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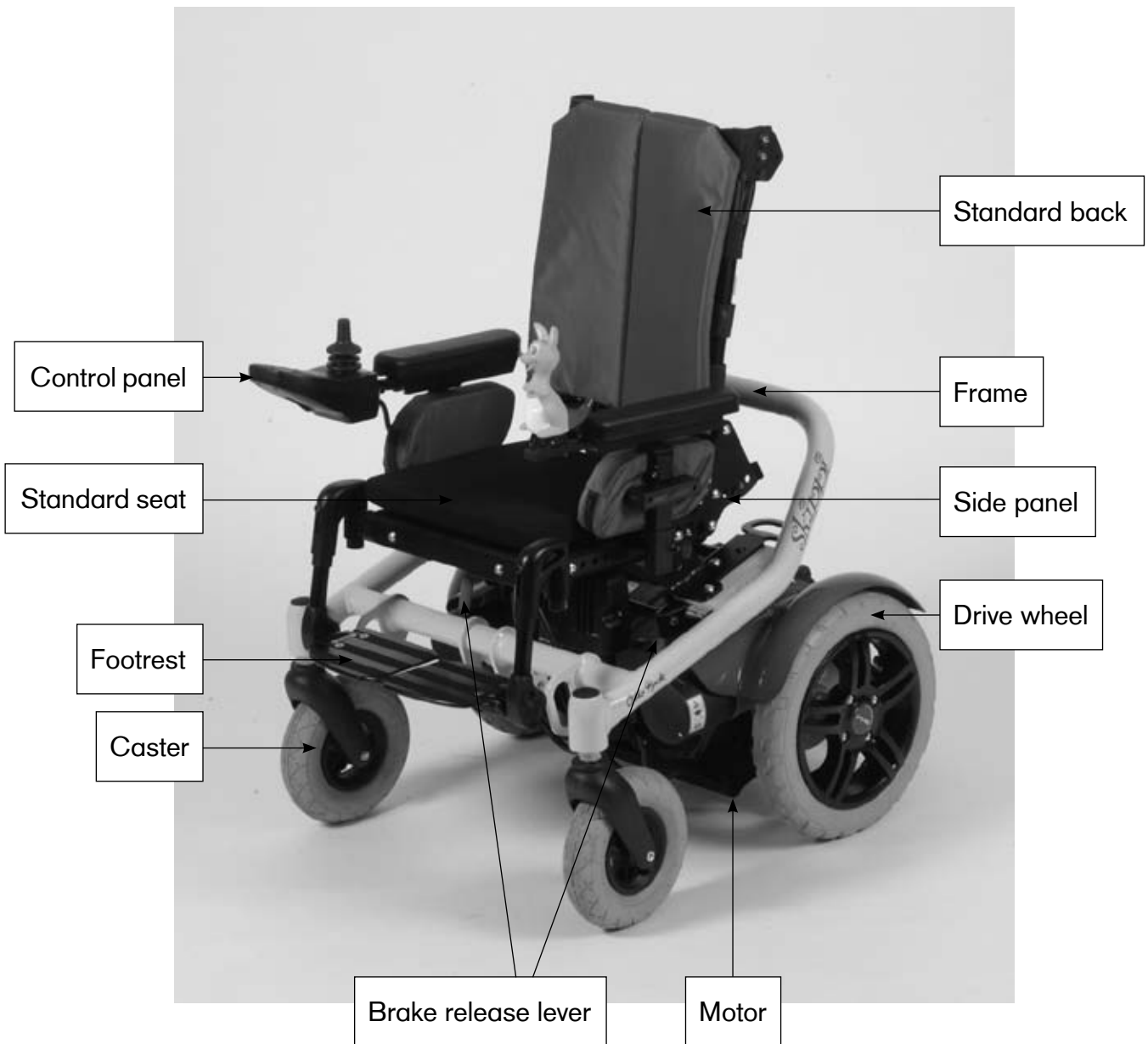
Skippi Service Manual



Service Manual for the Skippi

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1 General View



1.1 Symbol Legend



Caution!
Warning of damages to persons.



Caution!
Warning of product damages.



Note!
Useful tips for the technician.



Read!
Please read the Instructions for Use first!

2 General Safety Instructions

Observe the following guidelines for maintenance or repair work:



Danger!
Use caution near flammables or fire, especially when holding lit cigarettes. The back upholstery and seat cushion may catch fire.



Danger!
When getting into or out of the power wheelchair for children, the wheelchair control must be switched off.



Danger!
Explosive gases can develop while the batteries are charging. For this reason, provide for sufficient ventilation when using the battery charger in closed rooms. Do not smoke near the battery charger or while handling the batteries. Avoid fire and sparks!



Danger!
When using lifting platforms, be sure that the Skippi power wheelchair for children stands centrally on the lifting platform area and that none of the wheelchair's components, such as the anti-tippers, protrude into the danger area.



Caution!
Use appropriate tools.



Caution!
Always use insulated tools when working on the batteries.



Caution!
Wear appropriate clothing, including gloves and safety glasses, if necessary.



Caution!
Secure the product to prevent it from tipping over or falling off the workbench.



Caution!
Read the service and maintenance instructions before starting.



Caution!
Familiarize yourself with the functions of the product. If you are not familiar with the product, read the instructions for use manual before inspecting the product.



Caution!
If you do not have an instructions for use manual, you can order one from the manufacturer (see the overview of all Otto Bock Branches "Otto Bock Worldwide").



Caution!
Alternatively, you can download documents from our home page at www.ottobock.de or www.ottobock.com.



Caution!
Clean or disinfect the product before starting inspection. See the instructions for use manual for care instructions or specific product inspection information.



Caution!
Many of the screw fastenings use thread lock or nylock nuts. If you have to undo such screw fastenings, replace the nut or screw with a new thread lock and/or nut. If new screws or nuts with thread lock are not available, use a medium-strength liquid thread lock substance (such as Euro Lock A24.20).



Caution!
Do not use the footplates when getting into or out of the Skippi power wheelchair for children.



Caution!
Never use a water hose or high-pressure cleaning apparatus for cleaning the wheelchair.



Caution!
To avoid overheating the battery charger, make sure that the cooling ribs on the back side of the charger are not covered.



Caution!
To prevent uncontrolled driving through accidental joystick manipulation, switch off the wheelchair when nobody is using it or the driving function is not required.



Caution!

After cleaning of the Skippi power wheelchair for children, check its operating performance.



Caution!

Driving over a longer period with only two bars of the battery indicator lit will discharge the batteries completely. To avoid function failure and permanent damage, charge the battery of the Skippi power wheelchair for children immediately.



Note!

To allow the complete charging current to be fed into the battery, the control is to be switched off during the charging process.



Note!

When the Skippi is not used over an extended period of time or for dispatching the Skippi, the fuses should be removed from the battery packs to avoid standby current.

