



## 490E163=\*<sup>\*</sup>

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# 1 Foreword

## INFORMATION

Date of last update: 2021-12-03

- ▶ Please read this document carefully before using the product and observe the safety notices.
- ▶ Instruct the user in the safe use of the product.
- ▶ Please contact the manufacturer if you have questions about the product or in case of problems.
- ▶ Report each serious incident related to the product to the manufacturer and to the relevant authority in your country. This is particularly important when there is a decline in the health state.
- ▶ Please keep this document for your records.

## INFORMATION

- ▶ New information regarding product safety and product recalls as well as the declaration of conformity can be obtained at [ccc@ottobock.com](mailto:ccc@ottobock.com) or from the manufacturer's service department (see inside or outside of back cover for addresses).
- ▶ You can request this document as a PDF file at [ccc@ottobock.com](mailto:ccc@ottobock.com) or from the manufacturer's service department (see inside or outside of back cover for addresses). The PDF file can also be displayed in a larger size.

These instructions for use provide the information necessary for adjusting the settings. This work should be closely coordinated with the user.

### Please note the following:

- The instructions for use (qualified personnel) are intended only for qualified personnel and remain with them.
- All information regarding the operation of the product is found in the enclosed instructions for use (user).
- The manufacturer recommends checking the product settings regularly in order to assure an optimum fit over the long term. A review is required every six months for children and youths in particular.
- The manufacturer reserves the right to make technical changes to the model described in these instructions for use.

## 2 Intended use

The operational safety of the product can only be ensured in case of intended use in accordance with the information contained in these instructions for use (qualified personnel) and in the instructions for use (user). The user is ultimately responsible for accident-free operation.

### 2.1 Indications for use

For additional information about the indications for use, see the instructions for use (user).

### 2.2 Indications, contraindications




See the instructions for use (user) for more information about indications and contraindications.

### 2.3 Qualification

The tasks described below may only be carried out by qualified personnel. Compliance with all manufacturer specifications and all applicable legal provisions is required. Please contact the manufacturer's service department for further information (see inside or outside of rear cover for addresses).

## 3 Safety

### 3.1 Explanation of warning symbols

|                                                                                                    |                                                                 |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
|  <b>WARNING</b> | Warning regarding possible serious risks of accident or injury. |
|  <b>CAUTION</b> | Warning regarding possible risks of accident or injury.         |
|  <b>NOTICE</b>  | Warning regarding possible technical damage.                    |

### 3.2 General safety instructions

**⚠ CAUTION**

**Use of unsuitable tools**

Pinching, crushing or damaging the product due to use of unsuitable tools

- ▶ When completing the tasks, only use tools that are suitable for the conditions at the place of work and for which safety and the protection of health are assured with proper use.
- ▶ Observe the specifications in the section "Required Tools".

**NOTICE**

**Improper preparation before making adjustments**

Damage to the product due to falling down and failure to follow setting instructions

- ▶ When you work on the product, secure it so that it cannot tip over or fall down.
- ▶ Turn the power wheelchair off and, if necessary, disconnect the battery cable from the controller before making any adjustments. Functional tests of electrical components are excepted from this rule.
- ▶ Before work is carried out on the seat, ensure that the padding is adequately protected against mechanical, chemical and thermal damage.

### 3.3 Safety Instructions for Assembly

**⚠ WARNING**

**Incorrect cable routing**

Tipping over, falling out, burns due to assembly errors during cable installation

- ▶ Improper cable installation can lead to a loss of cable insulation and consequently to short circuits and even fires. Always install the cables so the cable insulation cannot chafe.
- ▶ Severing cables or unintentionally disconnecting plug connections while driving can cause an emergency stop of the wheelchair. This can lead to dangerous situations in road traffic. Always install the cables and plug connections so they cannot be damaged and cannot disconnect.

**⚠ WARNING**

**Uncontrolled movement of components when making adjustments**

Crushing, pinching, blows due to non-observance of the maintenance and repair instructions

- ▶ Ensure that body parts, such as hands or head, are never in the danger zone.
- ▶ Perform the work with the aid of a helper for support.

**⚠ CAUTION**

**Improper lifting**

Crushing, pinching, blows due to failure to observe safety notices

- ▶ Some parts of the power wheelchair, such as the batteries, frame, seat, and motors, are very heavy. Ensure ergonomically correct lifting of these parts. Use sufficiently large hoisting devices or perform this work with the aid of a helper for support. In this case, you and the helper grasp the frame tubes underneath the seat with both hands on either side of the product.
- ▶ If it is necessary to work underneath raised parts or equipment, make sure these are secured by suitable means so that they cannot come loose, shift or fall down.
- ▶ When using lifting platforms, ensure that the power wheelchair is centred on the platform and that no parts protrude into the danger zone.

**NOTICE**

**Incorrect cable routing**

Plug connections coming loose or damage to the cables due to assembly errors

- ▶ Take note of the cables attached to the product with cable ties during all assembly work.
- ▶ Carefully cut the cable ties with suitable side-cutting pliers if necessary. Ensure that you do not damage the cables during this process.
- ▶ Install the cables in such a way that they cannot be damaged. Leave an appropriate cable loop on moveable components so they can move without tension.
- ▶ Only use suitable fasteners (such as cable ties). Also use cable ties to secure the plug connections to the product so they cannot be disconnected unintentionally.

**3.4 Programming safety instructions**

**WARNING**

**Incorrect configuration of the control device**

Falling, tipping over, collision due to incorrect parameter settings

- ▶ Note that modified parameter settings lead to changes in driving characteristics. In particular, changes to the speed, acceleration, braking or joystick settings can lead to unexpected and therefore uncontrollable driving characteristics and cause an accident.
- ▶ The parameter settings of the control device may only be changed by qualified personnel. The manufacturer of the product and the control device manufacturer are not liable in case of damage caused by parameter settings that were incorrectly configured or not adjusted properly according to the user's abilities.
- ▶ The user must test the driving characteristics of the product under the supervision of the qualified personnel each time after parameter settings are changed.

**3.5 Safety instructions regarding maintenance and repairs**

**CAUTION**

**Damage to the product, unexpected noise or odours**

Health problems for the user

- ▶ Report damage to the product that may cause health problems for the user to Ottobock. This includes uncontrolled movements of the product as well as sounds that are unexpected or previously not noted or odours that deviate significantly from the state of the product at the time of delivery.

**3.6 Further information**

**INFORMATION**

The serial number required for enquiries and ordering spare parts and accessories is found on the nameplate. For explanations of the nameplate, see the section "Nameplate" (see page 7).

**3.7 Nameplate**

The nameplates are found on the side of the frame under the seat.

| Label | Meaning                                                          |
|-------|------------------------------------------------------------------|
|       | <b>A</b> Manufacturer's product name                             |
|       | <b>B</b> CE marking                                              |
|       | <b>C</b> Maximum load (see section "Technical data")             |
|       | <b>D</b> Maximum climbing ability (see section "Technical data") |
|       | <b>E</b> Maximum speed (see section "Technical data")            |
|       | <b>F</b> Allowable axle load, front                              |
|       | <b>G</b> Allowable axle load, rear                               |
|       | <b>H</b> Allowable overall weight                                |
|       | <b>I</b> Manufacturer information/address                        |
|       | <b>J</b> Serial number <sup>1)</sup>                             |
|       | <b>K</b> Manufacturing date <sup>2)</sup>                        |
|       | <b>L</b> Symbol for medical device                               |

| Label | Meaning                                                                                                                                                                   |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       | <b>M</b> <b>WARNING!</b> Read the instructions for use before using the product. Observe important safety-related information (e.g. warnings, precautions).               |
|       | <b>N</b> Symbol for separate collection of electrical and electronic devices. Components of the power wheelchair and batteries may not be disposed of in household waste. |
|       | <b>O</b> Manufacturer's reference number for the product variant                                                                                                          |
|       | <b>P</b> Serial number (PI) <sup>3),1)</sup>                                                                                                                              |
|       | <b>Q</b> Global Trade Item Number (DI) <sup>4)</sup>                                                                                                                      |

<sup>1)</sup> MMM = model/model variant; S = speed code; YY = year of manufacture; WW = week of manufacture; PP = production site; XXX = sequential production number

<sup>2)</sup> YYYY = year of manufacture; MM = month of manufacture; DD = day of manufacture

<sup>3)</sup> UDI-PI to GS1 standard; UDI = Unique Device Identifier, PI = Product Identifier

<sup>4)</sup> UDI-DI to GS1 standard; UDI = Unique Device Identifier, DI = Device Identifier

See the instructions for use (user) for additional warning labels.

## 4 Delivery

### 4.1 Scope of delivery

The power wheelchair is typically delivered ready to use as a standard product with standard equipment (according to the order form).

The scope of delivery also includes:

- Options according to the order
- Battery charger
- Instructions for use (qualified personnel), instructions for use (user)
- Instructions for use for accessories (depending on equipment)

### 4.2 Options

Options offered with the product are listed in full on the order form for options. The use of the options is described in more detail in the instructions for use (user).

### 4.3 Storage

**NOTICE**

**Deep discharge**  
 Battery damage due to standby current

► If the product will not be used for more than three days, disconnect the battery cable from the controller (see page 9).

