

Owner's Manual

English



X850

CE

Dear Permobil Owner

We congratulate you on your choice of power wheelchair. Our goal is for you to continue to feel satisfied with your choice of both vendor and wheelchair. Your Permobil is designed to give you highest possible comfort and safety and to meet the requirements regarding safety and environment.

Before you begin using your wheelchair, it is important that you read and understand the content of these operating instructions and in particular the Safety Instructions.

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IMPORTANT INFORMATION ABOUT THIS OWNER'S MANUAL

Before you begin using your wheelchair, it is important that you read and understand the content of these operating instructions and in particular the Safety Instructions.

These operating instructions are primarily intended to acquaint you with the functions and characteristics of the wheelchair and how you can use them in the best manner possible. They also contain important safety and maintenance information, as well as describing possible problems that can arise while driving the wheelchair.

Always keep these operating instructions handy in connection with your wheelchair, since the need for important information can arise concerning its use, safety and maintenance.

It is also possible to obtain information concerning our products from our home page on the Internet. You can find us at www.permobil.com.

All information, pictures, illustrations and specifications are based upon the product information that was available at the time that these operating instructions were printed. Pictures and illustrations that are found in these operating instructions are representative examples and not intended to be exact depictions of the various parts of the wheelchair.

We reserve the right to make changes to the product without prior notice.

If you are visually impaired, this document can be viewed in PDF format at www.permobil.com or alternatively ordered in large text.

Technical support

In the event of technical problems, you should contact Permobil.

Always state the seats serial number when contacting Permobil to ensure that the correct information is provided.

Spare parts & accessories

Spare parts and accessories must be ordered through Permobil. The expected service life of this product is 7 years.

Scrapping

Contact Permobil for information about scrapping agreements in force.

Warranty

All wheelchairs are supplied with a two-year product guarantee. Batteries and charger are supplied with one year warranty.

Incident Reporting

If an incident occurs please contact your nearest Permobil representative. Normally the same person you contacted at purchase day. To prepare this contact there is a link on our homepage, on the internet, at www.permobil.com. Open up your country page and the contact page. Here is the needed contact information and a guidance document in what information we need to investigate the incident. Complete the information as much as possible. This is of great help for us.

To increase the product quality and to ensure that our product is safe through the whole life cycle we need you to send in Incident Reports. It is also stated in MEDDEV 2.12-1 and Annex 9 that the manufacturer shall *“Encourage users or those given specific responsibility for reporting incidents that have occurred with medical devices and that meet the criteria within these guidelines to report the incidents to the Manufacturer and or to the Competent Authority in accordance with national guidance”*.

To meet the requirements and to ensure that our products shall remain safe in your hands we need your assistance. We hope you never need to use the information on this page but if there is an incident please contact us.

Product Approval

This product fulfil the requirements according to EN 12184, EN 1021-1, EN 1021-2, ISO 7176-9:2009, ISO 7176-14:2008, ISO 7176-16:1997 and ISO 7176-19:2001.

SAFETY INSTRUCTIONS

General

An electric wheelchair is a motorized vehicle and special care must therefore be taken when it is used. Please read and follow all instructions and warnings in this manual before operating your Permobil powered wheelchair. Incorrect use may both injure the user and damage the chair. In order to reduce these risks, you should read the Owner's Manual carefully, in particular the safety instructions and their warning texts.

Permobil is not responsible for personal injuries or property damage resulting from any person's failure to follow the warnings and instructions in this manual. Permobil is not responsible for injuries or damage resulting from failure to exercise good judgment.

The final selection and purchasing decision about the type of electric wheelchair to be used is the responsibility of the wheelchair user and his or her healthcare professional. Permobil is not responsible for inappropriate selections of wheelchair models or features or improper fitting of the wheelchair.

Attention!

Throughout this manual the following symbol will be used to note items that have significant importance to safety concerns:

WARNING!

Please use extreme caution where this warning symbol appears. Failure to observe warnings can lead to personal injury and property damage, including damage to the wheelchair.

CAUTION!

Please use caution where this symbol appears.

Your wheelchair and seat was configured specifically for your needs as prescribed by your healthcare provider. Consult your healthcare provider before changing the seat position or making any other adjustment. Some adjustments may reduce your wheelchair's performance or safety or may not be appropriate for your needs.

It is also of the utmost importance that you devote sufficient time to become acquainted with the different buttons, the function and steering controls, the different adjustment possibilities of the seat, etc. of your wheelchair and its accessories before you begin using it.

Do not undertake your own first test drive without making sure that you have assistance in the immediate vicinity if you should need help.

