** 385 mm/ 15.16 in. (without wheelchair)
 - **Any Stair Depth:** 6 inches
 - **Riser Height** 8.26 inches
- Manueverability on stairs is the width of Liftkar plus 4 inches.



**Space requirements
on all landings
including U-shaped
(.9mx.9m)
(35.4 in.x 35.4 in.)**

NEVER LEAVE A PERSON UNATTENDED ON THE STAIRS UNLESS IN AN EMERGENCY

3.3.2 Scope of supply for model PT-A

On delivery the box should contain the following components:

- Climber unit
- Handle unit
- Battery pack
- Headrest
- Charger
- Instruction manual

If one of these components is missing or damaged, please contact your dealer.

Important:

Your wheelchair must be fitted with special adapters before it can be transported using the Liftkar PT stairclimber. Please contact your dealer immediately if this is not the case.

3.4 Technical data applying to all models

- **Climbing speed:** three speeds can be selected on the control cluster:
 - I = Slow 10 steps per minute
 - II = Medium 14 steps per minute
 - III = Fast 18 steps per minute
- **Maximum step height:** 210 mm/ 8.267 inches.
- **Range per recharge:** depending on usage a new battery recharge rate is between 300-500 steps. Rate will change based on: age of battery, weight of passenger, going up or down stairs, or constant (professional) use.

For professional use it is highly recommended to have a replacement battery pack, and a mobile charger. Liftkar PT cannot be in use during replacement of battery.

- **Protection against overloading:**
 - 1) Mechanical overload protection (*sliding hub*)
 - 2) Electronic overload protection
- **Electrical data**

Protection class	IPX4
Nominal voltage	24 VDC
Max. current	30 A

Note on electromagnetic compatibility (EMC)

The electric motors corresponds with the protection requirements laid down in the European Council Directive on the legal regulations of the member states concerning electromagnetic compatibility (EMC) (2004/108/EC). However, it cannot be completely excluded that under certain conditions an electrical malfunction occurs, especially in connection with the use of mobile phones. Do not operate the stairclimber near life support systems or equipment that could injure users if it fails. These could be negatively affected under certain conditions, and trouble-free operation of the stairclimber may be impaired. If you notice the stairclimber malfunctioning or behaving strangely near other electrical equipment then remove the stairclimber from service and have it inspected by an authorized dealer.

3.5 Technical data for battery pack

Weight of battery: 4,3 kg
Capacity: 5,2 Ah
Voltage: 24 VDC
(2x 12 VDC – 5,2 Ah)



Type of battery: maintenance-free, leak-safe AGM cell (approved by DOT and IATA for air freight)
Fuse: internal fuse (30 Amp) and electronic cut-out at charging contact
Charging contact: DC jack \varnothing 2,1 x 9,5 mm / (8 x .37 inches)
Power outlet: via 2 robust flat contacts to two spring-loaded contacts on the climber unit

BATTERIES CAN ONLY BE REPLACED BY A SERVICE CENTER

3.6 Names of main parts

3.6.1 Handle unit

Handle unit column 1

Adjustable handle 2

Clamping nut for adjusting handle 3 (control feature)

Crossbar 4

Lever screw 5

Control cluster 6 (control feature)

UP/DOWN switch 7 (control feature)

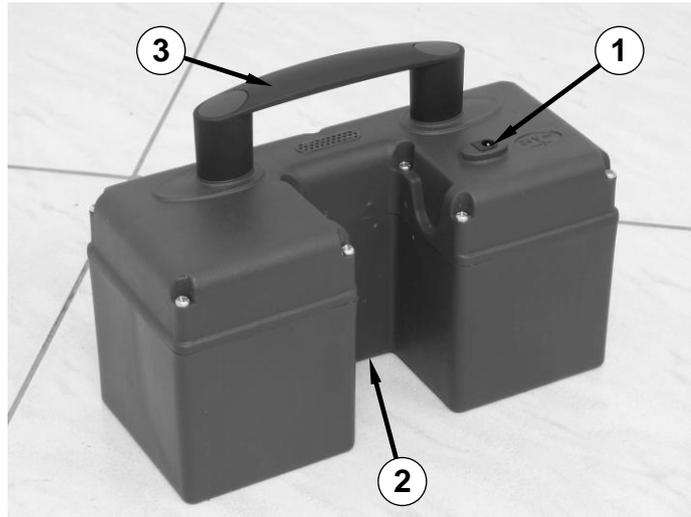


3.6.2 Battery pack

Charging socket 1

Power outlet 2

Carrying handle 3



3.6.3 Climber unit

Lifting frame 1

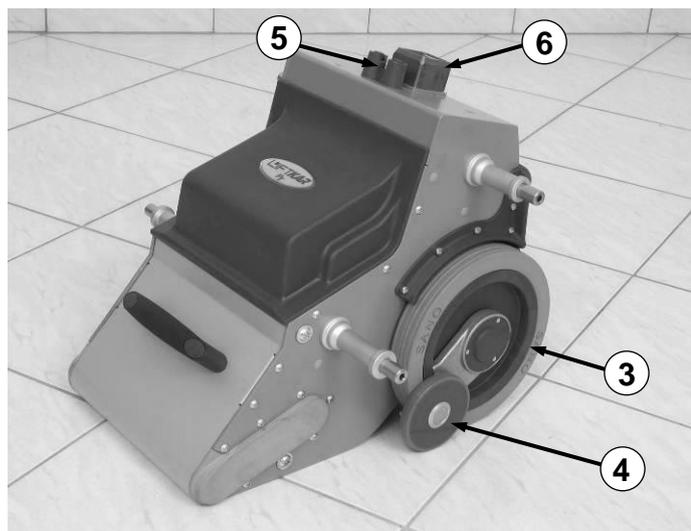
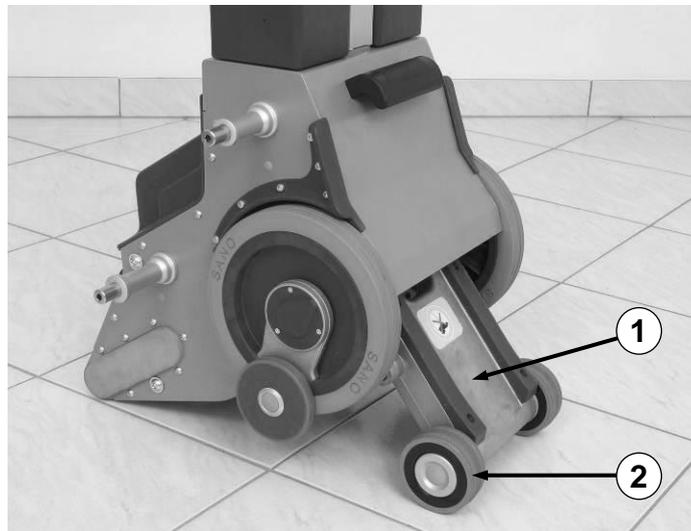
Support wheels on lifting frame 2