Please observe the following if the power wheelchair is not used for more than **3 days**:

#### Storage conditions

- Store the power wheelchair in a dry, enclosed room with sufficient air circulation and protection from external influences. Specific information about storage conditions: see page 25.
- Protect the wheels against ground frost, for example by taking all weight off them using an assembly stand or by setting them onto wooden blocks.
- Maintain sufficient clearance from sources of heat. If the product is parked for an extended period of time or the tyres overheat (e.g. in the vicinity of radiators or in case of exposure to strong sunlight behind glass), the tyres may become permanently deformed.
- Rotate the wheels weekly to prevent flat spots from extended standing.
- For extended storage, store the power wheelchair so the wheels are not in contact with the ground.

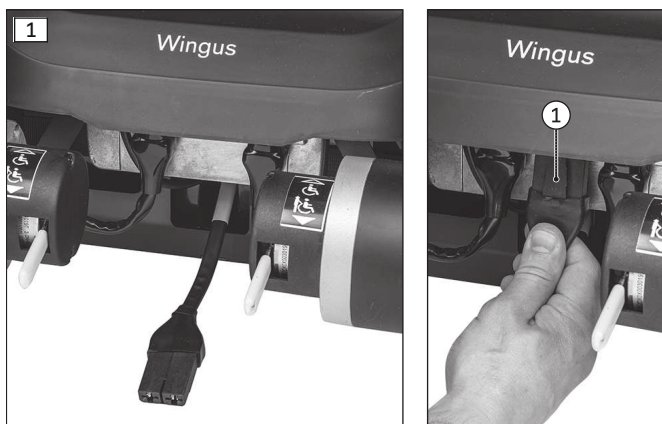


**Note regarding the tyres**

- If the power wheelchair is not moved for several days, permanent colour changes may develop where it comes into contact with the ground. A suitable base should therefore be used when parking it for extended periods of time.
- Avoid unnecessary parking outdoors. Direct exposure to sunlight/UV radiation causes the tyres to age more quickly. As a result, the tread surface hardens and corner pieces break out of the tread.
- The tyres must be changed when the tread is less than **1 mm (0.04")** to ensure safe driving behaviour.
- The tyres should be replaced every **2 years** regardless of wear and tear.
- When power wheelchairs with PU tyres are parked for longer periods, the tyres may become deformed (flat spots). This deformation will go away on its own over time while driving.

**5 Preparing the product for use****5.1 Operational readiness**

To establish operational readiness, the plug connection between the battery cable and controller has to be connected. The plug connection is below the back of the battery cover.

**Connecting the battery cable**

- 1) Take the plug of the battery cable in your hand. The plug is located between the motors, below the battery cover (see fig. 1, left).
- 2) Connect the plug to the plug connection on the controller (see fig. 1, right).

**Disconnecting the battery cable**

- 1) Disconnect the plug of the battery cable from the controller. To release the plug, push the snap-fit (see fig. 1, item 1).
- 2) Let the battery cable hang down loosely (see fig. 1, left).

**5.2 Charging the batteries****⚠ WARNING****Incorrect charging or use of the battery**

Injuries due to fire or explosion, damage to the battery, short circuit

- ▶ Observe the safety notices in the instructions for use (user), section "Use" > "Batteries/charging process".

**⚠ WARNING****Insufficient ventilation of the battery charger while charging**

Burns due to the battery charger overheating/catching fire

- ▶ Make sure the battery charger cannot overheat during the charging process.
- ▶ Ensure that the cooling fins/ventilation slots on the back of the device are not covered.

**⚠ CAUTION****Wearing of unsuitable work clothing**

Chemical burns due to insufficient protection

- ▶ Wear suitable work clothing (for example, gloves and protective eyewear) when working on the batteries.

See the power wheelchair instructions for use (user) for all information regarding the charging process.

The power wheelchair must be handed over to the user with fully charged batteries.

**5.3 Folding the back support up/down**

After unpacking, the backrest must be folded up and attached.

See the power wheelchair instructions for use (user) for more detailed information.

## 5.4 Attaching the arm supports

After unpacking, the arm supports have to be attached using the clamping pins (clamps) if applicable. See the power wheelchair instructions for use (user) for more detailed information.

# 6 Settings and assembly instructions

## 6.1 Prerequisites

### WARNING

#### **Making incorrect adjustments**

Tipping over, falling or malposition of the user due to incorrect adjustments

- ▶ Adjustment and assembly work may be carried out only by qualified personnel.
- ▶ Only the adjustments described in these instructions for use may be carried out.
- ▶ Settings may only be changed within the allowable adjustment ranges; otherwise, the stability of the product may be impaired (see this section and the "Technical data" section). If you have questions, contact the manufacturer's service department (see inside back cover for addresses).
- ▶ Only conduct tests in the presence of an assistant.
- ▶ Unless expressly described, you may not change any settings with a person sitting in the product.
- ▶ Secure the user against falling out during all tests.
- ▶ Before testing setting changes with the user seated, firmly tighten all screw connections.
- ▶ Check for safe function before delivering the product.

### CAUTION

#### **Unsecured screw connections**

Pinching, crushing, tipping over, falling of user due to assembly errors

- ▶ Always firmly re-tighten the mounting screws and nuts after changing settings. Observe the specified torques in doing so.
- ▶ Any time you loosen a screw connection with thread lock, replace it with a new screw connection with thread lock or secure the old screw connection with medium strength thread locker (e.g. Loctite 241).
- ▶ Always replace self-locking screws and nuts with new self-locking screws and nuts after disassembly.

The tools required for assembly, adjustments and maintenance tasks as well as the tightening torques for screw connections are listed in the section "Appendices" (see page 28).

All parts of the product should be cleaned thoroughly before adjustments are made.

## 6.2 Assembly of the options

Options can be retrofitted on this wheelchair type. Installation has to be carried out by qualified personnel prior to delivery.

Instructions for the installation of all available options are provided below.

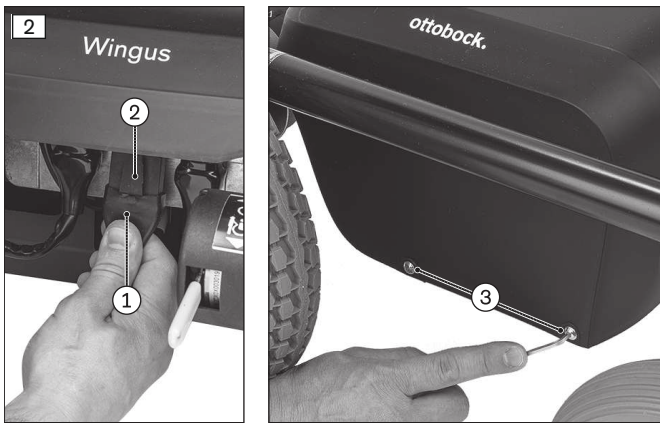
### 6.2.1 Gel batteries

#### CAUTION

##### **Short circuit of the battery**

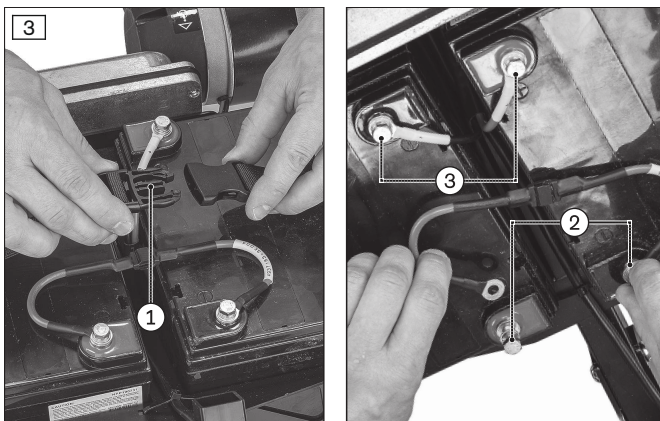
Burns, injuries; damage to electrical/electronic components due to improper battery handling

- ▶ Only use insulated tools to perform maintenance work on the batteries.
- ▶ Never connect the two poles of a battery with metal conductors (such as the frame tube).
- ▶ Ensure correct polarity when connecting the battery cable. Please refer to the battery circuit diagram on the inside of the battery cover.



### Removing the battery cover

- 1) Disconnect the plug of the battery cable from the controller (see fig. 2, item 1). To release the plug, push the snap-fit (see fig. 2, item 2).
- 2) Loosen the four Allen screws on the battery cover (see fig. 2, item 3).
- 3) Remove the battery cover.



### Replacing the battery

- 1) Open the upper fastening strap on the battery carrier (see fig. 3, item 1).
- 2) Open the side fastening strap on the battery carrier (not illustrated).
- 3) Unscrew the terminal screws from the battery.
- 4) Detach both battery cables (see fig. 3, item 2/3).
- 5) Lift out the batteries (not illustrated).
- 6) Set the alternative gel batteries onto the battery carrier in the same manner (not illustrated).

**NOTICE! Only screw in the terminal screws after inserting the battery. There is an increased risk of a short circuit, for example, if both screws come into contact with the frame.**

- 7) Connect the battery cables in the original positions. Use the battery circuit diagram on the battery cover to do so (see fig. 3, item 2/3).
- 8) Start by loosening the fastening straps slightly, then fasten the closures and tighten the straps on the loop.
- 9) Reinstall the battery cover and firmly tighten the Allen screws (see fig. 2, item 2).