3 Preface

Regular maintenance is important. It increases safety and prolongs the service life of the product. All rehab products should be inspected and serviced once a year. If the product is used frequently, or if it is used by growing children or patients with changing clinical conditions, we recommend readjusting and servicing the product every 6 months. Use only original spare parts for all service and maintenance. The service and maintenance described in this manual should be performed by skilled specialists only and not by the user. This service and maintenance manual refers to the spare parts catalog.

4 Required Tools

The following list ensures that you use the right implement for every procedure. You will find the maintenance plan at the end of the service manual.



Reversible ratchet handle wrench and sockets, sizes 8 mm - 21 mm



Allen wrenches, sizes 3 mm - 8 mm



Wrenches, sizes 8 mm - 24 mm



Water pump pliers DIN 8976, gripping width up to 32 mm



Screwdrivers, blade widths 2.5/3.5/5.5 mm



Phillips head screwdriver, size 2 mm



Plastic hammer



Hammer, approx. 300 g












Side cutting pliers















Liquid thread lock "medium strength"

5 Status and Error Indication

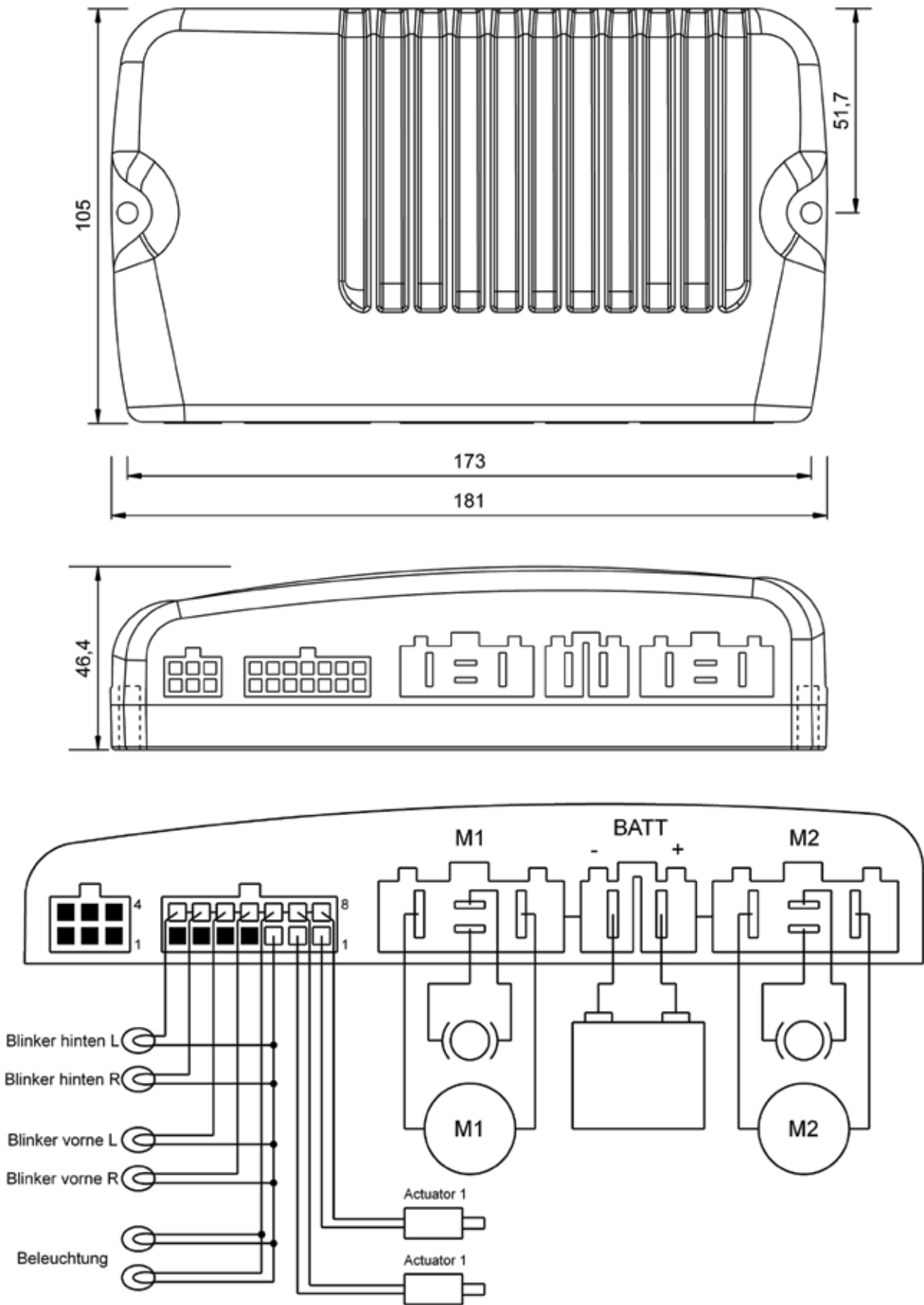
The following tables explain the different status and error messages on the display.

Display symbol(s)	Information
	Driving menu with speed level and battery capacity
	Low battery capacity
	Charging process with drive stop
	Electric back adjustment
	Electric seat tilt
	Coupled electric backrest and seat tilt adjustment
	Drive-away lock
	Creep speed
	Control for attendant

Display symbol(s)	Error/warning	Cause
	Control unit temperature warning	Overheating due to excessive load >> cooling down phase
	Motor temperature warning	Overheating due to excessive load >> cooling down phase
	Joystick warning	Joystick not in zero position when switching on
	Hand control device fault	Defective joystick
	Communication error (flash alternately)	Faulty connection between hand control device and control unit/ defective cabling, software or hardware
	Battery: undervoltage	Battery totally discharged/ charge as soon as possible
	Battery: overvoltage	Voltage too high (after completed charging process and downhill drive)
	Seat tilt motor fault	Faulty cabling / plug contact Defective actuator
	Back adjustment motor fault	Faulty cabling / plug contact Defective actuator
	Drive motor fault	Faulty cabling / plug contact Defective motor

Display symbol(s)	Error/warning	Cause
	Brake fault	Brake release open / defective brake
	Emergency stop	Severe fault caused by malfunction in the control unit, hand control device and/or drive motor

Overview – Control Unit



6 Setting and Replacing

6.1 Control Unit

The Enable40 control offers the Skippi the possibility to display causes of error messages. Error sources in the drive section and in the electric options are indicated by flashing of the corresponding LEDs in the display's pictograph.

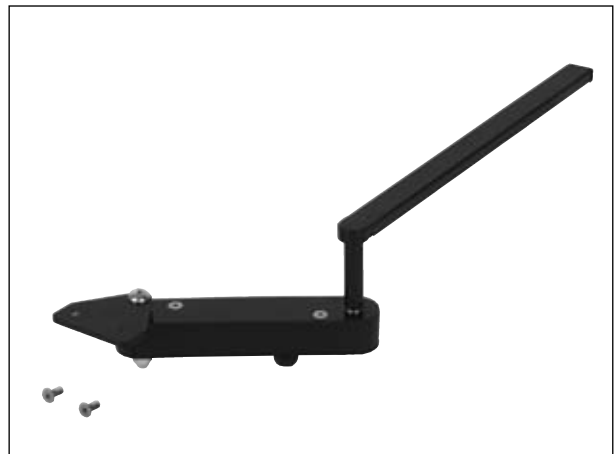
The hand programming device can be used to change the parameters.