Main wheels 3

Automatic step edge brakes 4

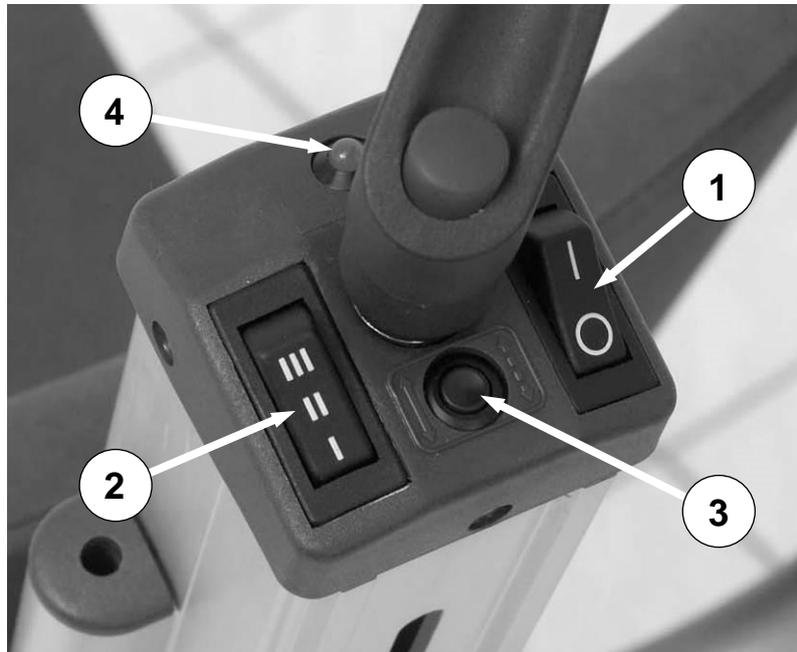
Spring-loaded contacts to battery power outlet 5

Mounting socket for handle unit column 6



4 Control features

4.1 Control cluster at top end of handle unit column



4.1.1 Main switch (1)

Use this switch to switch the stairclimber on via a safety circuit. Press it again to switch off. The Liftkar PT switches itself off automatically after 10 minutes.

4.1.2 Speed selector switch (2)

Use this switch to choose the climbing speed of the lifting frame mechanism. (See *section 3.7 for absolute figures*)

I: Slow	10 steps per minute
II: Medium	14 steps per minute
III: Fast	18 steps per minute

4.1.3 Mode switch (3)

Use this mode switch to switch between **single-step mode** and continuous mode and back to *single-step mode*.

*For safety reasons, **single-step mode** is always selected first each time the main switch on the Liftkar PT is switched on. In this mode the lifting frame and support wheels come to a halt in a neutral position between the main wheels after each complete step cycle has been completed. The next step cycle is started by pressing the UP/DOWN switch (4.2) again.*

Operators (mainly professionals) should not switch over to continuous mode unless they are in complete control of the stairclimber this is used only on straight stairs and without landings. In this mode the UP/DOWN switch does not need to be pressed for each step.

4.1.4 LED display (4)

The LED display gives a clear indication of the status of the Liftkar PT:

Green (not flashing): normal and in single-step mode.

Flashing green: Warning! Continuous mode is switched on. Otherwise normal.

Red (not flashing): The Liftkar PT is at too flat an angle to the rear or leaning too far forward. If the angle is not upright enough the angle sensor blocks operation of the climbing mechanism. Pressing one of the UP/DOWN switches causes the LED to display red. If the transport angle is too steep the sensor switches off the climbing function and the LED displays red as long as the UP/DOWN switch is pressed.

Flashing red: the stairclimber is overloaded and the electronic overload protection stops the Liftkar PT. *(The LED flashes until you let go of the UP/DOWN switch. Pressing the UP/DOWN switch again allows you to continue up or down).*

Alternating red and green: the battery pack is running low and urgently needs to be recharged. The stairclimber will certainly manage another flight of stairs, but it is recommended that you move down stairs and either change the battery pack or recharge it with the quick charger supplied. In addition, an integrated beeper provides an acoustic signal to indicate that the battery charge is low. The beep frequency increases the lower the battery level.

4.1.5 Beeper function for correct transport angle

By default the beeper function is active. While the beeper function is active an acoustic signal is given as soon as the stairclimber is no longer in the ideal stairclimbing angle.

To deactivate press the main switch (1) for approx. 30 seconds. A short acoustic beep signal indicates that the function is now off. Repeat the procedure to reactivate this function.

WARNING: Deactivating this function eliminates audio notification of incorrect angle and could be a hazard! Deactivate at your own risk.

4.2 UP/DOWN switch left and right on handle

The **UP/DOWN switch** is labelled with a neutral position (0) and two triangles pointing away from the operator (*forwards*) and towards the operator (*backwards*).

Down:

press triangle pointing **forward holding button down for one complete cycle.**

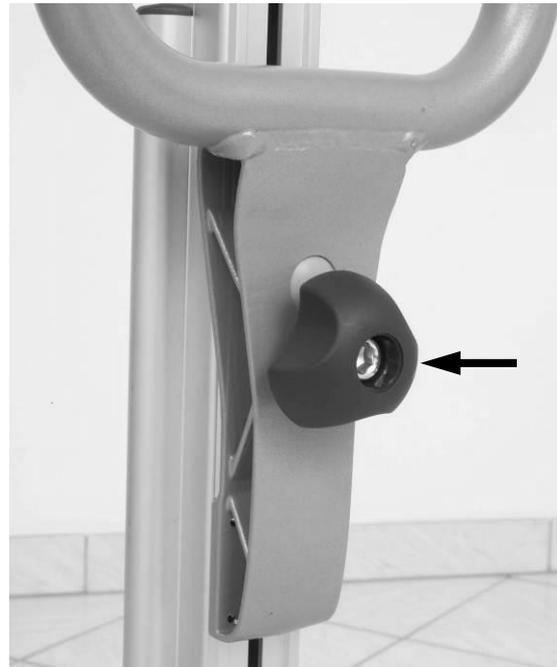
Up:

press triangle pointing **backward holding button down for one complete cycle.**



4.3 Clamping nut on adjustable handle

The clamping nut is captive (cannot be lost) and is designed to clamp the height-adjustable handle unit in place. The clamping nut features a special design that allows it to be tightened by hand. **It is not necessary to tighten the nut with force.** To find out how far the clamping nut should be tightened, Sano recommends rotating the nut clockwise with the handle positioned low down so that the operator can attempt to push the handle downwards using the weight of the upper body. Keep tightening the nut until the handle cannot be shifted. Very little force is applied to the handle while moving on steps since the stairclimber is balanced while in operation. The only time slight pressure is needed is while tilting the unit during loading and unloading. Loosening the clamping nut by one turn is



quite sufficient for the handle to slide easily. The clamping range setting is adjusted using a concealed setting screw (*patented design*), which also acts as a safety screw and may only be adjusted by an authorized dealer. There is no point in undoing the nut any further since the clamping range does not change. After approximately three turns the clamping nut is blocked so that it cannot be lost.