## 6.2.2 Lighting (not intended for road traffic)

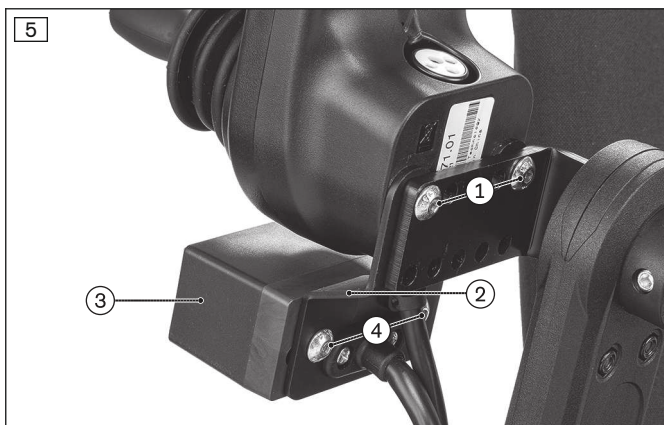


- 1) Open the rubber band.
- 2) Hold the lamp against the frame tube.
- 3) Press the rubber band onto the retaining pin.

### 6.2.3 Lighting for road traffic

#### INFORMATION

- ▶ Before performing the work described below, remove the plug of the battery cable from the controller. Only reconnect it for the functional test.
- ▶ Leave the lighting set assembled as delivered for the installation described below. The lamps are already installed on the supplied cable of the lighting set. The cable is labelled with information that makes it easier to position the lamps: Front left; Front right; Back left; Back right.
- ▶ You can temporarily remove the lamps from the cable of the lighting set for easier assembly. Note that the lamps are not identical prior to installation on the seat plate. They are identified by the embossed manufacturer article numbers: Front lights = 140033C. Rear lights = 140033B.
- ▶ Each lamp has to be screwed to the product in the correct position (direction indicator top, headlight bottom). For easier orientation, the embossed lettering on the lamp's transparent cover has to be at the top (upside down) before screwing on the lamps.



#### Installing the lighting push-button module

- 1) Loosen the control panel from the retaining plate (see fig. 5, item 1).
- 2) Slide the additional retaining plate underneath the control panel (see fig. 5, item 2).
- 3) Screw both retaining plates firmly to the control panel (see fig. 5, item 1).
- 4) Install the push-button module (see fig. 5, item 3) on the new retaining plate so it is correctly aligned (see fig. 5, item 4).

**INFORMATION:** The indicator lights face towards the control panel (not illustrated).



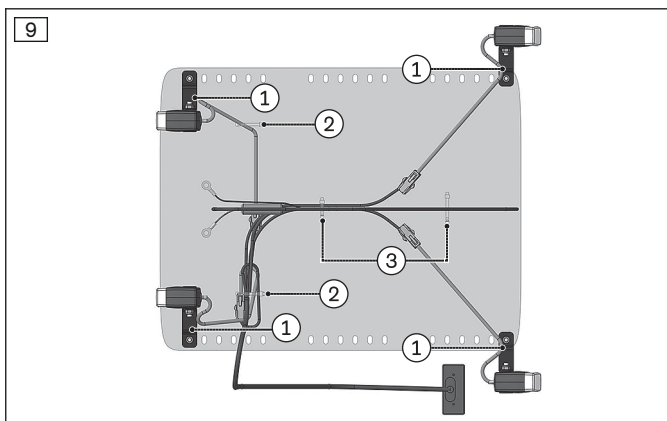
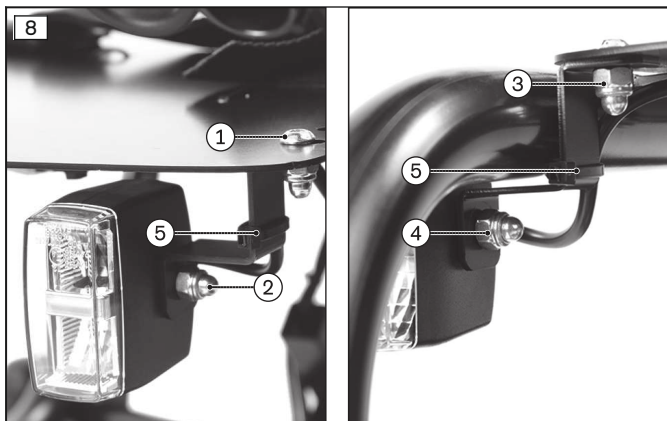
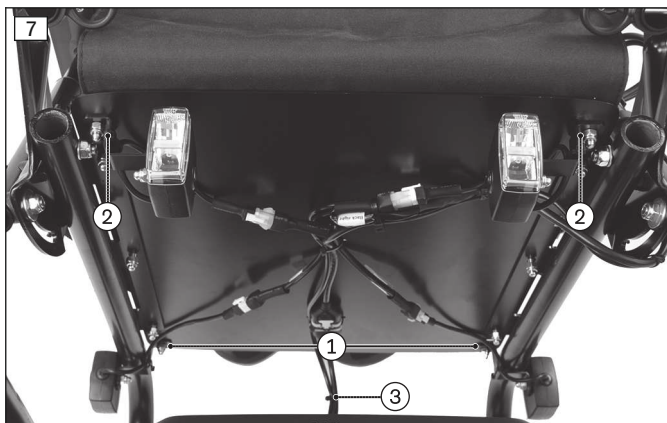
#### Routing the cable of the lighting set to the seat plate

- 1) Route the cable of the lighting set underneath the arm support pad. Attach with hook-and-loop strap at the first mounting point (see fig. 6, item 1).
- 2) Route the cable further along the arm support tube. Secure the cable with two cable clamps (see fig. 6, item 2).
- 3) Route the cable so it runs underneath the seat plate. Attach the cable to the control panel cable with a cable tie (see fig. 6, item 3).

#### INFORMATION

- ▶ Prior to assembly of the lamps, please note the following:
  - When the seat plate is adjusted to the smallest seat depth (seat plate all the way back), the front bore hole of the seat plate has a dual function: The mounting screw serves both as the mounting screw for the seat plate on the frame and simultaneously as the mounting screw for the retaining plate of the lamp.
  - When the seat plate is adjusted to the largest seat depth (seat plate all the way forward), the rear bore hole of the seat plate has a dual function: The mounting screw serves both as the mounting screw for the seat plate on the frame and simultaneously as the mounting screw for the retaining plate of the lamp.





### Installing the lamps

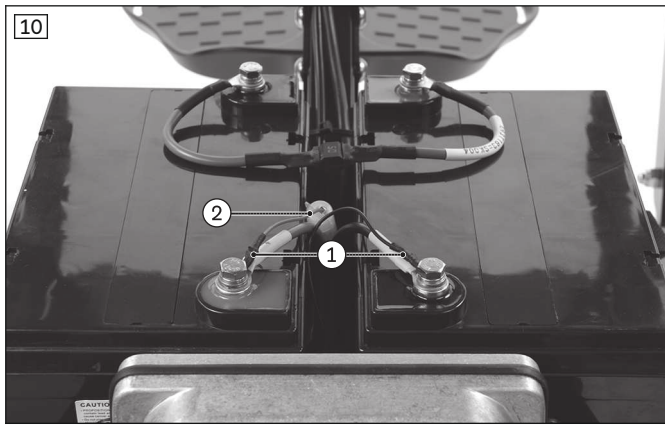
- 1) Set the cable of the lighting set with the connected lamps onto the battery cover under the seat, aligning them correctly.

**INFORMATION: You can disconnect the lamps from the cable of the lighting set for easier assembly. Be sure to observe the corresponding information at the start of this section.**

- 2) Installing the rear lamps:
  - Screw the respective retaining plates of the lamps firmly into place on the back end under the seat plate (see fig. 7, item 1; see fig. 8, item 1).
  - Screw the lamps to the respective retaining plates, aligning them correctly (see fig. 8, item 2).
- 3) Installing the front lamps under the seat plate:
  - Screw the respective retaining plates firmly into place on the front end under the seat plate (see fig. 7, item 2; see fig. 8, item 3).
  - Screw the lamps to the respective retaining plates, aligning them correctly (see fig. 8, item 4).

### Attaching and connecting the cables

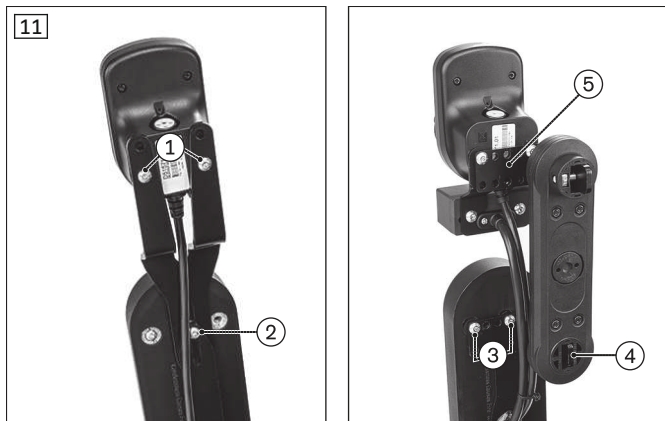
- 1) Attach the cable of the lighting set under the seat plate:
  - Attach the respective cables of the lamps to the retaining plates with cable ties (see fig. 9, item 1, right side of the image = front in the direction of travel; see fig. 8, item 5).
  - Use cable ties to also attach the respective cables of the rear lamps on the seat plate (see fig. 9, item 2).
  - Attach the main cable of the lighting set to the seat plate with two cable ties (see fig. 9, item 3).
- 2) Pull the end of the cable with the two battery contacts to the front. Attach the cable to the control cable with cable ties (see fig. 7, item 3). Make sure the length is sufficient so the cable end can be connected to the battery contacts.