Control Panel Holders

There is only one control panel variant available for the Skippi power wheelchair for children. Four screws fasten this control panel to a holding element with spring sheet metal. For loosening these screws you need a Phillips head screwdriver. Now the control panel can be easily inserted in and removed from the control panel holder.



Standard control panel holder



Control panel holder, swing-away in parallel

The control panel holders for the Skippi are attached to the armrest, beneath the armrest pad. To mount or replace a control panel holder, first remove the control panel and deposit it on the floor. Next, take the side panel out of its holding device. After loosening the three set screws, you can either change the position of the control panel holder or completely remove it.

The two control panel holders are attached in the same way to the side panel of the Skippi. They are clamped to the underside of the armrest pad with an iron rail.

Control for Attendant

The control for attendant for the Skippi can only be mounted in combination with the height adjustable push handles.

The control is attached to the upper end of the push handle: Cut a hole in the end of the rubber hand grip and insert the holder for the control for attendant into this hole.

Then tighten the holder's screw using a 5 mm Allen wrench.

Lead the cable of the control along the push handle downwards to the control box. Use cable ties to fix the cable at certain intervals.



Control for attendant at the push handle

6.2 Battery Pack / Fuse



Caution!

Smoking and open flame are prohibited while working on the battery. Sparks must be avoided.

Explosive gases can develop while the batteries are charging. Observe the safety instructions provided by the battery manufacturer. Wear protective goggles. Ensure sufficient ventilation when charging the batteries in an enclosed room.

Drive batteries can supply very large amounts of energy and may arc if they are short-circuited. Therefore, always disconnect the batteries when working on the motor control or wiring.



Attention!

In order to prevent short circuits, always use insulated tools when working on the batteries.

Prevent deep discharge of the batteries in order to avoid loss of functionality and permanent battery damage.

Ensure correct polarity is used when connecting the batteries and battery capacity meter.

Battery

The Skippi standard equipment includes two 12 V, 31 Ah C20 gel batteries. Except for battery charging, these batteries do not require servicing.

Make sure to have the contacts correctly snap in place when hanging in the battery packs. The contacts are on the underside of the battery packs.

The battery packs of the Skippi can be removed easily. Undo the lock, hold the battery packs by the handle and pull up to remove them.



Battery Charging

The remaining battery capacity determines the distance range of the Skippi power wheelchair for children. Many factors have an influence on the batteries' capacity. Besides the ambient temperature, the age of the battery and the time and extent of driving, the way you charge the battery has considerable effects on the capacity and thus on the distance range.

Driving over a longer period of time with only the lower bars of the battery indicator lit will discharge the battery completely and damage the battery. In addition, there is the risk that the Skippi may stop due to zero battery capacity and bring the user into a dangerous situation.

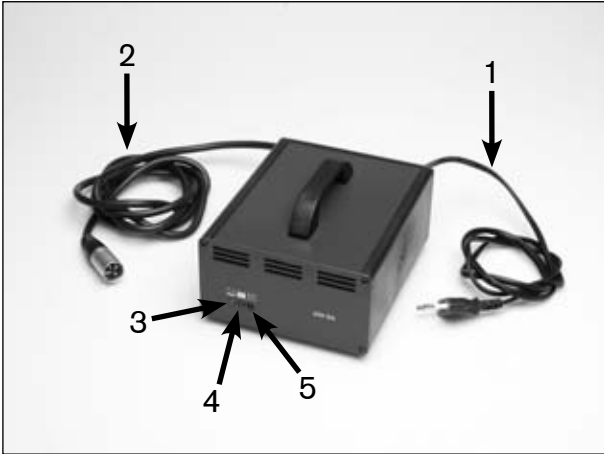
If the Skippi is not used for a longer period of time, a charging cycle should be carried out once a week to maintain the batteries' capacity.



Note!

We will assume no liability for damages that result from a totally discharged battery. When the Skippi is not used over extended periods of time it must be charged once a week. Only the battery charger provided by Otto Bock may be used for charging.

The indications on the type plate of the battery charger must be identical to the voltage of the mains supply of your country.



Battery charger

- 1 Mains cable
- 2 Battery cable
- 3 Yellow LED
- 4 Green LED
- 5 Red LED (error indicator)

Charging process

1. Turn off the control unit on the power wheelchair.
2. Connect the plug of the battery charger to the charging receptacle on the underside of the control panel.
3. Connect the battery charger to a wall outlet. The batteries will start charging automatically, and the current battery capacity is indicated on the LEDs on the battery charger (see Table below).
4. When the charging process is complete, disconnect the battery charger from the wall outlet and from the control panel.
5. Turn on the control unit; the power wheelchair is now ready for operation.

The battery charger indicates the following states:

Indication	Function
All LEDs light up for a moment	Once the connection to the mains supply has been established
Yellow LED is illuminated	Battery is charging
Yellow LED flashes	Battery is charged to 90 %
Green LED is illuminated	Battery is fully charged; battery charger has changed to trickle charge
Red LED is illuminated	Incorrect polarity (immediately unplug the battery charger from the wall outlet and reconnect the cables with correct polarity)
Red LED flashes	Error in the course of the characteristic curve; charging time has been exceeded

The battery charger features a programmed recharging phase. Once the battery is completely charged, the battery charger can remain connected with no risk of overcharging or damaging the battery. Before the Skippi can be used, the wheelchair control must be switched off and on.



Danger!

Explosive gases can develop while the batteries are charging. For this reason, provide for sufficient ventilation when using the battery charger in closed rooms. Do not smoke near the battery charger or while handling the batteries. Avoid fire and sparks!



Caution!

To avoid overheating the battery charger, make sure that the cooling ribs on the back side of the charger are not covered.

The battery charger should only be used within the indicated ranges of temperature and humidity. Make sure that the rubber feet of the battery charger stand on level ground.

When the battery charger is in use, it must be protected from direct sunlight, since this would additionally heat up the charger. Avoid dust and dirt from affecting the function of the battery charger. To clean the charger, use a dry piece of cloth.

To charge the battery, plug the 3-pole plug into the charging receptacle of the Skippi. The charging receptacle is located on the underside of the control panel.

Replacing / Installing the Fuse

Each of the two battery packs contains a fuse, which is located on the underside, between the contacts. Simply pull out the fuse to remove it.



Battery pack with fuse

6.3 Side Panel

To replace the whole side panel, loosen the thumb screw located on the bottom side of the panel attachment device.