Note 1: *If the clamping nut cannot be undone, then it usually is already undone. Please check whether the handle slides freely up and down, or whether you can see a section of exposed thread between the nut and the handle.*

Note 2: *The following general rule applies for setting the height of the handle: The upper edge of the handle (where the UP/DOWN switches are located) should be at about the same height as the operator's shoulders (see also start-up section).*

5 Preparation before you start

5.1 Climber unit, battery pack and handle unit

The following preparations need to be made to the Liftkar PT as a base unit:

1. Fit battery pack over the brown contact housing on the climber unit with the recess pointing towards the handle mounting socket (**photo 1**). DO NOT FORCE.
2. Insert the handle unit column into the battery pack recess (**photo 2**) and into the mounting socket. Press the handle unit down into the mounting socket until the lever screw on top of the control cluster is pressed upwards (**photo 3**).



3. Tighten the lever screw clockwise.
4. Switch on the main switch (LED display should light up green).
5. Select climbing speed I-II-III (Beginners should always select I).
6. Test the brakes (**see section 9.4**).
7. **Experienced/ professional operators only:** if required, press mode switch III to switch from single-step mode to continuous mode.

Note:

The spindle (phot o3) is spring-loaded as it presses down onto the mounting socket. This design provides an extra degree of safety because the spring presses the handle unit column upwards if the spindle is not engaged properly, or is not tight enough. As a result there is no electrical connection to the control cluster (plug is disconnected between socket and column) and the Liftkar PT can no longer be switched on. The spring may not be strong enough to push the column upwards in all situations, but if the spindle is not engaged properly only a very slight movement of the column will cause the plug to disconnect so that the unit cannot be used on steps.

5.1.1 Adjust handle

The following general rule applies for setting the height of the handle: The upper edge of the handle (where the UP/DOWN switches are located) should be at about the same height as the operator's shoulders.

(See also section 4.3 about tightening the clamping nut)

5.1.2 Headrest

All models are fitted with a headrest.

Mounting the headrest is easy: insert the two chrome rods into the holes on either side of the column underneath the control cluster and slide downwards. The height can easily be adjusted to the requirements of each individual passenger. The spring properties of the rods hold the headrest in any position without the need for a clamping system).

5.2 Additional preparations (depending on model)

The safety and comfort of the person being transported is of the highest priority while the stairclimber is in use.

Make sure you observe the safety instructions at the front of this manual and follow all recommendations made during training.

If any of the exceptional situations mentioned below do occur, please proceed as follows:

- If the passenger complains of feeling unwell or dizziness then stop the stairclimber and attend to the person.
- If the passenger generally has a problem with their back it is recommended that the slowest climbing speed is used.
- It is recommended that a headrest is fitted to support the neck muscles while the stairclimber is in the tilted position.
- The passenger should be relaxed and keep still while the stairclimber is in operation. It is essential that sudden jolts are avoided during operation.

If the stairclimber is in an upright position, pressing one of the DOWN switches causes the climbing unit to extend in creep mode. This function enables the person being transported to get on and off the stairclimber more easily.

This procedure also makes it easier to fit wheelchairs onto the unit. It is recommended to use this function whenever the unit is in a stand still mode, or when the units are disassembled for transporting and reassembling.

5.2.1 Operating seat position on Liftkar PT-S

With the Liftkar PT-S and its integrated seat you pull the seat up into place. The stairclimber is immediately ready for operation with its self-locking scissor design.

To fold the seat down press the knobs forward on either side, or pull the upper scissor arm forward (**photo 1, 2 and 3**).

Sano recommends using the UP/DOWN switch (when on level ground the unit automatically functions slowly) in the Up direction to level the seat, for loading and unloading comfortably (**photo 4**).



When carrying, grab the crossbar and the bottom of the backrest for the handle unit, hold battery by the handle, and the climbing unit by the black handle and footrest.

5.2.2 Loading a wheelchair onto a Liftkar PT-U (*general information*)

The Liftkar PT-U enables you to transport any wheelchair up to a maximum width of 495 mm/ 19.4 inches, measured at the back of the wheelchair (*including sports and children's wheelchairs*) upstairs without any modifications to the wheelchair.

The track width of the wheelchair should not exceed 730 mm/ 28.74 inches (*measured on the outside of the wheels*).

Note 1: *with some wheelchairs it may be necessary to raise or remove any anti-tip devices. If the anti-tip devices are fixed then they will need to be modified to the removable or foldable type.*

The following preparations need to be made before starting:

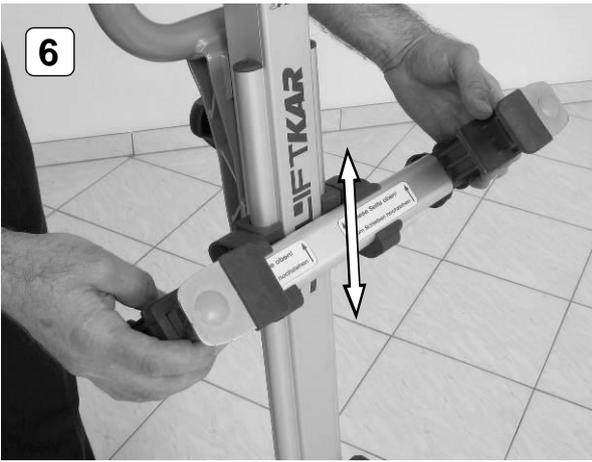
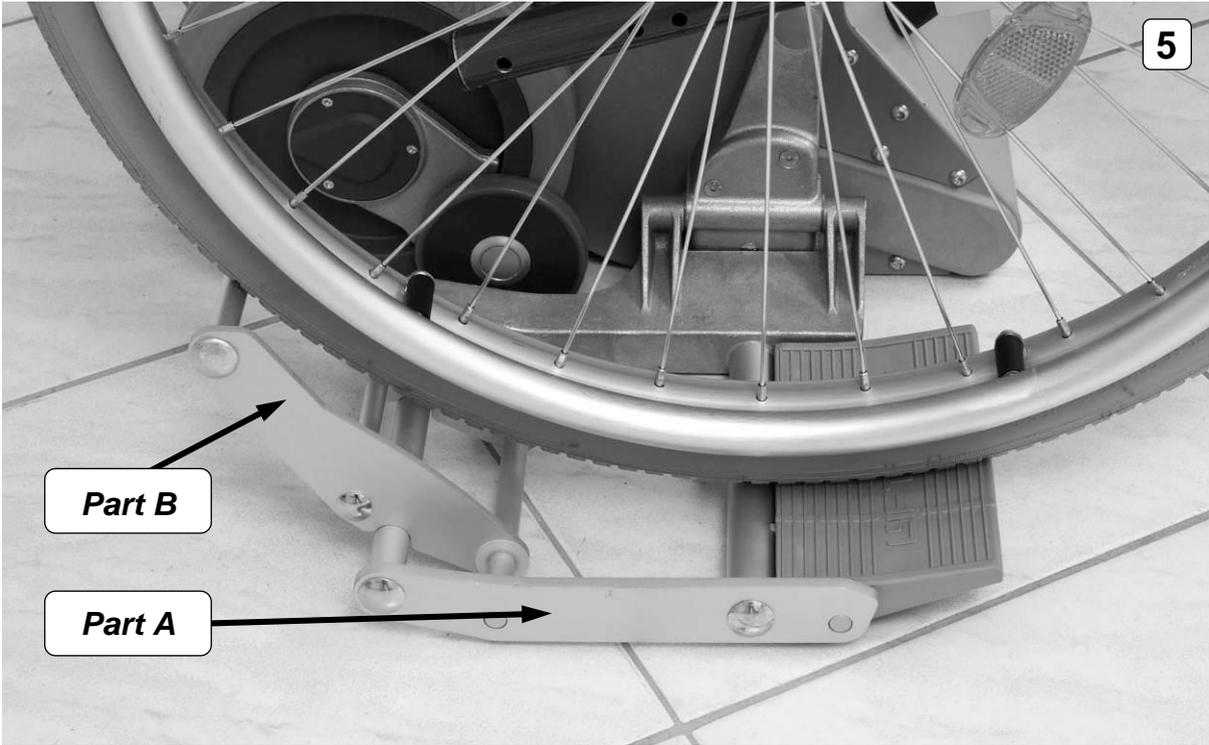
- Assemble climber unit, battery pack and handle unit as described in 5.1.
- Fold down side platforms (**photo 5, part A**)
- Fold up rear stoppers (**photo 5, part B**)
- Adjust side platforms to the track width of the wheelchair
- Make sure that the retention bar with the clamps for the backrest of the wheelchair is properly mounted on the handle unit column. The stickers with arrows on the retention bar should point upwards.