**Connecting the lighting push-button module and performing a functional test**

- 1) Screw the two cable ends to the battery contacts. Connect the red cable to the red contact (see fig. 10, item 1).
- 2) Turn the cable end with the fuse so that the fuse can be positioned between the batteries (see fig. 10, item 2). This prevents the fuse from rattling against the battery cover.
- 3) Reconnect the plug of the battery cable to the controller (see page 9).
- 4) Perform a functional test (see instructions for use (user), section “Lighting”):
  - The assembly was successful if the light on/off, direction indicator left/right and warning flashers functions work correctly.
  - Make sure that the direction indicators are at the top and the headlights at the bottom for each lamp.

**6.2.4 Control panel holder, swing-away in parallel**



- 1) Remove the control panel from the installed control panel holder. Loosen the two Allen screws to do so (see fig. 11, item 1).
- 2) Remove the old control panel holder from the arm support. Loosen the two Allen screws to do so (see fig. 11, item 2). **Note:** The second screw is not shown in the image.
- 3) Install the retaining plate for the swing-away control panel holder (see fig. 11, item 3).
 

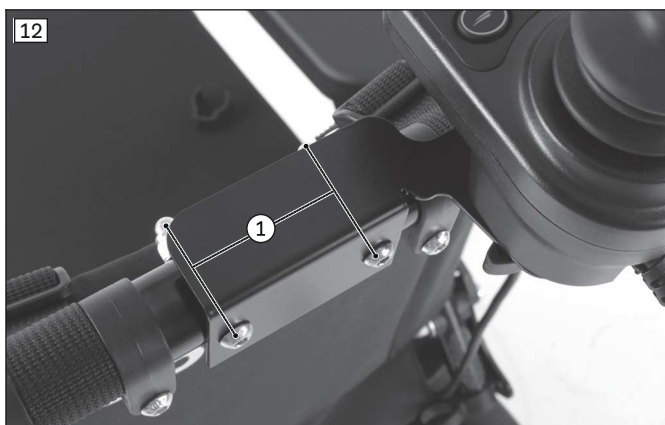
**INFORMATION: Turn the retaining plates to the outside so that the swing-away control panel holder does not constrict the seating area. A small "curvature" on the arm support provides orientation. It always faces out.**
- 4) Slide the control panel holder onto the retaining plate, aligning it correctly (see fig. 11, item 4).
- 5) Screw the control panel firmly to the retaining plate (see fig. 11, item 5).
 

**If a lighting push-button module is installed:** Screw both retaining plates firmly to the control panel (see fig. 11, item 5).

**6.2.5 Holder for attendant control**

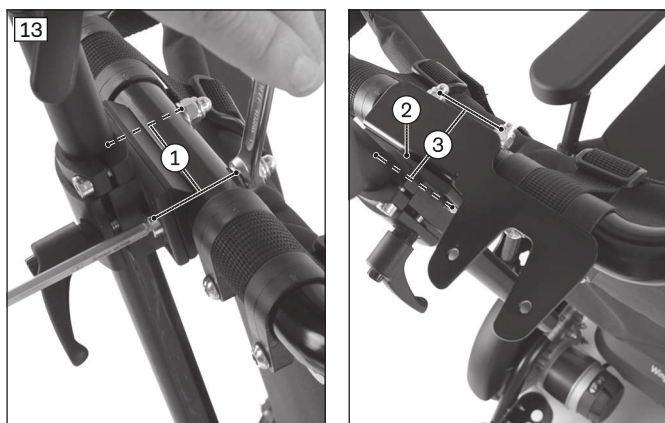
**INFORMATION**

- ▶ The holder for attendant control is used to mount the control panel and push-button module for lighting on the back support. This allows the attendant to control the power wheelchair.
- ▶ When needed, the attendant can independently switch the position of the control panel/push-button module between the control panel holder on the arm support and the holder for attendant control. Instruct the attendant accordingly. The attendant must always attach the control panel/push-button module using the supplied thumb screws.
- ▶ Instruct the attendant in particular of the need to correctly attach the cable on the back support or arm support tube. Show the attendant how to route and attach the cable securely with no risk of pinching when changing the position of the control panel/push-button module.
- ▶ Inform the attendant that, due to the short cable length, the control panel/push-button module has to be temporarily removed from the holder for attendant control before folding down the back support. Further information is provided in the instructions for use (user).



### Mounting the holder for attendant control on the back support tube (variant 1)

- 1) Screw the holder to the back support tube with the two supplied hexagon socket screws, washers and cap nuts (see fig. 12, item 1).
- 2) Tighten the hexagon socket screws/cap nuts.



### Mounting the holder for attendant control on the head support mounting kit (variant 2)

- 1) Loosen the head support/neck support mounting kit from the adapter screw (see fig. 13, item 1). The adapter plate is now exposed (see fig. 20).
- 2) Keep the unscrewed hexagon socket screws, cap nuts and washers at hand for reuse.
- 3) Place the holder on the exposed adapter plate (see fig. 13, item 2).
- 4) Screw the holder to the back support tube with the head support/neck support mounting kit and the hexagon socket screws, washers and cap nuts at hand (see fig. 13, item 3).
- 5) Tighten the hexagon socket screws/cap nuts.



### Changing the position of the control panel and push-button module for lighting (option)

- 1) Detach the control panel and – if installed – the push-button module for lighting from the control panel holder (see fig. 5, item 1).
- 2) **If necessary:** Remove the control panel holder from the arm support (see page 14).

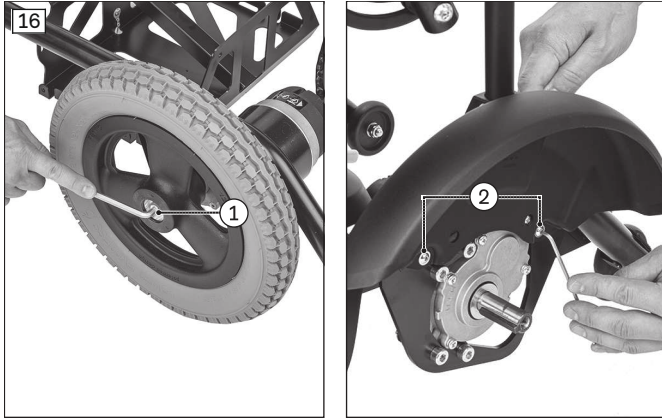
**INFORMATION: If the attendant wishes to be able to change the position of the control panel/push-button module between the control panel holder on the arm support and the holder for attendant control when needed, leave the control panel holder on the arm support.**



- 3) Detach the cable clamps from the arm support tube (see fig. 6, item 1/2).
- 4) Pull the cable of the control panel/push-button module under the seat and guide it up vertically behind the back support (see fig. 14, item 1).
- 5) Position the control panel over the holder for attendant control (see fig. 15, item 1).  
**If required:** Position the push-button module for lighting with the retaining plate on the holder for attendant control (see fig. 15, item 2).
- 6) Screw the control panel/push-button module to the holder for attendant control with the thumb screws (see fig. 15, item 3).

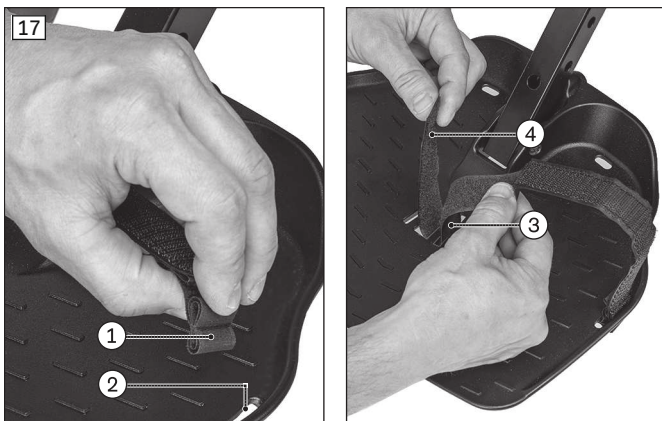
- 7) Use a hook-and-loop strap to secure the cable on the back support tube (see fig. 15, item 4). The cables of the control panel/push-button module run down vertically behind the back support pad (see fig. 14, item 1).

### 6.2.6 Splash guard for drive wheels



- 1) Jack up the power wheelchair.
- 2) Turn the drive wheels so the mounting bores are freely accessible (see fig. 16, item 2).  
**If necessary:** Alternatively, the drive wheels can be unscrewed (see fig. 16, item 1).
- 3) Install the splash guard on the frame using the two supplied hexagon head screws (see fig. 16, item 2). The hexagon head screws are inserted from the outside to the inside.
- 4) Tighten the hexagon head screws to **5 Nm**.