Loosening the thumb screw

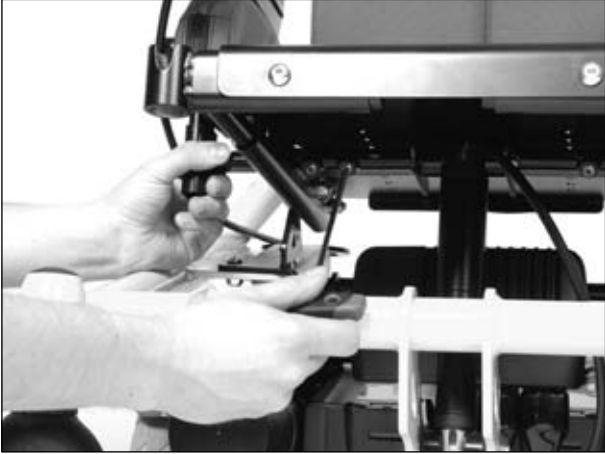
Above this thumb screw, there is a set screw for setting the armrest height. To loosen this set screw use a 3 mm Allen wrench. Set the desired armrest height and retighten the set screw.



Setting the height of the side panel

Changing the Position of the Side Panels

Side panel attachment devices are located on the left and right sides of the seat frame. By loosening the two set screws which are located on the underside you can change the position of the side panel. Afterwards, retighten the set screws using a 3 mm Allen wrench.



Changing the position of the side panel

Setting and Replacing the Armrest Pad

The arm pad of the side panel is attached with two set screws. After loosening these two set screws, you can either change the position of the pad or completely remove it. The third set screw is used for additionally clamping the armrest pad.



Underside of armrest pad



Setting the position

Lateral Pad

The lateral pad is attached to the side panel with a hook and loop closure. For mounting, first attach a hook and loop strip to the middle section of the side panel. Then press the hook and loop strip of the lateral pad onto the side panel's hook and loop strip.

6.4 Seat

Both, the seat depth and seat width of the Skippi seat can be individually adapted to the child.

Adjusting the Seat Width

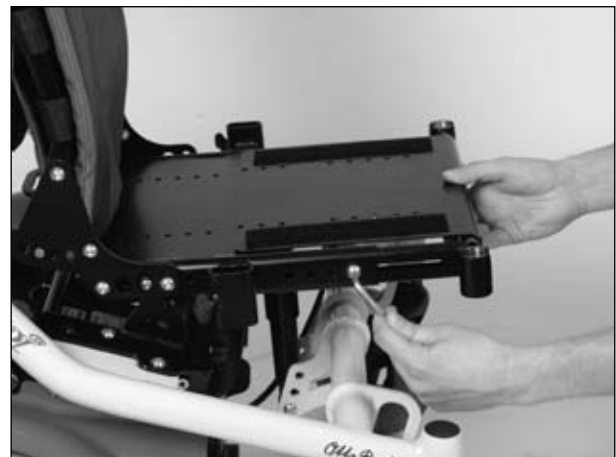
The side panels are used to set the seat width (see section 6.3 Side Panel). There are two countersunk head screws on each side panel attachment device, below the seat surface. Loosen these two screws using a 3 mm Allen wrench. Set the appropriate seat width. The adjustment is continuous. After adjustment, snugly retighten the countersunk head screws.

Setting the Seat Depth

The seat depth of the Skippi is continuously adjustable from 30 to 37 cm. To adjust the seat depth, loosen the two individual screws on the left and right of the seat frame's front end. For loosening these screws you need a 5 mm Allen wrench. Once you have loosened these two screws, you can pull out the front part of the seat frame to the front and fix it in the desired seat depth position. The adjustment is continuous. Only the first bore hole is used for fixing the frame part. Make sure that the square nut inside the tube remains in position.



Loosening the screw



Setting the seat depth

Adjusting the Seat Angle (standard version)

The standard version of the Skippi offers three different seat angle settings of 0°, 3° and 6°. The seat angle adjustment mechanism is located at the front of the frame, below the seat. Fold away the securing bow and pull the bolt out of the adjustment mechanism. Bring the seat in the desired position, push the bolt through the bore hole and secure this setting by folding back the securing bow.



Folding the securing bow

Replacing the Seat

The entire seat of the Skippi can easily be disassembled for removal or replacement. Make sure to first disconnect the control cable to avoid damaging the cables and plug connections.

At the rear, the seat is secured with one screw connection on each side, left and right. Use two 5 mm Allen wrenches to loosen these screw connections.



Loosening the rear screw connection of the seat

At the front, the seat is attached with the seat angle adjustment mechanism. Here, loosen the seat at the bottom of the angle adjustment mechanism, which is attached to the frame. Loosen the screw using a 13 mm open-end wrench and a 5 mm Allen wrench.

Once you have loosened all connections, you can remove the seat.

Lap Belt

The lap belt of the Skippi is/must be attached to the bearing plate. For attachment, an attachment plate with eyelet is used. The mounting kit of the lap belt also includes spacer bushings. Place these bushings between the eyelet and bearing plate. For tightening the screw use a 5 mm Allen wrench and a 13 mm open-end wrench.



Attaching the lap belt

6.5 Back

The back of the Skippi is attached to the seat frame with two bearing plates on the left and right. Each of the two bearing plates is attached to the seat frame with two screws and to the back with one screw. For loosening these three screws use a 5 mm Allen wrench and a 13 mm open-end wrench. Loosen the two screws on the seat frame on the left and right to remove the back. The fourth screw on the bearing plate serves as stop for the back angle adjustment.



Loosening the bearing plate

Back Upholstery

For replacing the back upholstery of the Skippi, simply pull it off the hook and loop straps and reattach the new upholstery to the straps.

For readjusting the back upholstery, remove the upholstery and readjust the hook and loop straps on the frame.



Adjusting the back upholstery

6.6 Footrests

The footrests are easy to remove. First press the securing pin on the rear side of the footrest. Now pull the footrest up out of the holding device.

For mounting, put the footrest from above in the holding device, press the pin and turn the footrest until it engages.



Footrest with securing pin

By loosening the screws on the telescoping footrest tube at the front and rear, the footplate can be adapted to the lower leg length and to the thickness of the child's seat cushion. To set the lower leg length you need a 3 mm Allen wrench.



Front screw for lower leg length setting



Rear screw for lower leg length setting

Ensure that the telescoping tubes of both footrests are set equally. Use a folding ruler, if necessary.

The angle of the footplate can be changed by loosening the attachment screw on the rear side of the footrest bar. Again, you need a 3 mm Allen wrench.



Setting the angle

Make sure to firmly retighten the screw connections after all adjustments.

6.7 Telescoping the Footrest Receivers

The footrest receivers of the Skippi can be telescoped in transverse direction independently from each other. Each side can be telescoped outwards continuously by 6 cm. For setting the footrest receivers you first have to loosen one of the two screws at the front of the seat frame using a 5 mm Allen wrench.