Note 2: *The retention bar locks in place so that it does not slide downwards while no wheelchair is on the stairclimber. The retention bar is locked in place while it rests on the column. As soon as it is lifted the bar is unlocked and you can move it freely up and down the column (**photo 6 -7, see below**).*

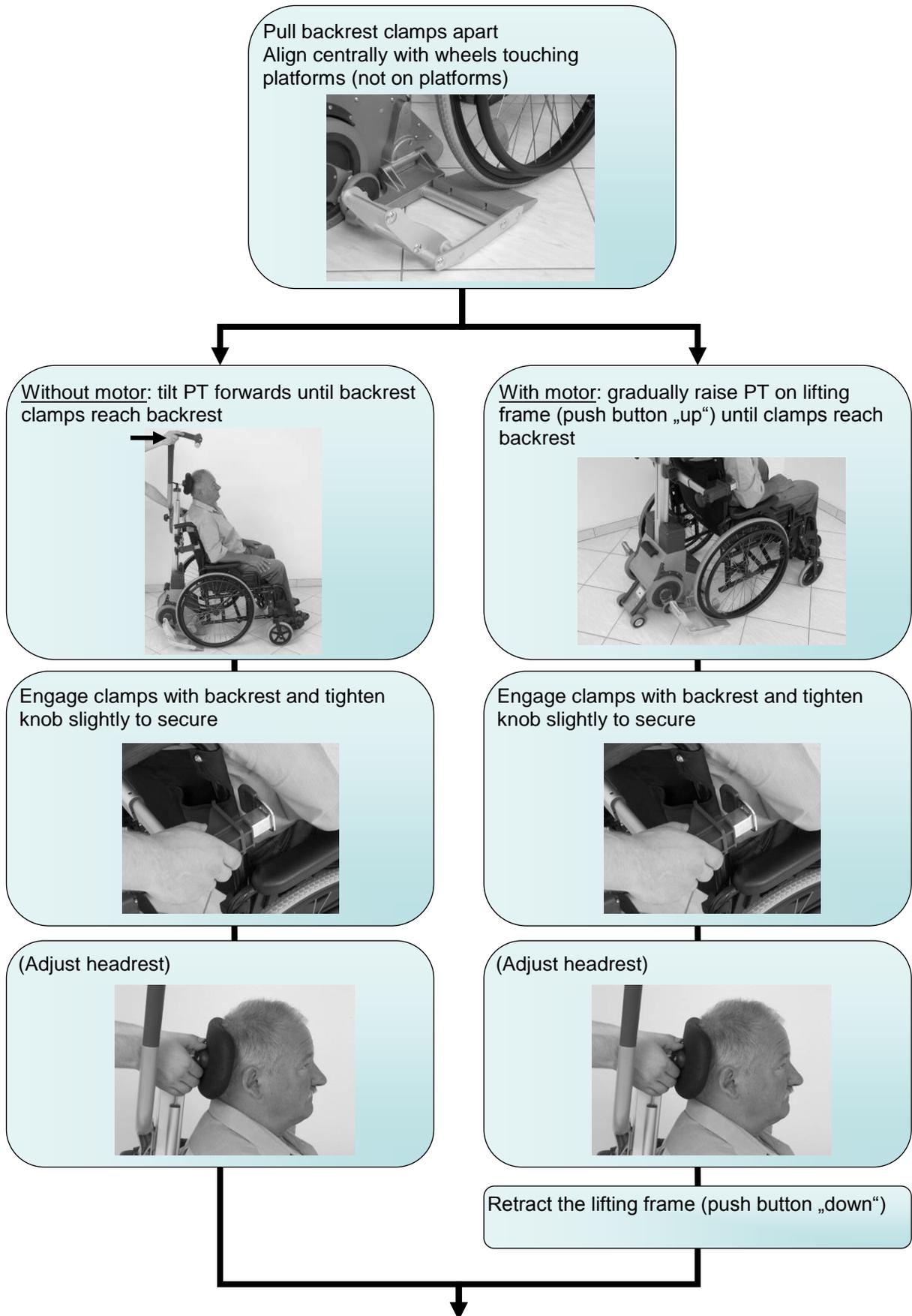
Note 3: *If the retention bar is retrofitted to the handle unit column note that the inside sliding arms need to be rotated in a way so there is sufficient clearance to fit the bar to the rails down the side of the handle unit column. The headrest will need to be removed while the retention bar is fitted.*

Note 4: *Make sure that the wheelchair's parking brakes are properly adjusted and in full working order. Especially on self-propelled wheelchairs (large wheels) Wheelchair should not be used if brakes are not in working order. Brakes should always be set when Liftkar PT-U is in use.*

MAKE SURE THAT TIRE PRESSURE ON THE WHEELCHAIRS MAIN WHEELS ARE SET CORRECTLY. NEVER ATTACH A WHEELCHAIR TO A STAIRCLIMBER WITHOUT HAVING VERIFIED GOOD FUNCTION OF THE WHEELCHAIR PARKING BRAKES AS WELL AS CORRECT TIRE PRESSURE.