### 6.2.7 Foot positioning belt



- 1) Pass the threading device of the positioning belt (see fig. 17, item 1) through the outer slot of the foot plate from above (see fig. 17, item 2). Turn the end crosswise below the foot plate so it cannot slide back out of the slot (not illustrated).
- 2) Pass the free end of the positioning belt through the inner slot of the foot plate from above (see fig. 17, item 3).
- 3) Pass the free end of the positioning belt around the bar and back up again, and fasten the hook-and-loop closure (see fig. 17, item 4).

### 6.2.8 Chest and shoulder support

#### INFORMATION

- ▶ Also observe the assembly and adjustment information and the safety notices in the instructions for use included with the belt system.
- ▶ Notes on positioning the user in the seat and on properly applying the belt system are also found in the instructions for use (user) for this power wheelchair.
- ▶ Hand over the instructions for use for the belt system to the user upon delivery of the power wheelchair.

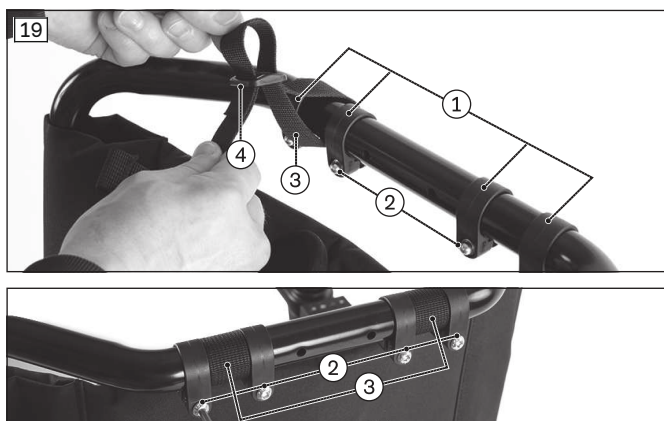




### Installing the sternum harness on the lower back support tube

- 1) Loosen and remove the respective Allen screw between the back support tube and bearing plate on both sides (not illustrated).
- 2) Hold the three-slot mounting bracket against the bearing plate from the outside and align it, angled to the front (see fig. 18, item 1).
- 3) Install each of the supplied longer Allen screws in place of the screw that was removed (see fig. 18, item 2). Note the order of the bushings and washers as you do so (see fig. 18, item 3).
- 4) Firmly tighten the supplied Allen screws with the cap nuts (see fig. 18, item 2/4).
- 5) Lay the sternum harness onto the seat cushion in the direction for use (not illustrated).
- 6) Thread the ends of the lower belt straps into the three-slot mounting brackets and tighten them (see fig. 18, item 5).

**INFORMATION:** Note the information in the instructions for use included with the belt system regarding the placement of the belts.



### Installing the sternum harness on the upper back support tube

- 1) Pre-install two tube clamps on the back support tube, each at a distance approximately equal to the width of the belt straps (see fig. 19, item 1/2).
- 2) Pass the upper belt straps of the sternum harness around the back support tube between the tube clamps (see fig. 19, item 3).
- 3) Attach the belt straps to the back support tube with the glide buckles (see fig. 19, item 4). The belt straps have to be tight against the back support tube.
- 4) Push the tube clamps on the back support tube tight against the belt straps from the left and right (see fig. 19, item 1/3). Firmly tighten the Allen screws and cap nuts of the tube clamps (see fig. 19, item 2).

### Adjusting the sternum harness

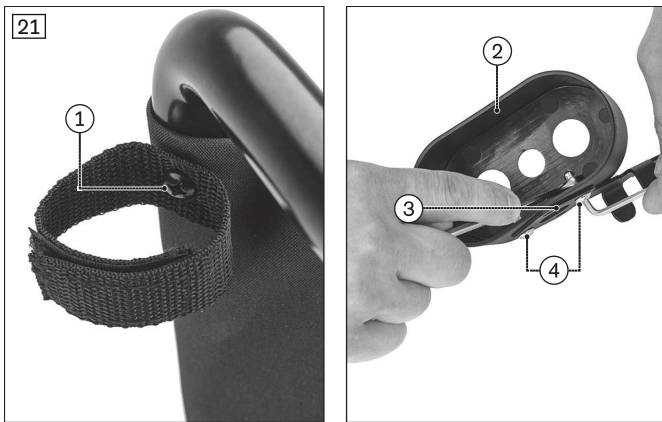
Notes on the correct adjustment of the sternum harness are found in the instructions for use (user) of this power wheelchair and the instructions for use included with the belt system.

### 6.2.9 Adapter for head/neck support mounting kit



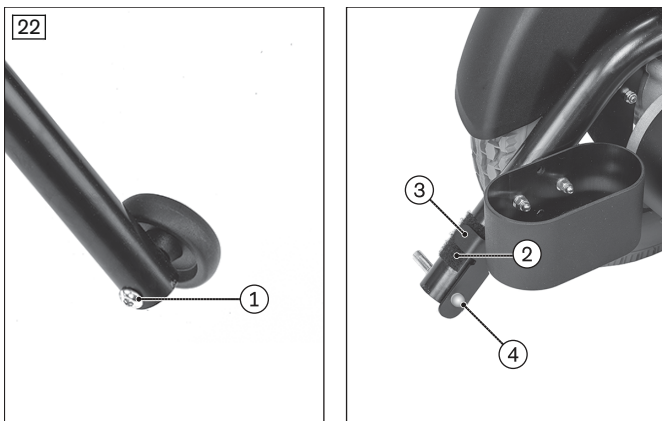
- 1) Mount the adapter plate on the back support tube using the two supplied Allen head screws (see fig. 20, item 1). Tighten the Allen head screws to **10 Nm**.
- 2) Now a head support mounting kit can be installed (not included in the scope of delivery).

### 6.2.10 Crutch holder



#### Installing the loop, preparing the component group

- 1) Loosen the Phillips head screw and install the loop of the crutch holder on the back support tube (see fig. 21, item 1).
- 2) Prepare the component group. To do so, connect the retaining plate and the crutch holder (see fig. 21, item 2/3). Firmly tighten the supplied Allen head screws with the cap nuts (see fig. 21, item 4).



#### Installing the crutch holder component group on the anti-tipper

- 1) Remove the anti-tipper roller (see fig. 22, item 1).
- 2) Affix the supplied loop strap to prevent rattling (see fig. 22, item 2).
- 3) Slide the crutch holder component group onto the anti-tipper tube (see fig. 22, item 3).
- 4) Insert the screw of the anti-tipper roller from the inside through the retaining plate of the crutch holder and through the anti-tipper tube (see fig. 22, item 4).
- 5) Reinstall the anti-tipper roller on the outside (see fig. 22, item 1). Tighten the Allen head screw/cap nut so the anti-tipper roller is tight but still turns.

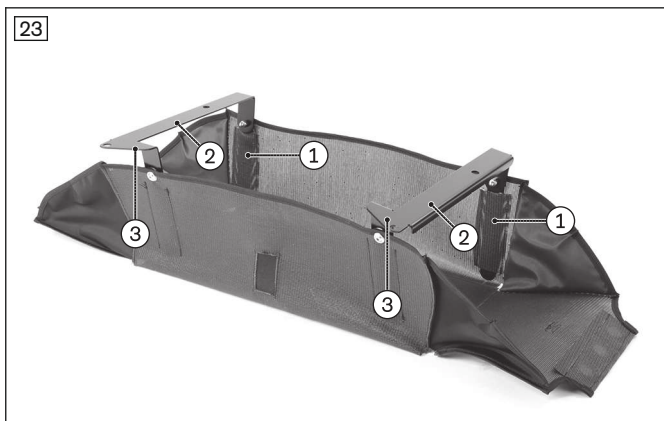
### 6.2.11 Storage bag

#### ⚠ CAUTION

#### Product contains magnets

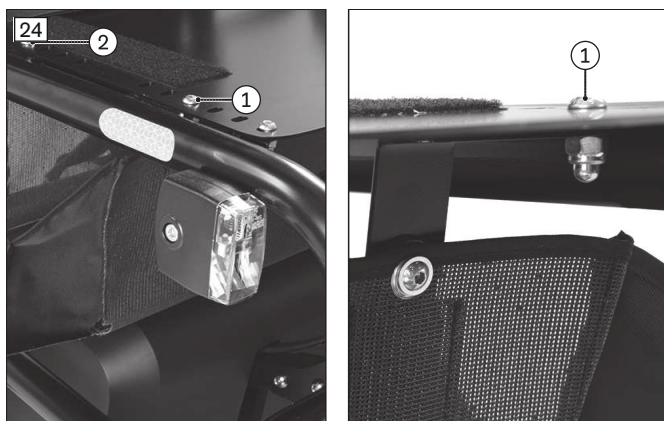
Crushing due to incorrect handling

- ▶ Magnets have a powerful attractive force and can cause crushing if handled without due care. Watch out for fingers or skin in the closure area.