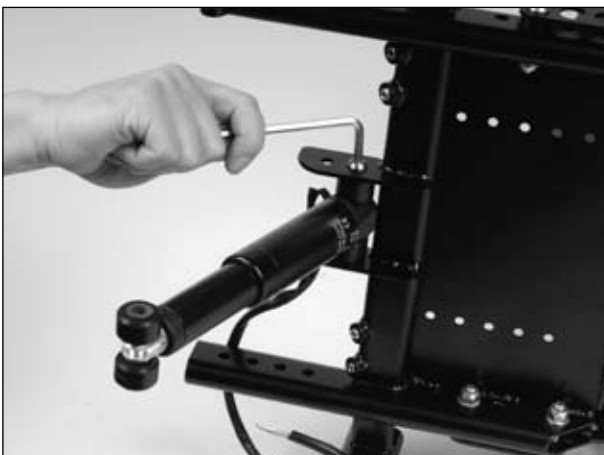
Telescoping the footrest receiver

6.8 Electric Seat Tilt

The electric seat tilt can be added to the Skippi at any time.

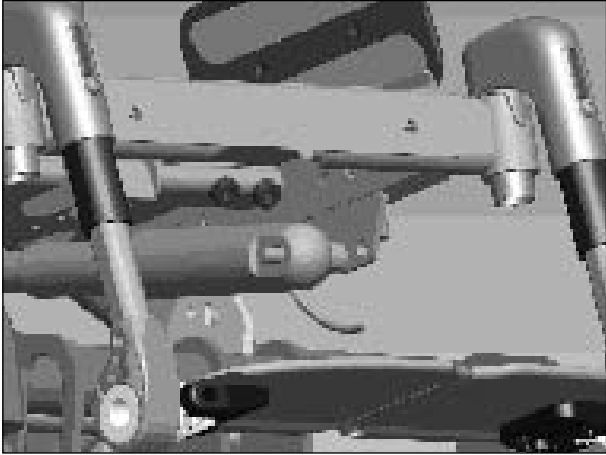
First remove the manual seat tilt mechanism. Fold away the securing bow and pull the bolt out of the respective bore hole (see section 6.4). Then unscrew the seat angle adjustment mechanism from the upper attachment, below the seat plate, using two 5 mm Allen wrenches.

Apply the actuator of the electric seat tilt so that the upper end with the cables fits the attachment below the seat plate and tighten the screw connection.

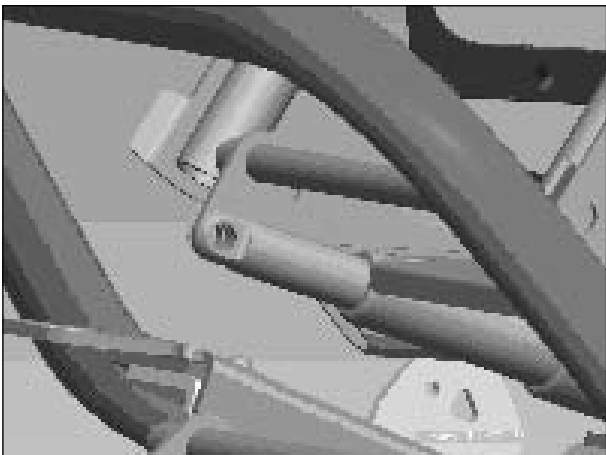


6.9 *Electric Back Angle Adjustment*

For the electric back angle adjustment, a bracket is attached to the seat frame on the left side. This bracket is part of the seat frame.



The actuator is pushed onto a bearing bolt with a diameter of 8 mm on the left, front side of the wheelchair, below the seat plate. For the standard setting, the bearing bolt is screwed into the rear bore hole. Beforehand, two collar bushings are inserted into the bore hole to which the actuator will be attached. These bushings reduce the diameter from 10 mm to 8 mm and at the same time improve the bearing qualities. A self-locking nut M8 serves to secure this connection. However, this nut may only be tightened to the extent that the actuator is still able to rotate on the bolt.



The bracket of the back is inserted into the slot of the actuator attachment and secured with a bolt.

In case of smallest seat depth setting, in which the back is attached more to the front by 20 mm, the bearing bolt for the actuator must be mounted in the front bore hole of the actuator bracket.

6.10 Seat Height Adjustment Retrofit (optional)



Danger!

Risk of accidents and injury due to improper use of the seat height adjustment function.

The seat height adjustment function may only be used on a level surface.

When using the seat height adjustment function, no unauthorised persons may be present in the danger zone.

There must not be any interfering objects or obstacles in the adjustment area.

All attendants must be informed that there are pinch points caused by the construction in the area between the seat frame and wheelchair frame.

Users and attendants must not reach into the danger area.



Danger!

Risk of pinching or crushing in the electric seat adjustment area. When activating the seat height adjustment (optional), back angle adjustment (optional) and seat tilt (optional), there are pinch and shear points in the area between the seat frame and wheelchair frame due to the construction. Inform all attendants about this. In order to prevent injuries, ensure that body parts such as the hands and feet are always kept out of the danger zone, that no interfering objects such as clothing or obstacles are in the danger zone and that no unauthorised persons are present there.

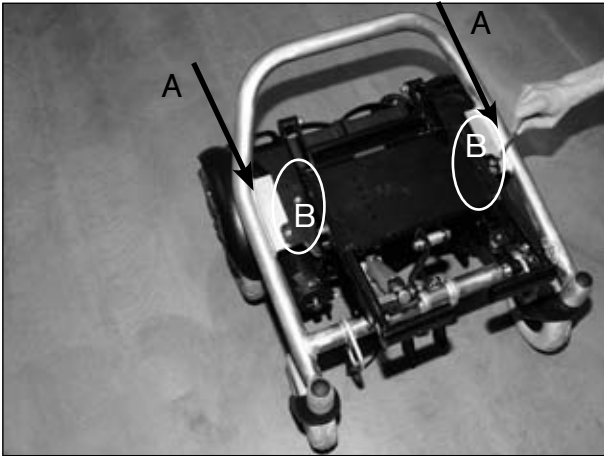
It is possible at any time to add a seat height adjustment (lift seat) or a combination of seat height adjustment/ seat tilt or seat height adjustment/ back angle adjustment to the Skippi power wheelchair. The seat height adjustment is supplied as assembly unit.