5.2.3 How to load a self-propelled wheelchair (PT-U)





Tilt PT backwards



Tilt PT backwards while passenger reverses wheelchair onto platforms



Pull wheelchair onto platforms with both hands



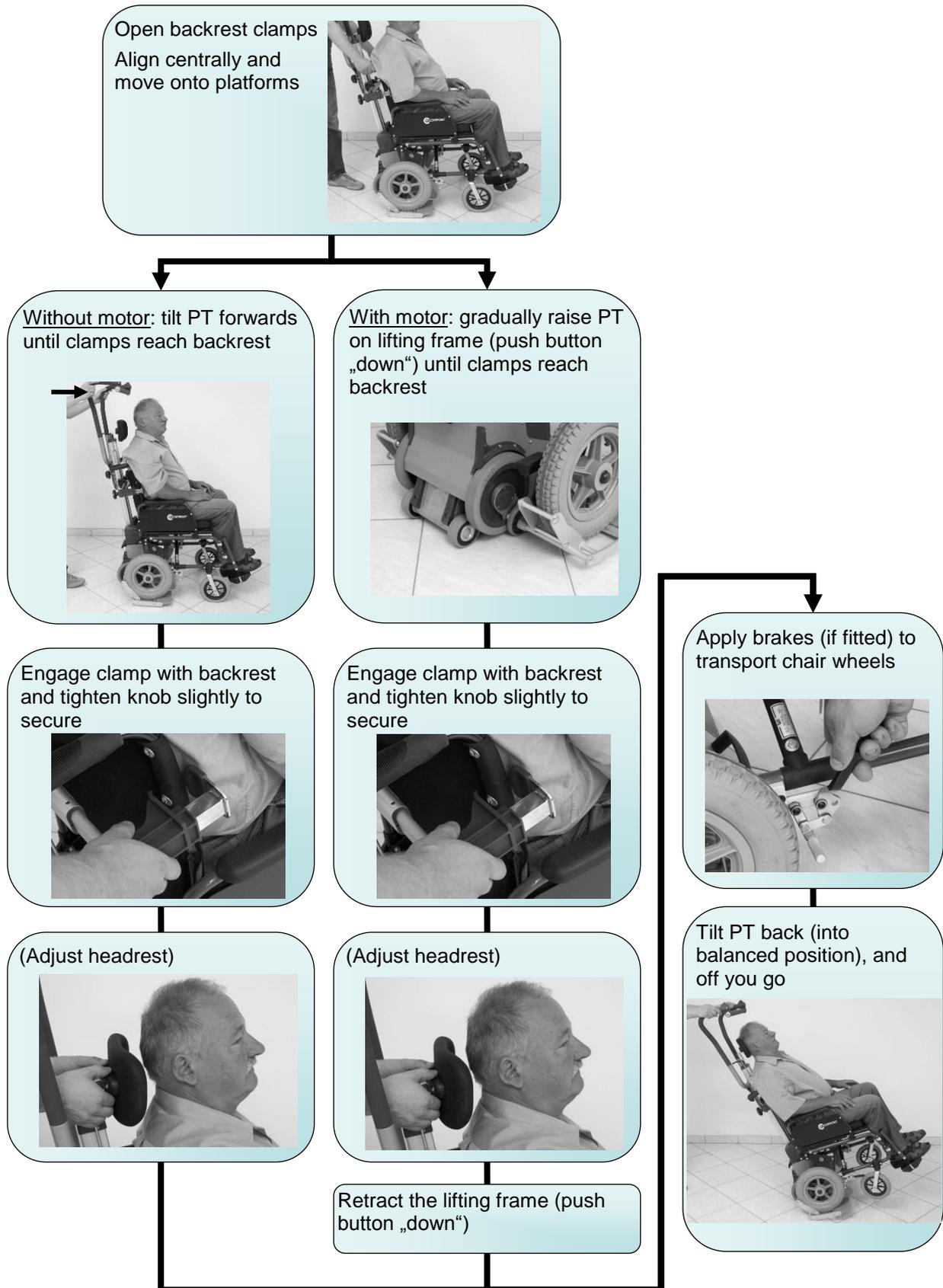
Apply brakes to wheelchair wheels



Tilt PT back (into balanced position), and off you go



5.2.4 How to load a transport wheelchair (PT-U)



5.2.5 How to unload a self-propelled wheelchair (PT-U)

Tilt PT forwards until front wheels of wheelchair touch the ground



Tilt PT forwards with one hand and release backrest clamp on one side with the other hand



Now release backrest clamp on the other side



Tilt PT back until it rests on the ground



Release wheelchair brakes and move clear of PT



5.2.6 How to unload a transport wheelchair (PT-U)

Tilt PT forwards until front wheels of transport chair touch the ground



Tilt PT forwards with one hand and release backrest clamp on one side with the other hand



Now release backrest clamp on the other side



Tilt PT back until it rests on the ground



Release wheelchair brakes and move clear of PT



5.2.7 Loading a wheelchair onto a Liftkar PT-A

With this model the stair-climber unit is secured to the wheelchair using an adapter mounting.

A special adapter mounting to the wheelchair. These mountings are fitted to each side of the climber unit for anchoring axles with adjusting rings (*PT-A, photo 1*). **They allow for attaching and detaching the wheelchair.**



How to attach the stairclimber to the wheelchair:

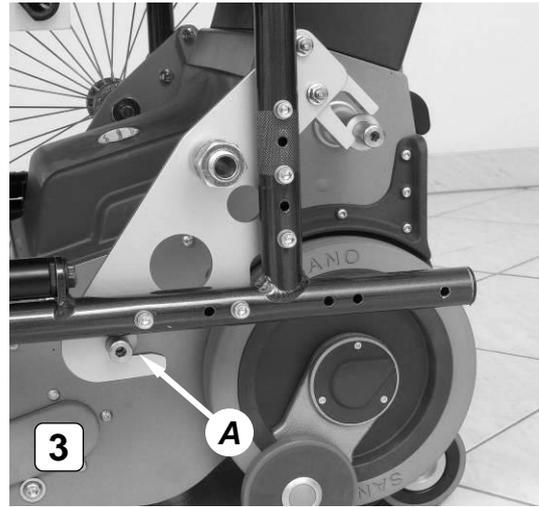
1. Lock the wheelchair wheels by applying the parking brake
2. Move the Liftkar PT under the wheelchair from behind as close to its centreline as possible and slide the lower rods into the lower mountings (*photo 2, arrow A on photo 3*).



Note 1: the lifting frame with support wheels should be centred between the wheelchair wheels so that the support wheels are not touching the floor (the lifting frame is in the correct position when it is stopped using the single-step mode control, see also 4.1.3)

Note 2: if the wheelchair had been folded for transport, make sure that it has been set up properly by pressing down sharply on the seat. **Otherwise it is possible that the side frames will not be far enough apart to allow the climber unit to fit between the lower mountings.**

3. Set the lowest speed (see also 4.1.2)
4. Press **UP** on the UP/DOWN switch so the climber unit moves upwards until the upper rods engage with the yokes on the upper mounting on the wheelchair (**photo 3**).