### Preparing the storage bag

- 1) Insert the small plates into the side pockets of the storage bag. The slotted hole faces up on each side (see fig. 23, item 1).
- 2) Install the retaining plates on the small plates using the supplied mounting materials (see fig. 23, item 2). The pointed sides of the retaining plates face forward in the direction of travel during subsequent assembly (see fig. 23, item 3).



### Attaching the storage bag

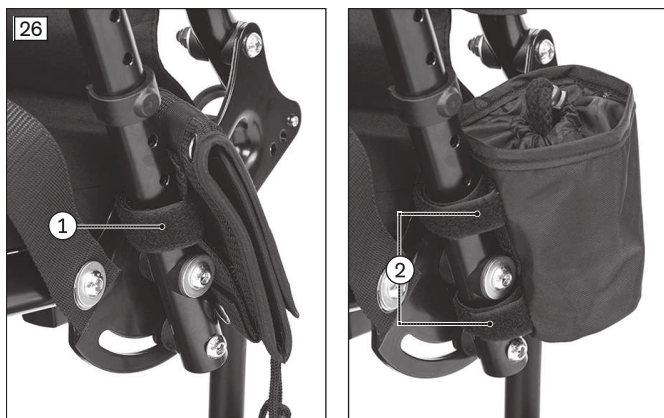
- 1) Remove the seat cushion.
- 2) Determine the appropriate mounting points under the seat plate (see fig. 24, front: item 1; rear: item 2).
- 3) Attach the retaining plates of the storage bag on the chosen mounting points of the seat plate. Tighten the screw connection to **10 Nm** (see fig. 24, item 1/2).
- 4) Replace the seat cushion.



### Checking the storage bag

- 1) The front edge of the storage bag is approximately in line with the front edge of the battery cover (see fig. 25, item 1).
- 2) The magnetic closures can be readily applied to the frame tube.

## 6.2.12 Attaching additional options



- **Bag for mobile phone:** Attached to the side of the arm support tube with hook-and-loop strap (see fig. 26, item 1).
- **Beverage holder:** Attached to the side of the arm support tube with hook-and-loop strap (see fig. 26, item 2).
- **Alternative seat cushion** (according to order form): Attached to the seat plate with hook-and-loop closure (not illustrated).

## 6.3 Settings

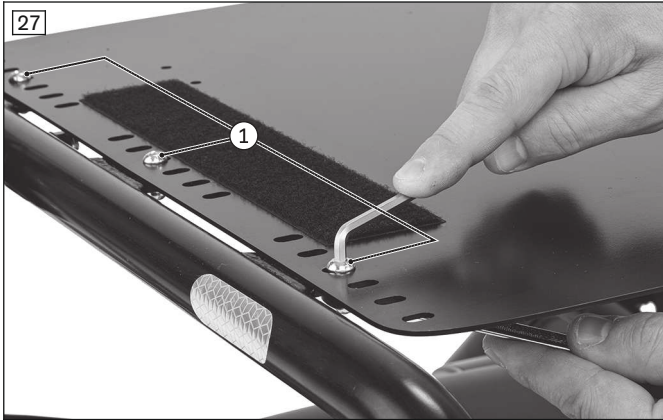
### 6.3.1 Basic settings

The following fitting tasks are described in more detail in the included Instructions for use (user):

- Adjusting the height of the arm supports
- Adjusting the back support angle

### 6.3.2 Adjusting the seat depth

The seat depth can be adjusted by repositioning the seat plate to the front or back.



- 1) Remove the seat cushion.
- 2) Loosen the six Allen head screws that attach the seat plate (see fig. 27, item 1).
- 3) Move the seat plate to the desired position. Six positions are available (seat depth = 380–480 mm).
- 4) Secure the seat plate. Firmly tighten the Allen head screws.
- 5) Attach the seat cushion.

### 6.3.3 Adjusting the arm pads

The width and depth position of the arm pads can be slightly adjusted.



#### Adjusting the width

- 1) Loosen the Allen head screws and move the arm pads to the desired position (see fig. 28, item 1).  
**INFORMATION: The distance between the arm supports can be adjusted to 400 mm or 460 mm. Only the marked bore holes may be used (see fig. 28, item 1). The curvature on the plate always faces out when the arm support is installed (see fig. 28, item 3).**
- 2) Firmly re-tighten the Allen head screws.

#### Adjusting the arm pads to the forearm length

- 1) Loosen the Allen head screws and move the arm pads to the desired position (see fig. 28, item 2).
- 2) Firmly re-tighten the Allen head screws.  
**INFORMATION: By changing the arm support height, the arm pad can be additionally adjusted to the length of the forearms.**

### 6.3.4 Adjusting the leg support

#### ⚠ CAUTION

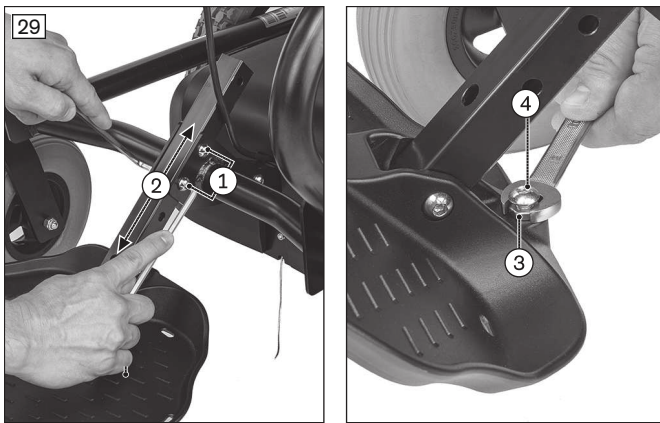
#### Improper adjustment of the leg support and foot plate

Risk of injuries due to uncontrolled driving characteristics, damage to the product

- ▶ Make sure that the clearance between the foot plate and ground is sufficient even under load.
- ▶ Make sure that the foot plate cannot come into contact with the caster wheels even under load.

The lower leg length can be adjusted in five increments from **380 to 480 mm**. The angle of the foot plate is continuously adjustable by **10°** (-5° to +5°).





### Adjusting the lower leg length

- 1) Loosen and remove the two Allen head screws in the mounting holes (see fig. 29, item 1).
- 2) Slide the receiver with the foot plate up or down (see fig. 29, item 2).
- 3) Insert the Allen head screws into the mounting holes and tighten to **10 Nm**.

### Adjusting the foot plate angle

- 1) Loosen the lock nut (see fig. 29, item 3).
- 2) Adjust the length of the adjustment screw according to the desired foot plate angle (see fig. 29, item 4).
- 3) Tighten the lock nut to **10 Nm**.

## 6.3.5 Adjusting the positioning belt

### ⚠ CAUTION

#### Incorrect approach to the adjustment process

Injuries, malpositions, user discomfort due to adjustment errors

- ▶ The qualified personnel is responsible for the individual positioning and fitting of the positioning belt (lap belt).
- ▶ Excessively tight adjustment may lead to unnecessary pain or user discomfort.
- ▶ Adjusting the positioning belt (lap belt) too loosely can cause the user to slide into a dangerous position. In addition, the fastening snaps could open unintentionally if they slide against hard parts of clothing (e.g. buttons).

### ⚠ CAUTION

#### Lack of instruction

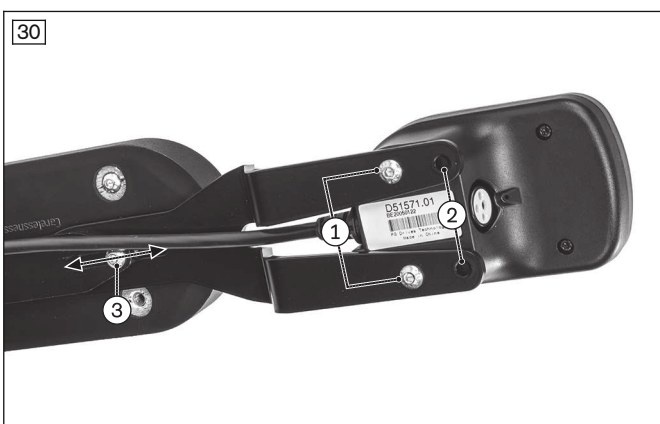
Injuries, malpositions, illness of the user due to incorrect information

- ▶ The qualified personnel is responsible for making sure that the user and/or attendant/care staff has understood the proper adjustment, use, maintenance and care of the positioning belt (lap belt).
- ▶ In particular, ensure that the user and/or attendant/care staff knows how to quickly loosen and open the product to avoid delays in case of emergency.

Notes on the correct positioning of the user in the seat and on adjusting and applying the positioning belt (lap belt) are found in the instructions for use (user) for this power wheelchair.

## 6.3.6 Adjusting the control panel position

The depth position of the control panel can be slightly adjusted. With the swing-away control panel holder, the height is adjustable as well.



### Standard control panel holder – adjusting the depth

- 1) Loosen and remove the Allen head screws between the control panel and the control panel holder (see fig. 30, item 1).
- 2) Install the control panel using the bore holes that were previously unused (see fig. 30, item 2). Firmly tighten the Allen head screws.
- 3) Loosen the two Allen head screws in the slotted hole of the control panel holder (see fig. 30, item 3, one screw not shown in the image).
- 4) Move the control panel holder to the desired position. Insert and firmly tighten the Allen head screws.