Prior to installing, the following preparatory works are required:

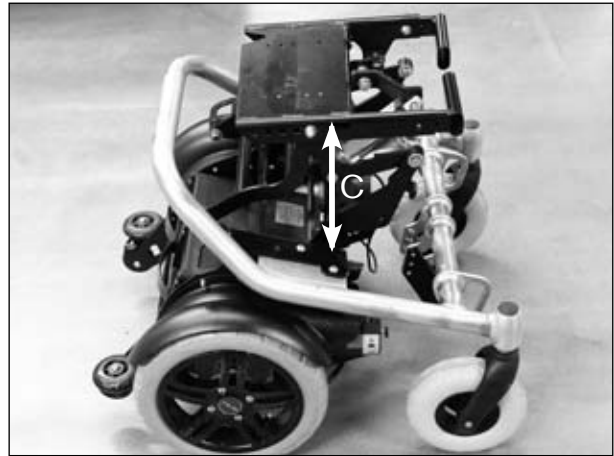
- Turn the control unit off.
- Remove the battery packs (see Section 6.2).
- Remove the foot rests/ side panels (see Section 6.3/6.6).
- Unplug the controller cabling, unscrew the controller.
- Remove the old seat (including the seat plate and seat frame; see Section 6.4).
- Remove the bearing plates with back part (see Section 6.5)

For installation proceed as follows:

1. Push the assembly unit from the rear onto the base frame (see item A).
2. Screw the assembly unit to the base frame (see item B). For tightening you need a 5 mm hexagon wrench and a 13 mm open-end wrench.
3. Move / pull the lift seat up to make room for the installation (see item C).

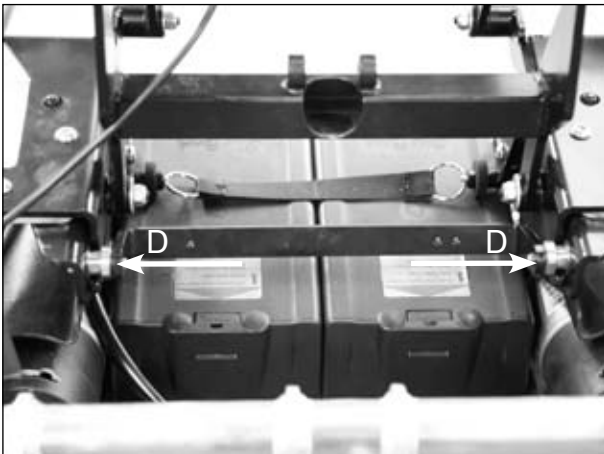


Attaching the assembly unit to the base frame

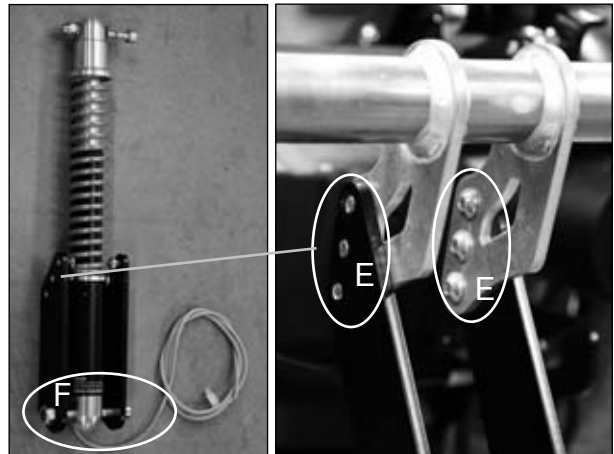


Installed / lifted seat height adjustment

4. Remove the retaining bar for the controller and install the alternative retaining bar (see item D). Here you need a 6 mm hexagon wrench.
5. Before you are able to install the adjustment motor, you have to fix the holding device to the base frame with six hexagon socket oval head screws (see item E). Here you need a 5 mm hexagon wrench.

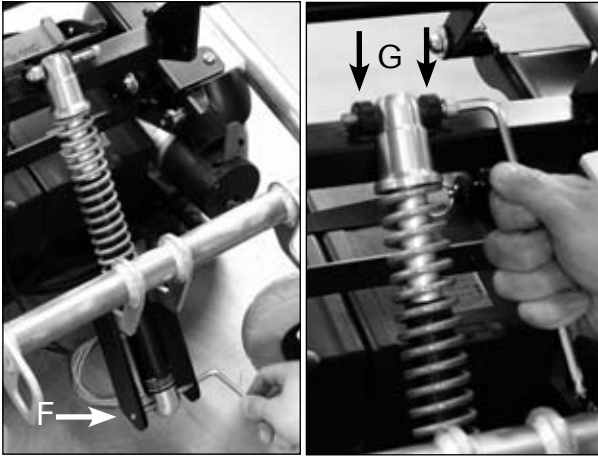


Installed retaining bar for the controller

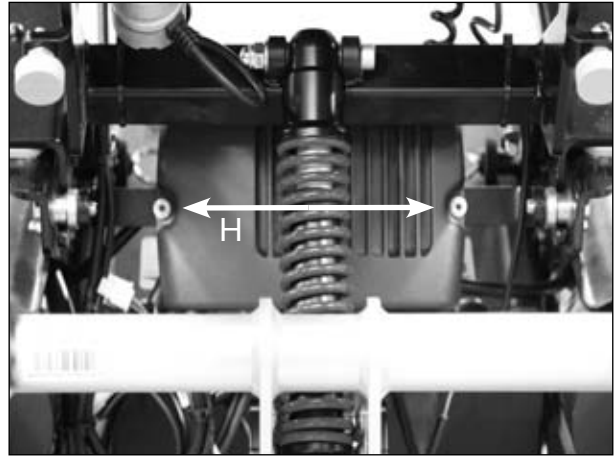


Adjustment motor (actuator), complete / Installed holding device

6. Attach the adjustment motor (actuator) to the holding device on the base frame using the provided retaining bolts/ locking washers (see item F) as well as to the lift seat (see item G). For tightening you need a 5 mm hexagon wrench.
7. Mount the controller to the retaining bar (see item H) using a 4 mm hexagon wrench.



Installing the adjustment motor (actuator)



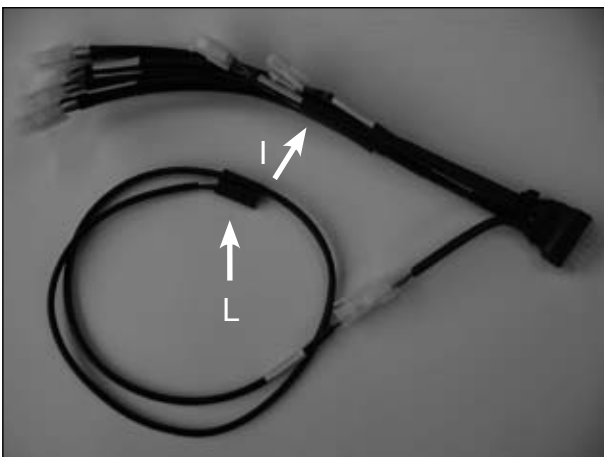
Installed controller

8. Attach the provided new main cable (see item I) to the frame using cable ties so that it is not possible for the cable to protrude into the adjustment area.

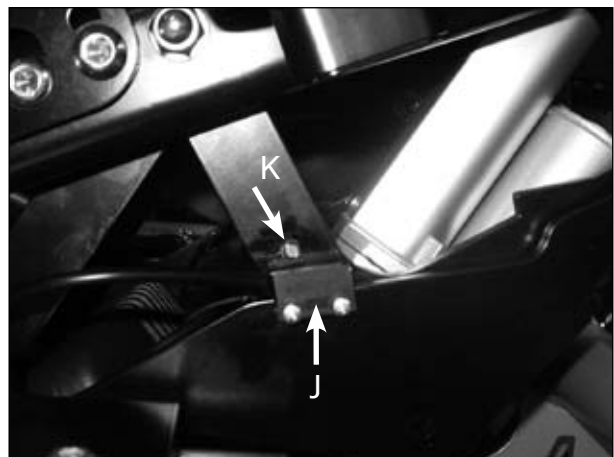
Notice!