5. Use the quick-release pins to secure the mountings on the left and right (**photo 4**).



Note 3: *quick-release pins are often used because they are self-securing due to spring pressure applied by an inside cone and three small balls which press outwards. Hold the mushroom head between forefinger and middle finger and press the spring pin down with your thumb. With the pressure released you can insert the pin into the hole on the mounting right up to the mushroom head. The quick-release pin locks in place when you let go of it. **Make sure the quick-release pin is working properly each time you use it.***

6. If you want to use the wheelchair/stairclimber, but not on the stairs, then press **DOWN** on the UP/DOWN switch so that the lifting frame retracts (*the single-step control stops it in the right place automatically*).
7. If you want to use the wheelchair/stairclimber on the stairs then press **UP** on the UP/DOWN switch so that the whole unit lifts upwards until the wheelchair wheels are clear of the floor. After releasing the parking brake on the wheelchair you must remove the wheels (otherwise there is a risk of causing an accident (Press **DOWN** on the UP/DOWN switch to lower the wheelchair plus stairclimber onto the Liftkar PT wheels. The unit is now ready for climbing stairs. (*The next section (chapter 6) describes the stair climbing procedure in detail.*)

Note 4: *If the wheelchair wheels have been removed then it is also possible to move the wheelchair around on the Liftkar PT wheels. Note though that the handling is quite different from the large wheelchair wheels. Since the automatic step edge brake wheels are not able to clear obstacles higher than 15 mm/ 0.59 inches in the forwards direction Sano recommends using the unit in reverse as much as possible.*



5.2.8 Detaching the Liftkar PT-A from the wheelchair

1. First press **UP** on the UP/DOWN switch to raise the whole unit until there is enough space to fit the large wheelchair wheels (*remember to engage low speed*).
2. Insert the wheel axles into their sockets and apply the parking brake so that the wheelchair cannot roll away while the stairclimber is being detached.
3. Now you can remove the quick-release pins from the upper mountings (*hold the mushroom head between forefinger and middle finger and press the spring pin down with your thumb*).
4. Press **DOWN** on the UP/DOWN switch so that the lifting frame retracts (*the single-step control stops it in the right place automatically*). The stairclimber moves downwards away from the upper mountings to rest on its main wheels and can now be removed.

6 Operation on stairs

6.1 General instructions for operating on stairs

- Do not operate the stairclimber with a passenger on stairs until you have received your training certificate from an authorized representative. First practice using the Liftkar PT without a passenger, then use a load approximately 40-100 pounds. The care of the passenger is of the utmost concern. Practice should continue until you have mastered smooth and continuous movement. PROFESSIONALS should then consider using the continuous mode, on straight stairs, after they have mastered transporting a passenger in single step mode.
- On PT-A model wheelchair wheels must be removed prior to use on the stairs.
- With all models lean the crossbar on your angled leg, hip or stomach (**see also 6.2**). Your body cushions the force that is applied when there is a change of load. You only need to use your arms and hands to stabilize and ensure that the stairclimber does not tilt forwards. Hardly any force is required if the operator is able to apply this method of operation. Please note though that it is essential that you always have one hand on the handle, even while the weight is leaning against you.
- The crossbar is better than the handle for adjusting the angle of the Liftkar PT. Proper hand positioning would be one hand on the crossbar and the other hand on the left or right handle (*with UP/DOWN switch*).
- If the passenger has a problem with their back it is recommended that the slowest climbing speed is used. The Liftkar PT lands more gently at this speed. In some cases an additional cushion may be required.
- In an emergency situation the stairclimber can be tilted backwards on the step. The safety brakes prevent the stairclimber from rolling down the stairs.
- Please check that the automatic step edge brakes function properly every time before using the Liftkar PT (*see section 9.4*).
- **The attendant should always stand directly above the stair-climber.**

6.2 Climbing UP stairs

1. Set the adjustable handle to the correct height (see 5.1.1 and 4.3)
2. Switch on the Liftkar PT with the main switch (if it is not already switched on).
3. Set speed selector switch to the lowest speed (I).
4. Tilt the Liftkar PT towards you until it is balanced. In the balanced position you only need a slight pressure to rock the stairclimber forwards or backwards.

Note 1: hold the crossbar with one hand, and the left or right handle next to the UP/DOWN switch with the hand that operates the switch. Normally right-handed operators operate the UP/DOWN switch with their right hand and have their left hand on the crossbar. For left-handed operators it is usually the other way round. (photo 1)

5. Move backwards to the stairs and stand on the second or third step, or stand with one foot on the second step and the other on the third step. Stand at a slight angle so that you can support the crossbar against the side of your body (**photo 2**). The main wheels of the climber unit must be touching the bottom step!

6. Now press on the UP/DOWN switch (on the arrow pointing towards the stairs, i.e. towards you). Make sure that you have one hand on the crossbar and the other hand free to operate the switch. (You only need to press one of the switches.)



7. The *Liftkar PT* now lifts upwards and the first thing you notice is a slight pull forwards which lasts for a few seconds. When the highest point is reached the *Liftkar PT* is balanced again. After the highest point has been passed the *Liftkar PT* moves backwards and gradually places its main wheels on the next step. Keep pressing the switch until the single-step mode control completes a full cycle, which is when the lifting frame and support wheels are fully retracted.



(Note 2): When the *Liftkar PT* moves backwards, shortly before it lands on the next step, the change in load applies a force to the rear, i.e. towards the operator. Try to cushion this pressure with the crossbar on your leg or hip. Your body cushions the weight. You only need to use your arms and hands to stabilize and ensure that the stairclimber cannot tilt forwards. Hardly any force is required if the operator is able to apply this method of operation. Please note though that it is essential that you always have one hand on the handle, even while the weight is leaning against you.

8. Now you can move the *Liftkar PT* back to the next step and repeat the same procedure.
9. When you reach the last step the handle continues to rise because, although you have reached the end of the stairs, the stairclimber is still ascending. In places where there is not much space, on small landings for example, it is not always possible to keep the unit balanced because there may not be enough space behind you. To get around this problem it is necessary to tilt the *Liftkar PT* forwards - out of balance - so there will be a slight pull forwards. In such a situation Sano recommends placing the crossbar under your arm (**photo 3**) or sticking your elbow as a block through the handle uprights (**photo 4**). Using your arm as support you can draw the *Liftkar PT* very close to your body. Then you only need a very small area to turn and continue to the next flight of steps.

6.3 Climbing DOWN stairs

For moving **DOWN** stairs, (*Note 2*) is more important here than for moving **UP** stairs. When the lifting frame contacts the next step down, the first movement will be an upward motion, of the lifting device. Followed by a slight backward force as described in Note 2. The passenger in the wheelchair feels this least if the crossbar is leaning against the operator's body. Another advantage is that your arms and hands hardly need to apply any force when using this method (*photo 1 and 2*).



For moving **DOWN** stairs the same starting procedure 1-4 applies:

1. Set the adjustable handle to the correct height (see 5.1.1 and 4.3)
2. Switch on the Liftkar PT with the main switch (if it is not already switched on).
3. Set speed selector switch to the lowest speed (I).
4. Tilt the Liftkar PT towards you until it is balanced. In the balanced position you only need a slight pressure to rock the stairclimber forwards or backwards.

Move gradually forward to the edge of the step until the step edge brake automatically stops the main wheels on the Liftkar PT (photo 3). Now press on the UP/DOWN switch (on the arrow pointing forwards). Make sure that you have one hand on the crossbar and the other hand free to operate the switch. (You only need to press one of the switches.)