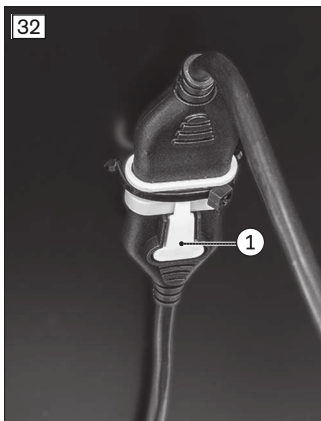
**Swing-away control panel holder – adjusting the depth**

- 1) **If necessary:** Loosen the set screw and lift the control panel slightly to obtain the required assembly clearance (see fig. 31, item 1).
- 2) Loosen and remove the Allen head screws on the retaining plates between the control panel and forearm support (see fig. 31, item 2/3).
- 3) Install the retaining plates using the bore holes that were previously unused. Insert and firmly tighten the Allen head screws (see fig. 31, item 2/3).

**Swing-away control panel holder – adjusting the height**

- 1) Loosen the set screw on the bracket (see fig. 31, item 4).
- 2) Move the control panel to the desired height. Make sure the set screw can still firmly secure the retaining plate.
- 3) Firmly tighten the set screw on the bracket (see fig. 31, item 4).

**6.3.7 Changing the control panel side**



- 1) Disconnect the battery cable from the controller (see page 9).
- 2) **Only if necessary:** Disconnect the connection plug of the control panel under the seat plate (see fig. 32, item 1).
- 3) Remove the cable holders on the arm support see fig. 32, item 2). Also cut the rear cable tie on the seat plate.
- 4) Loosen the screw connection between the control panel holder and arm pad (standard control panel: see fig. 30, item 3; swing-away control panel: see fig. 31, item 2).
- 5) Remove the control panel holder and the control panel.
- 6) Reattach the control panel holder on the underside of the other arm pad according to the arm length. To do so, insert and firmly tighten the Allen head screws (standard control panel: see fig. 30, item 3; swing-away control panel: see fig. 31, item 2).
- 7) Reattach the cable holders on the arm support (see fig. 32, item 2). Also install the rear cable tie on the seat plate.
- 8) **Only if necessary:** Reconnect the connection plug of the control panel under the seat plate (see fig. 32, item 1).
- 9) Connect the battery cable to the controller (see page 9).
- 10) Perform a functional test (see instructions for use (user)).

### 6.3.8 Adjusting the control device

#### **⚠ WARNING**

##### **Incorrect configuration of the control device**

Falling, tipping over, collision due to incorrect parameter settings

- ▶ Note that modified parameter settings lead to changes in driving characteristics. In particular, changes to the speed, acceleration, braking or joystick settings can lead to unexpected and therefore uncontrollable driving characteristics and cause an accident.
- ▶ The parameter settings of the control device may only be changed by qualified personnel. The manufacturer of the product and the control device manufacturer are not liable in case of damage caused by parameter settings that were incorrectly configured or not adjusted properly according to the user's abilities.
- ▶ The user must test the driving characteristics of the product under the supervision of the qualified personnel each time after parameter settings are changed.

If necessary, the pre-programmed wheelchair control system can be adjusted to the specific user requirements. Information on operation and troubleshooting of the wheelchair control unit can be found in the instructions for use (user).

Further information on possible parameter settings can be found in the service manual or the supplied instructions for use from the control device manufacturer Curtiss-Wright.

## 7 Delivery

### 7.1 Final inspection

A final inspection must be performed before delivery of the power wheelchair:

- Was the product fitted optimally to the physical and mental condition of the user (e.g. seat, arm support/side panel, leg supports, control panel)?
- Are the batteries charged?
- Do all power functions work properly (e.g. motors, lighting/direction indicators – if installed)?
- Do all control functions work properly?
- Do the brakes work?

### 7.2 Transport to the customer

#### **⚠ CAUTION**

##### **Securing the power wheelchair insufficiently during transport**

Crushing, pinching of body parts due to failure to observe transportation instructions

- ▶ During transportation in vehicles or aircraft, on lifting platforms or in lifts, turn the control unit of the power wheelchair off and lock the brake.
- ▶ The power wheelchair must be secured in accordance with the regulations for the transport device.
- ▶ During transport in a vehicle, the power wheelchair must be secured sufficiently with cargo straps. Only attach the cargo straps to the corresponding transportation eyelets and specified tie-down points.

#### **NOTICE**

##### **Improper transport**

Damage to the product due to failure to observe transportation instructions

- ▶ Be sure to lay the back support down onto the seat surface or place it in the vertical position before loading and for transporting the power wheelchair.
- ▶ Only use sufficiently large hoisting devices for loading or perform this work with the aid of a helper for support. In this case, you and the helper grasp the frame tubes underneath the seat with both hands on either side of the product. See the section "Technical data" for the weight of the power wheelchair.
- ▶ Do **not** attach the hoisting devices on moveable or adjustable components.

#### **NOTICE**

##### **Use of unsuitable packaging**

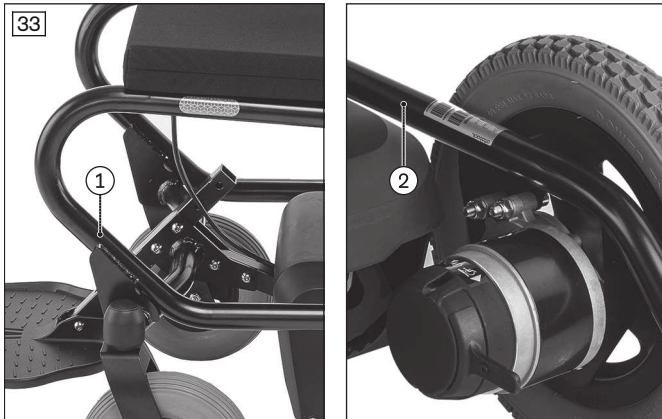
Damage to the product caused by transportation using incorrect packaging

- ▶ Use only the original packaging for delivery of the product.

### 7.2.1 Reducing the transportation size

The instructions for use (user) contain information on reducing the transportation size.

### 7.2.2 Preparing for transport



#### Transporting the power wheelchair

- 1) Lift the power wheelchair onto its transport location.  
**INFORMATION: When loading without hoisting devices, only perform the work with the aid of a helper for support. With your helper, grasp the frame tubes underneath the seat with both hands on either side of the product.**
- 2) Switch off the control device (see instructions for use (user)).
- 3) Verify brake locking. **If the brake is not engaged:** Engage the brake (see instructions for use (user)).
- 4) Secure the power wheelchair on the means of transport with tension straps passed around the frame tube (see fig. 33; recommended front attachment points: item 1, recommended rear attachment points: item 2).

### 7.3 Handing over the product

#### ⚠ WARNING

##### Lack of instruction

Tipping over, falling of the user due to lack of knowledge

- ▶ Instruct the user or the attendant in the proper use of the product when handing it over.

The following steps must be performed for the safe handover of the product:

- Have the user get into the product and perform a trial seat fitting. Pay special attention to proper positioning according to medical considerations.
- The user and any attendants must be instructed in the safe use of the product. In particular, the enclosed instructions for use (user) are to be used.
- The instructions for use (user) must be issued to the user or an attendant during handover of the wheelchair.
- The user or attendant should acknowledge that they have been instructed in how to use the product and were informed of the residual risks.
- **Depending on equipment:** The supplied instructions for use for accessories have to be handed over in addition.

## 8 Maintenance and repair

The manufacturer recommends regular maintenance of the product every **12 months**.

Further information on caring for the product and on maintenance/repair can be found in the instructions for use (user).

Detailed information on repairs and programming/troubleshooting of the control device can be found in the service manual.

## 9 Disposal

### 9.1 Disposal information

#### NOTICE

##### Disposal of batteries

Pollution due to incorrect disposal

- ▶ Observe the information printed on the batteries by the manufacturer.
- ▶ Note that the batteries may not be disposed of as household waste.



All components of the product must be disposed of properly in accordance with the respective national environmental regulations.

## 9.2 Information on re-use

### ⚠ CAUTION

#### Used seat padding

Functional and/or hygienic risks due to re-use

- ▶ Replace the seat padding if the wheelchair is to be re-used.

The product is suitable for re-use.

Similar to second-hand machines or vehicles, products that are being re-used are subject to increased strain. Features and performance must not change in a way that could impair the safety of users or third parties during the period of use.

The relevant product must be thoroughly cleaned and disinfected before re-use. Then have the product inspected by qualified personnel with respect to its condition, wear and tear, and damage. Worn and damaged parts as well as components that do not fit or are unsuitable for the user must be replaced.

Detailed information on replacing components as well as information on the required tools can be found in the service manual.

## 10 Legal information

All legal conditions are subject to the respective national laws of the country of use and may vary accordingly.

### 10.1 Liability

The manufacturer will only assume liability if the product is used in accordance with the descriptions and instructions provided in this document. The manufacturer will not assume liability for damage caused by disregarding the information in this document, particularly due to improper use or unauthorised modification of the product.

### 10.2 Warranty

Further information on the warranty terms and conditions can be obtained from the qualified personnel that has fitted this product or the manufacturer's service (see inside back cover for addresses).