It is very important to make sure that the cable of the adjustment motor is sufficiently long when activating the lift seat and that cables are not at risk of getting pinched.

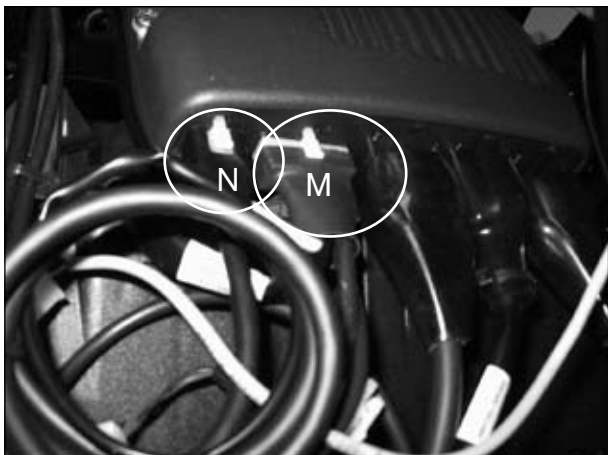
9. A micro-switch (see item J) activated by a magnetic pin (see item K) is located near the front of the lift seat. It reduces the driving speed as soon as the lift seat moves from the lower home position. Check the distance between the magnetic pin and magnetic transmitter. The distance between the magnetic transmitter and magnetic pin is pre-set. It must not be less than **1 mm**. The optimal distance range is between **1 and 3 mm**. It is adjusted by turning the set screw on the magnetic pin. Connect the cable of the magnetic transmitter to the main cable (see item L).
10. Connect the new main cable to the actuators.
11. Connect the 14-pin plug of the main cable to the controller (see item M).
12. Install the bearing plate with pack part and finish the seat with side panels, foot rests, etc.



Main cable with connected micro-switch



Installed micro-switch



Controller with connected main cable



Charging and programming receptacle

6.10.1 Programmierung

6.10.2 Programming

To be able to use the lift seat, it is first necessary to programme the control unit:

1. Connect the hand-held programming device to the charging and programming receptacle of the hand control device (see item N).
2. Follow the menu tree: Program > Motor Controller > Multi-Function Input 3
3. Here make the following speed limit settings (speed with raised lift seat):

Parameter	Range	Setting
Off/Swvl/Seat	0-2	Set value to 2. Signification: Sets the speed limit stated below to active.
Active Low	On/Off	Set value to Off. Signification: Sets the speed limit to active, when the micro-switch is open.
Speed Limit	0-100%	Set value to 15 %. Signification: Limits the speed to the above percentage.

4. Follow the menu tree: Program > Seat

5. To programme the actuator (adjustment motor), make the following settings:

Parameter	Range	Setting
Simultaneous Mode	On/Off	Set value to Off. Signification: Separate control of the actuators is possible.

Actuator 1 Function	0-5	Set value to 5. Signification: Selection of the lift seat component.
Actuator 1 Speed	0-100%	Set value to 100 %. Signification: Varies the speed of actuator 1 (lift seat adjustment motor).
Actuator 1 Stop Current	0-12 A	Set value to 2 A. Signification: The driver turns off if the current exceeds this value.
Actuator 2 Function	0-5	Set value to 1. Signification: Selection of the other component integrated into the lift seat (e.g. back angle adjustment; seat tilt).
Actuator 2 Speed	0-100%	Set value to 100 %. Signification: Varies the speed (PWM) of actuator 2 (back angle adjustment; seat tilt).
Actuator 2 Stop Current	0-12 A	Set value to 2 A. Signification: The driver turns off if the current exceeds this value.

6.11 Drive Unit

Fender

The colored fenders are attached to the drive unit sustainer with three hexagon socket screws. For tightening or loosening the screws use a 3 mm Allen wrench.



Drive Unit

To make the drive unit of the Skippi accessible first disconnect the cable from the control panel and the cables of the front lights. Take care not to damage any cables when removing the seat.

6.12 Motors

Each motor of the Skippi has a red brake lever and a red safety pin. For releasing the brake, first pull the safety pin. Now you can press the brake lever outwards. The safety pin prevents unintended activation of the brake release. Pressing these levers outwards disengages the motors, which means that the brakes are released and that the Skippi can be pushed. This is also indicated on the display when switching on the wheelchair control. After pressing the two brake levers inwards, the motors are ready for driving again. In this case, the safety pin automatically locks in place.



Motor with brake lever and safety pin

Disassembling the Motors

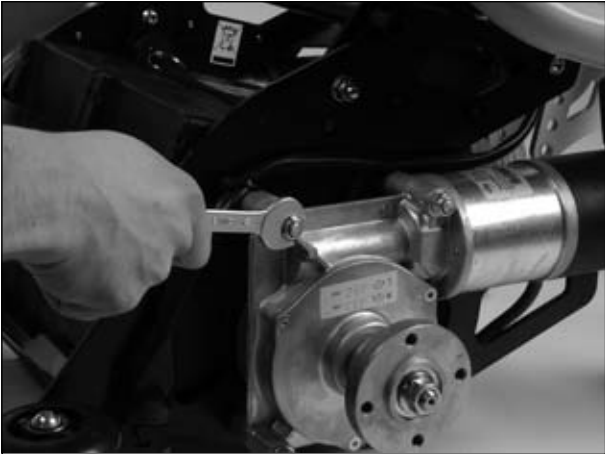


Caution!

When working on the motors, the power wheelchair must be switched off.

If possible, always remove the battery packs from the drive unit sustainer, too.

For disassembling the motors, first disconnect the motor plugs from the control unit and separate the drive unit sustainer from the rest of the wheelchair for better accessibility. Remove the battery packs from the drive unit sustainer and remove the fender using a 3 mm Allen wrench. Using appropriate materials such as pieces of wood, support the drive unit sustainer to prevent it from wobbling or tilting to the side. Remove the drive wheel using a 6 mm Allen wrench. The motor is attached to the drive unit sustainer with four carriage screws. For disassembling you need a 13 mm open-end wrench.



Loosening the motor screws

For reassembling the motors, please proceed in reverse order.



Note!

Make sure that cables will not be hindered or damaged during mounting and disassembly.

6.13 Tires



Caution!

Replace the casing if it is bald or shows cracking or other damage.

For changing tires, place the Skippi on a level surface and support it to prevent it from tilting. The front wheels are puncture-proof ones and can only be changed as a whole. A puncture-proof insert or the casing are not available as spare parts. For disassembling the front wheels you need a 6 mm Allen wrench. Loosen the screw and remove the wheel. Check if the axle can be re-used.