5. *The lifting frame with its support wheels now extends to contact the next step down. As soon as the lifting frame touches the step with its support wheels the Liftkar PT raises slightly (depending on the height of the step), moves forward and lowers the climber gradually and in a controlled manner and stops in the neutral position in single-step mode.*
6. *Now you can move the Liftkar PT forward to the next step edge and repeat the same procedure.*



6.4 Operation on spiral staircases

Please observe the following points when operating the stairclimber on spiral staircases:

- For moving **UP** start on the **outside** of the staircase. *(The Liftkar PT moves inwards when climbing **UP**)*
- For moving **DOWN** start on the **inside** of the staircase. *(The Liftkar PT moves outwards when climbing **DOWN**)*

If you do start moving too close to the banisters/wall then shift the unit to the side by reversing (*on a landing or wider step if possible*) and start again at a tighter angle.

IMPORTANT: As always practice without a passenger.

6.5 Parking the Liftkar PT on the stairs

In an emergency the Liftkar PT can be parked on the stairs. The automatic step edge brakes prevent it from rolling away. However, for safety reasons it is important that you do not leave the passenger alone for any length of time.

The Liftkar PT can always go down to the next landing, even if the battery is dead. We recommend bringing the user down to the next landing.



6.6 Ideal transport angle

The Liftkar PT is equipped with an electronic angle detection system. As soon as the stairclimber is no longer at the ideal angle the system stops the climbing mechanism and an audio indicator activates. If the angle is too low in relation to the steps then the LED in the control unit turns red as long as one of the UP/DOWN switches is pressed. The climbing mechanism cannot be activated again until the angle has been corrected.

If the stair-climber is in an upright position, pressing one of the down arrows causes the climbing unit to extend in creep mode. This function enables the person being transported to get on and off the stairclimber more easily and prevents the device from moving.

6.7 Getting on and off the stairclimber

If the stairclimber is in an upright position, pressing one of the UP/DOWN switches causes the climbing unit to extend in creep mode. This function enables the person being transported to get on and off the stairclimber more easily.

This procedure also makes it easier to fit wheelchairs onto the unit. It is recommended to use this function whenever the unit is in a stand still mode, or when the units are disassembled for transporting and reassembling.

7 Operation on a ramp

If you use the Liftkar PT stairclimber to move up and down ramps, you can increase safety by activating the step edge brakes.

7.1 Moving DOWN a ramp

To move down a ramp you need to hold the Liftkar PT facing forwards; using the step edge brakes you can control the descent of the Liftkar PT (*with wheelchair*) by leaning the unit back until the brakes take effect.

7.2 Moving UP a ramp

To move up a ramp you need to hold the Liftkar PT facing backwards; using the step edge brakes you can control the descent of the Liftkar PT (*with wheelchair*) by leaning the unit back until the brakes take effect. The step edge brakes act like a reversing brake.

Note: *because the Liftkar PT is tilted backwards during operation it will not be possible to balance the unit. We recommend lengthening the adjustable handle beforehand so that the extra weight is easier to handle. Depending on the weight of the passenger and the length of the ramp it may be a good idea to have a second person available to assist.*

8 Charging the battery pack

The AGM cells inside the battery pack are maintenance-free, gas-tight and rechargeable. The service life depends largely on the number of charging/discharging cycles. For example, it is possible to partially discharge AGM batteries 1000 times, drawing more than 200 times the full capacity of the battery, providing the battery is never fully discharged.

- Avoid discharging the battery completely. Charge the battery pack as often as possible.
- AGM batteries are susceptible to self-discharging. It is therefore necessary to recharge the battery pack after 3 weeks, even if it has not been in use.
- The charger unit supplied switches over automatically to trickle charging so it is not possible to over-charge the battery.
- Do not leave the battery pack discharged or half discharged. Always recharge the battery immediately.
- If the batteries should become damaged it is possible to have them replaced by and authorized service center. The old AGM batteries are fully recyclable and are not to be disposed of.
- The ideal temperature for charging is between 68°-77° C. Temperatures that are too cold or too hot will affect the battery's capacity.

Note: *if the battery pack is not fully charged, or it loses its charge suddenly, not only will the speed of the Liftkar PT be slower, but its capacity is reduced as well.* This means that overload mode may be reached even with a relatively light load.

8.1 Charger unit

The battery charger supplied is extremely powerful thanks to an automatic 2-stage system and digital control technology. The first stage is quick charging and the second stage is trickle charging for maintaining the charge. An LED display gives a clear indication of charging status. The charge indicator gives you an idea whether the battery pack is fully charged or not. It is worth checking that the battery pack is fully charged before using the Liftkar PT. If "trickle charging" is displayed it can be assumed that the battery pack is at least 90% full.



The charge status is displayed as follows by a **red** LED:

- If the LED is lit continuous red the battery pack is being charged quickly in the first stage. The battery pack is between 30 and 80% full.
- If the LED is flashing slowly then the charger has switched to trickle charging and the battery pack is between 80 and 100 % full.
- If the LED flashes very rapidly then it indicates that the battery pack has been discharged too far and is almost completely empty. Normally a "healthy" battery pack can be revived by the charger unit and after a certain time it will switch over to quick charging and the LED goes on continuously. Completely discharging the battery should be avoided, since the service life of the battery pack will be greatly reduced.
- As a rule "deep" discharges only happen if the battery pack is not recharged regularly between uses and the battery has no time to recover.

8.1.1 Technical data

Mains voltage supply (50/60 Hz, +/-15 %)	100-240 V AC
Nominal rating (input)	36 W
Charging voltage	24 V DC
Theoretical charging current	1.0 A
Protection class	IP40
Safety approval	GS and UL

8.1.2 Safety guidelines

- Protect against damp
- Only charge in a well ventilated room
- Do not pull the plug out of the socket by its cord

8.1.3 Use only for the purpose intended

- The charger unit is designed exclusively for charging **AGM cell batteries containing liquid, gel-type and fabric-type electrolyte** (such as the battery pack supplied with the Liftkar PT).
- It is not permissible to charge NiCd or NiMH batteries or primary cells.

8.2 Mobile charger (optional)

This extremely powerful charger features an automatic 3-stage system using digital control technology. The first stage is quick charging and the second stage is for maintaining the charge. With a 3-stage system it is even easier to see how full the battery pack is.

Three different colours of LED on the casing of the charger unit provide a clear indication of the charging status (*the height of the bars show how full the battery pack is*).



8.2.1 Technical data

Inlet voltage	12 – 30 V DC
Power draw (no load)	approx. 2 W
Power draw (trickle charging)	approx. 5 W
Nominal rating	approx. 50 W
Charging voltage	24 V DC
Arithmetic charging current at 230 V / 50 Hz	approx. 1.3 A
Protection class	IP 30
Safety switch off after	3.3 h

8.2.2 Safety guidelines

- Protect against damp
- Only charge in a well ventilated room
- Do not pull the plug out of the socket by its cord

8.2.3 Use only for the purpose intended

- The charger unit is designed exclusively for charging **AGM cell batteries containing liquid, gel-type and fabric-type electrolyte** (such as the battery pack supplied with the Liftkar PT).
- It is not permissible to charge NiCd or NiMH batteries or primary cells.