### 10.3 Lifetime

Expected lifetime: **3 years**

The design, manufacturing and requirements for the intended use of the product are based on the expected lifetime. These also include the requirements for maintenance, ensuring effectiveness and the safety of the product.

## 11 Technical data

### INFORMATION

- ▶ Much of the technical data below is given in mm. Please note that product settings – unless otherwise specified – cannot be adjusted in the mm range but only in increments of approx. **0.5 cm** or **1 cm**.
- ▶ Note that the values achieved during adjustment may deviate from the values specified below. The deviation can be **±10 mm** and **±2°**.

#### Application class (according to DIN EN 12184)

Class B

#### Drive type

Rear-wheel drive

#### Weight\*

|                                                |                |
|------------------------------------------------|----------------|
| Base model weight when empty (without options) | 57 kg (126 lb) |
|------------------------------------------------|----------------|

\* The weight varies depending on the installed options.

#### Load

|                                                |                 |
|------------------------------------------------|-----------------|
| Maximum load (User weight + options + luggage) | 120 kg (265 lb) |
|------------------------------------------------|-----------------|

| <b>Dimensions – seat</b>                                         |                                                                  |
|------------------------------------------------------------------|------------------------------------------------------------------|
| Effective seat depth                                             | 380/400/420/440/460/480 mm (14.9"/15.7"/16.5"/17.3"/18.1"/18.9") |
| Effective seat width                                             | 400–460 mm (15.7"–18.1")                                         |
| Front seat height                                                | 500 mm (19.7")                                                   |
| Lower leg length<br>(includes seat cushion with height of 50 mm) | 380–480 mm (14.9"–18.9")                                         |
| Back support height                                              | 550 mm (21.6")                                                   |

| <b>Dimensions and weights</b>                          |                                                                                           |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Angle of the seat surface (seat inclination)*          | 4°                                                                                        |
| Angle of leg to seat (knee angle)                      | Minimum: 93°; maximum: 96°                                                                |
| Distance from arm support to seat (arm support height) | 200–300 mm (7.9"–11.8")                                                                   |
| Front position of the arm supports                     | 92–172 mm (3.6"–6.8")                                                                     |
| Length of the forearm support                          | 260 mm (10.2")                                                                            |
| Foremost point of the forearm support**                | Minimum: 262 mm (10.3"); maximum: 412 mm (16.2")                                          |
| Overall width                                          | 585 mm (23.3")                                                                            |
| Overall height                                         | 1060 mm (41.7")                                                                           |
| Overall length (with foot plate flipped up)***         | 893 mm (35.2")                                                                            |
| Overall length (with foot plate flipped down)***       | 1050 mm (41.4")                                                                           |
| Transport weight                                       | See "Weight", thereof weight of removable components: arm support: approx. 700 g (1.5 lb) |
| Minimum turning radius                                 | 740 mm (29.1")                                                                            |
| Turning circle****                                     | 1080 mm (42.5")                                                                           |
| Ground clearance*****                                  | 80 mm (3.1")                                                                              |
| Caster wheel tyre size                                 | 8"                                                                                        |
| Drive wheel tyre size                                  | 12.5"                                                                                     |

\* Cannot be changed

\*\* Measured to back support

\*\*\* With 480 mm lower leg length

\*\*\*\* = Three-point turn by 180°

\*\*\*\*\* Under the battery carrier

| <b>Transportation size (storage length x storage width x storage height)</b> |                |
|------------------------------------------------------------------------------|----------------|
| Storage length                                                               | 832 mm (32.8") |
| Storage width                                                                | 585 mm (23.3") |
| Storage height                                                               | 644 mm (25.4") |

| <b>Seat and back support adjustment</b> |                                        |
|-----------------------------------------|----------------------------------------|
| Back support angle                      | Manually in 10° increments: 0°/10°/20° |
| Angle of the foot plate                 | Manually, continuous: -5°–+5°          |

| <b>Tyres</b>          |          |
|-----------------------|----------|
| Tyre type, front/rear | PU tyres |

| <b>Driving data &gt;</b>           |                                                                             |
|------------------------------------|-----------------------------------------------------------------------------|
| Speed*                             | See nameplate for precise information: 6 km/h (3.7 mph); 7.2 km/h (4.4 mph) |
| Climbing ability**                 | 7° (12%)                                                                    |
| Dynamic stability – uphill***      | 7° (12%)                                                                    |
| Static stability – uphill/downhill | 9° (15.8%)                                                                  |
| Static stability – sideways        | 9° (15.8%)                                                                  |

| <b>Driving data &gt;</b>                              |                                                                                                                          |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Maximum obstacle height                               | 50 mm (2")                                                                                                               |
| Braking distance (according to DIN EN 12184:2014)**** | At 6 km/h (3.7 mph): 1,000 mm (39.4") – on level surfaces<br>At 7.2 km/h (4.4 mph): 1,200 mm (47.2") – on level surfaces |

\* The specified speed can deviate by  $\pm 10$  per cent.

\*\* The control device and the motors must be protected against overloading. For this reason, the continuous climbing ability depends on the overall weight (wheelchair weight + user weight + luggage) as well as the ground conditions, exterior temperature, battery voltage and user's driving style. In individual cases, the continuous climbing ability may be significantly lower than the value specified.

\*\*\* Approved climbing ability with upright back support.

\*\*\*\* The braking distance can be correspondingly longer due to user weight, luggage and condition of the tyres, and due to weather and surface conditions.

| <b>Driving distance range (on level surfaces)*</b> |                          |
|----------------------------------------------------|--------------------------|
| All battery types                                  | Approx. 25 km (16 miles) |

\* The specified driving distance range was determined under defined conditions according to ISO 7176-4. In practice, the driving distance range can be reduced by up to **50 per cent**. See the section "Driving distance range".

| <b>Battery (depending on country version)</b> |                                                       |
|-----------------------------------------------|-------------------------------------------------------|
| AGM batteries                                 | 2 x 12 V; 29.75 Ah (C5)/35 Ah (C20); maintenance-free |
| AGM batteries                                 | 2 x 12 V; 30 Ah (C5)/36.5 Ah (C20); maintenance-free  |
| Gel batteries                                 | 2 x 12 V; 27 Ah (C5)/35 Ah (C20); maintenance-free    |
| Gel batteries                                 | 2 x 12 V; 28.75 Ah (C5)/35 Ah (C20); maintenance-free |

| <b>Electrical circuit*</b>                       |                                                                                                            |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| IP protection rating (according to DIN EN 60529) | IP44                                                                                                       |
| Operating voltage                                | 24 V DC                                                                                                    |
| Motor power                                      | See nameplate on motor for precise information: 160 watts/200 watts (depending on country version)         |
| Lighting                                         |                                                                                                            |
| LED front light                                  | 24 V, maintenance-free                                                                                     |
| LED rear light                                   | 24 V, maintenance-free                                                                                     |
| Fuse                                             | 50 A fuse cable (nVR2)                                                                                     |
| Battery charger                                  | 5 – 10 A; usually supplied by Ottobock; for details, see the included battery charger instructions for use |

\* The product meets all requirements under ISO 7176-14.

| <b>Battery charger (not supplied by Ottobock)*</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Required minimum specifications                    | Minimum charging current: 5 A; maximum charging current: 10 A<br>Input voltage: 100–240 V<br>Isolation (class 2) according to IEC 60335-2-29; protection rating: IP21<br>The battery charger fulfils the normative requirements of EN 12184.<br>This also includes the requirements according to ISO 7176-14 (battery charger with reverse polarity protection; battery charger charges batteries to at least 80 per cent within 8 hours; battery charger includes information regarding nominal capacity and the possibility of charging overnight; battery charger indicates that the battery is properly connected)<br>The device fulfils the normative requirements of ISO 7176-21 and ISO 7176-25. |

\* For further details, see the instructions for use supplied with the battery charger.

| <b>Control device</b>         |                                                |
|-------------------------------|------------------------------------------------|
| Model                         | nVR2                                           |
| Max. output current per motor | 40 A (continuous current); 50 A (peak current) |

| <b>Control device</b>                                          |                                       |
|----------------------------------------------------------------|---------------------------------------|
| Force for operating the joystick on the standard control panel | 1.6 N                                 |
| <b>Allowable environmental conditions</b>                      |                                       |
| Operating temperature                                          | -15 °C to +40 °C (+5 °F to +104 °F)   |
| Transport and storage temperature                              | -15 °C to +40 °C (+5 °F to +104 °F)   |
| Relative humidity                                              | 45% to 85%; non-condensing            |
| <b>Corrosion protection</b>                                    |                                       |
| Corrosion protection                                           | Cathodic dip coating / powder coating |

## 12 Appendices

### 12.1 Required tools

The following tools are required for adjustments and maintenance work:

- Allen wrenches in sizes 3, 4, 5, 6
- Ring and open-ended wrenches in sizes 10, 11, 13, 19 and 24
- Torque wrench (measurement range 5-50 Nm)

### 12.2 Torque values of the screw connections

Unless otherwise specified, screw connections are tightened with the following torque values:

- Thread diameter M4: 3 Nm
- Thread diameter M5: 5 Nm
- Thread diameter M6: 10 Nm
- Thread diameter M8: 25 Nm



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