For mounting the new wheel, position the metal bushing between the wheel and caster fork and insert the axle screw from the outside. Make sure that the lock nut on the other side of the fork is in position. Hand tighten the screw.

Drive Wheels

Two drive wheel versions are available for the Skippi: with pneumatic tires (standard equipment) and with puncture-proof tires. For working on the drive wheels you need a 6 mm Allen wrench.

First loosen the four hexagon socket screws on the front side to disassemble the drive wheels from the drive unit sustainer. The drive wheels have two-piece rims so that the casing or inner tube are easy to replace. For separating the rim, loosen the five hexagon socket screws on the rear side of the wheel. Use a standard inner tube repair kit for bicycles for repairing the inner tube.



Loosening the screws

6.14 Options

Lighting

The lighting of the Skippi, which is optionally available, can be added at any time.

The front lights are attached to the side panel. For this purpose, remove the lateral pad (if in use) and screw the plastic element on the side panel apart using a 3 mm Allen wrench. Insert the light holders into the outer slots and retighten the screw connections. Lead the light cable along the seat frame and fasten it with cable ties in several places. Connect the lights to the control box below the seat. It is absolutely necessary to use the input connector provided for this.



Inserting the holder into the plastic element



Fastening the plastic element on the side panel

Rear Lights

The rear lights are attached to the rear side of the drive unit sustainer with two holders.

The holders are attached with two oval head screws.

These screws are put through from the inside to the outside and secured with two lock nuts.

Replacing Defective Lamps



Note!

If possible, use a piece of cloth when inserting the bulb to avoid direct contact.

To change the halogen lamp of the front light, lightly push the black engaging lever at the lower end of the lamp. Now the pane along with the lamp can be folded forward.

In this position the lamp can be removed.



Pushing the engaging lever

Pull the lamp along with the lock ring backward and remove.

When installing the lamp, make sure that the notch on the lamp socket is positioned correctly and engages.

Replacing Defective Lamps, Direction Indicators

For replacing the front direction indicators, it is best to use a small flathead screwdriver.

Slightly press into the notch on top of the housing until the nose jumps out.



Loosening the protective glass of the direction indicator

Turn the bulb a quarter turn counter-clockwise and remove it. If possible, use a piece of cloth when inserting the bulb to avoid direct contact.



Inserting the lamp

When installing the lamp, make sure that the lamp's noses engage in the socket's notches and turn the lamp a quarter turn clockwise to fix it in place.

Now remount the protective glass: Insert the lower nose in the notch and let the upper nose engage with light pressure.

Replacing Defective Lamps, Rear Lights

Remove the protective glass of the rear lights: Using a small flathead screwdriver, loosen the two screws on the left and right and remove the protective glass.



Remove the lamp from the holder and replace it with a new one. Make sure that the lamp is correctly seated in the holder.



Note!

When reinserting the protective glasses, make sure they are seated correctly on the housing and ensure that the screws are firmly tightened in order to prevent moisture from entering the lamps.

Height Adjustable Push Handles

The height adjustable push handles are attached at the upper end of the back tubes. Tube clamps for attachment are included in the delivery. First loosen the screws on the left and right of the uppermost back strap. Now put the tube clamps onto the upper ends and attach them with two screws each, inserted through the rear side of the back tube. Finally screw the uppermost strap to the bore holes provided on the tube clamps.

You need a 6 mm Allen wrench for this work.



Fastening the tube clamps to the back tube



Fastening the back strap

Now you can insert the push handles into the clamp holders while pressing the securing pin. Set the push handles to the desired height and fix them with the quick clamping levers.



Pennant

The pennant is attached to the top of the back tubes, no matter on which side. Using a 6 mm Allen wrench, loosen the two screws on one side of the uppermost back strap and attach the pennant holder between the back strap and screws.



Bumper Bar

The bumper bar is attached at the front to the caster attachment devices. First remove the two protective caps from the caster attachment devices. Position the eyelet of the bumper bar on the caster attachment device as shown on the photo. Fix the bar with the threaded bolt by screwing the bolt into the caster attachment device. Reattach the plastic protective cap to the upper end of the threaded bolt.

1.



Removing the protective cap

2.



Inserting the threaded bolt

3.



Mounted bumper bar

Joystick Accessories

To mount joystick accessories, first pull off the upper end of the joystick. A pin is exposed. Here you can mount accessories such as a fork for tetraplegics, a golf ball or a stick, etc.

Fix the accessory component by tightening the set screw.

7 Technical Data

Measurements and weights

Seat width:	26 - 38 cm
Seat depth:	30 - 37 cm
Seat height:	43 cm
Armrest height:	16 - 27 cm
Armrest length:	23 cm
Lower leg length:	11 - 18 cm or 19 - 26 cm
Back height:	35/40/42/44/46 cm
Back angle:	9/1/11/21° or 0/10/20/30°
Overall width:	57 cm
Overall height:	103 cm
Overall length with legrests:	85 cm
Overall length without legrests:	70 cm
Turning radius:	55 cm
Tire size, front:	8"
rear:	12.1/2x2.1/4"
Tire air pressure (printed on the side-wall of the tire)	
Weight when empty:	68kg
Maximum load capacity:	50 kg (patient weight)

Electrical Installation

Control unit:	EnAble 40 with control unit and hand control device
Operating voltage:	24 V DC
Max. output current per motor:	50A
Batteries:	Gel batteries: 2 x 12 V, 31 Ah C20
Battery charger model:	Powercharge Standard 5A
Fuse:	G25-324-6; automatic battery charger with computer-controlled characteristic curve 60 A for each battery pack

Driving Data

Speed:	6 km/h
Climbing ability:	12 %
Obstacle height that can be cleared:	5 cm
Distance range:	approx. 25 km

Technical modifications reserved.

8 Maintenance Plan

Customer:

Patient change

Yes	No
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Year of manufacture:	Serial no.:
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Skippi – general condition:

Driving report:

Component (group)

Check carefully all parts listed here for correct function, setting, damages or deformations and whether the screw connections are tightened!

		Okay	Damages	Replacement
1	Control unit			
	Control panel holder			
	Control cable			
2	Batteries			
	Battery packs			
	Cables			
3	Motors			
	Brake release			
4	Tires			
	Drive wheels			
	Casters			
5	Frame			
	Drive unit sustainer			
	Wheel cover			
6	Seat			
	Back			
	Upholstery/ Cushion			

	Contoured seat			
	Contour Rücken			
	Electric back adjustment			
	Electric seat tilt			
	Electric seat height adjustment			
	mechanische seat tilt			
	Push handles			
7	Side panel			
	Receivers			
	Clothing protector			
8	Footrests			
	Receivers			
	Elevating footrest			
9	Options			
	Belt			
	Adapter for headrest			
	Heel bands			

Notes:

Maintenance performed by:	Place / date	Signature:
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Kundenservice/Customer Service

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