8.3 Connecting charger unit to battery pack

The battery pack can be charged separately or while it is mounted on the stairclimber. (see photos below) The Liftkar PT is **not ready** for operation if the battery pack is being recharged on the stairclimber.

If you recharge the battery pack on the stairclimber, make sure you disconnect it from the charger before operating the Liftkar PT.



8.4 CE mark for charger units

The charger units fulfil the criteria laid down in the low-voltage and electromagnetic compatibility directive and are therefore designated with the CE sign.



9 Maintenance, care and transport

9.1 Maintenance

Liftkar PT stairclimbers are durable, low-maintenance products.

However, Sano recommends you have a check carried out at least once every two years on all moving components, electrical and mechanical connections, the quick-change battery pack and the charger unit. Please contact your Liftkar PT service specialist for details.

9.2 Cleaning

Our motto is "A clean machine moves more smoothly". Cleaning with a standard household detergent is quite sufficient. Please do not use a high-pressure cleaner or similar.

It is important that the wheels the rims and tires – are kept clean **and free of grease** in order to guarantee full braking power.

Step edge brakes: verify after every usage that brakes are free of dirt and the lifting mechanism is clear of any foreign materials.

The tires on the main wheels are made of high-quality polyurethane and can be best cleaned of grease with brake cleaner or spirit.

In case of daily use of machine, we recommend to clean the machine at least every week! The minimum requirement is to clean the machine every month. The wheels should be cleaned after every outside use.

9.3 Battery pack

The battery pack must always be fully-charged. Completely discharging the battery will shorten its service life. AGM cells (not nickel-cadmium) have a long service life if they are regularly fully charged as soon after use as possible. This is why the battery pack should be connected to the charger unit after each use. (Read more on this subject in section 8, *Charging the battery pack*.)

9.4 Brakes and inside rims of main wheels

The braking effect of the main wheels is important and Sano therefore recommends that the brake components and rims are checked regularly for cracks or damage and cleaned when necessary. Please check the brakes after each cleaning. The easiest and most reliable method of checking the brakes is to tilt the Liftkar PT backwards at an extreme angle (the LED is then red). In this position it must not be possible to move the Liftkar PT forwards. Please test each brake separately by trying to free a brake on one side by turning the stairclimber sharply to the left or right. Please contact an authorized service center if the brakes do not work well in this position.

9.5 Spares and repairs

If a repair is necessary then please contact your dealer or service center. All centers have a list of replacement parts and identification numbers.

9.6 Transport

The Liftkar PT can be dismantled into three parts (battery pack, climber unit, handle unit), or transported as a complete unit. Please make sure it is secured properly during transport.

9.7 Disposal

Liftkar PT stairclimbers are durable products. At the end of their useful life the stairclimber components and charger should be disposed of properly. Make sure the materials are separated carefully for disposal in line with the material codes relating to each component.

The stairclimber does not contain any hazardous materials and is fully recycling-compatible. The printed circuit boards and battery pack must be handed over to specialist recyclers.

Contact your dealer or service center for more information.

9.8 Second Hand Usage

All second-hand units **MUST** be inspected for a safety check and attendant certified by an authorized specialist.

All operators must have proof of having been trained in how to operate the stairclimber.

IMPORTANT:

In addition to the intervals, described above, all safety checks must be carried out in full each time there is a change of operator and each time the stair-climber is put into operation after a period of down time, even if the stair-climber appears to be undamaged and operating normally at first sight.

10 Troubleshooting

Problem: LED is red and stairclimber does not switch on

Cause: The stairclimber is at too flat an angle and the level switch is preventing it from switching on

Problem: The main switch does not work even though the handle unit is fitted.

Cause: The lever screw has not been tightened enough, or the handle unit is mounted back-to-front.

Problem: The climber unit does not run smoothly on the main wheels; it keeps on braking!

Cause: The lifting frame with the support wheels is not in its neutral position between the main wheels. Move forwards or backwards using single-step mode (see section 4.1.3) until the lifting frame stops in the neutral position.

11 Warranty and product liability

11.1 Warranty

The warranty period for the climbing unit and handle unit on all Liftkar PT stairclimbers is 24 months. Battery packs have a warranty period of 6 months. In both cases the warranty period starts on the day the product is received.

The following are excluded from the warranty:

- normal wear
- damage that occurs from using the unit for a purpose it was not intended
- unauthorized modifications to the unit or accessories
- maintenance work required due to continuous operation
- faults occurring due to incorrect operation and/or failure to comply with the instruction manual, accidents, negligent or violent damage, damage due to fire and water, force majeure and other causes outside Sano's control.

11.2 Product liability

SANO Transportgeraete GmbH is not liable as manufacturer for any damage to the LIFTKAR PT if:

- the Liftkar PT is used for a purpose for which it is not intended.
- the Liftkar PT is not maintained regularly (once every two years) by an authorized workshop, or by Sano.
- the instructions in this manual are not complied with.
- non-Sano components are fitted or linked to the Liftkar PT.
- original components are removed.

Please contact us for a list of authorized Sano service centers.

11.3 Declaration of conformity



SANO Transportgeraete GmbH takes sole responsibility in declaring that LIFTKAR stairclimbers comply with:

- the essential requirements of the EU directive for medical products 93/42/EWG, Appendix I
- the guidelines 2014/35/EG relating to electromagnetic compatibility
- the applicable basic safety and health requirements of the EU guidelines for machines 2006/42/EG, appendix IIA

Any changes made to the product without our prior consent render this declaration void.

Relevant standards:

ISO 7176-23	Requirements and test methods for attendant-operated stair-climbing devices
DIN EN 12182	Technical aids for disabled persons - General requirements and test methods
DIN EN ISO 14971	Risk analysis
DIN EN 1041	Information supplied by the manufacturer of medical + Attachment 1 devices
ISO 7176-28	Wheelchairs -- Part 28: Requirements and test methods for stair-climbing devices
ÖNORM EN 12100	Plastics piping systems - Polyethylene (PE) valves - Test method for resistance to bending between supports
DIN EN ISO 13485	Medical devices - Quality management systems - Requirements for regulatory purposes
DIN EN ISO 60601-1-11	Medical electrical equipment - Part 1-11: General requirements for basic safety and essential performance Collateral standard: Requirements for medical electrical equipment and medical electrical systems used in the home healthcare environment.
DIN EN 62366	Medical devices - Application of usability engineering to medical devices
DIN EN 980	Medical devices - Symbols to be used with medical device labels

Jochum Bierra (Ing.), Managing Director

11.4 Registered patents

The climbing system is protected by international patents registered in Europe, USA and Japan. The handle unit is also protected by two patents. A patent is also registered for the wheelchair loading system featured on the Universal model.

11.5 Please note

The manual was created carefully. We do not safeguard the validity of the images, graphics, engineering datas and electrical datas. We are not liable for typographical errors. Every copy of the manual must be approved by us. Technical changes and errors excepted.



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