Prepare for use

In order to make sure that nothing happened to the wheelchair while it was being shipped to you, you should check the following items before beginning to use it:

- that all products ordered are included in the delivery, including operating instructions and possible other documentation. If you suspect that something is missing, then contact your supplier or Permobil for more information as soon as possible.
- that no transport-related or other damages have occurred to the wheelchair, seat and its accessories. If you discover that something has been damaged or in some other manner appears to be incorrect, then contact your supplier or Permobil for more information as soon as possible before you continue the checks.

We recommend that you charge your wheelchair's batteries before you begin using it. The chapter titled "Charging the Batteries" describes how to do this.

Always be sure that tires are inflated properly before driving.

If you experience that the wheelchair in any manner is not behaving as expected or if you suspect that something is wrong: abort the test drive as soon as possible, shut off the wheelchair and get in touch with your service contact or Permobil for more information.

Warnings and precautions

CAUTION!

Operation

Permobil recommends the use of wheelchair lights at all times user is riding near public rights of way. Use extreme caution when driving near unprotected ledges, drop-offs or on elevated surfaces. Unintended movement or excessive speed in these areas can lead to personal injury or property damage.

CAUTION!

Operation

Do not drive the wheelchair over any curbs or edges higher than indicated in the technical specifications section of the manual. When driving over a curb or similarly elevated surface, you must cross the surface at a 90 degree angle (perpendicular). Crossing such surfaces at any other angle may result in the wheelchair tipping.

Reduce your speed when driving on uneven terrain or soft surfaces. Do not use your wheelchair on stairs or escalators. Always use an elevator.

Do not lift or move the wheelchair by any of its removable parts. Doing so could lead to personal injury and property damage, including damage to the wheelchair.

 CAUTION!**Operation**

Do not let children drive the wheelchair without supervision. Do not drive the wheelchair on public streets or roadways. Obey all local pedestrian rules and be aware that vehicle drivers may have difficulty seeing you. Do not operate your wheelchair under the influence of alcohol. Consumption of alcohol may impair your ability to operate your wheelchair safely.

Some physical limitations or use of medication, either prescribed or over-the-counter, may limit your ability to operate your wheelchair safely. Be sure to consult with your physician about your physical limitations and medications.

 WARNING!**Modifications**

Any unauthorized modifications to the wheelchair or its various systems may increase the risk of personal injury and property damage, including damage to the wheelchair.

All modifications to and interventions in the vital systems of the wheelchair must be performed by a qualified service technician authorized by Permobil to perform such service on Permobil products.

 WARNING!**Weight Limitations**

The maximum user weight for your Permobil is set forth in the specification section in this Owner's Manual for current seat model. Operation of the wheelchair by users who exceed the maximum allowable user weight can lead to personal injury and property damage, including damage to the wheelchair, as well as voiding any applicable warranty to the wheelchair.

Do not carry passengers on the wheelchair. Doing so can lead to personal injury and property damage, including damage to the wheelchair.

 CAUTION!**Prior to Riding**

In some instances, including where certain medical conditions exist, users should practice operating their wheelchair under the supervision of an assistant who is familiar with the operation of the wheelchair and with the abilities and limitations of the user.

CAUTION!

Operation - Inclines

When driving downhill, select the slowest speed and proceed with caution. Driving down an incline can shift the user's center of gravity forward. If the wheelchair rolls faster than you would like, stop the wheelchair by releasing the joystick and begin descending again at a slower speed.

Avoid sudden stops or starts. Stop by releasing joystick rather than by turning the power off. Turning off power while the wheelchair is in motion will cause the wheelchair to stop suddenly. Be sure to keep all recommended positioning belts securely fastened at all times.

When driving up an incline, try to keep moving at a steady speed. Stopping and starting the chair while moving up an incline makes the wheelchair more difficult to control.

Do not drive up or down slopes with a gradient greater than indicated in the technical specifications section of the manual. There is a risk that the wheelchair will not maneuver safely.

WARNING!

Operation - Inclines

Do not drive the wheelchair where the sideways gradient is more than indicated in the technical specifications section of the manual. There is a risk of tipping over.

Do not drive up or down ramps that are not equipped with proper edge protection along the sides of the ramp to prevent the wheelchair from falling off of the ramp.

When driving up an incline, be sure to drive your wheelchair straight up the incline (perpendicular). Driving at an angle up an incline increases the risk of tipping or falling. Use extreme caution when driving up an incline.

Do not drive down or up a hazardous incline, such as a surface covered with snow, ice, or wet leaves or a surface that is uneven. Also avoid driving on ramps that do not have proper edge protection.

 WARNING!**Operation - Turning**

Turning your wheelchair at high speeds can create the possibility of the wheelchair tipping and personal injury. The possibility of tipping can be increased by high turning speed, sharp turns, uneven surfaces, abrupt changes in direction, and driving from an area of low traction (e.g. lawn) to an area of high traction (e.g. sidewalk). To protect against tipping, personal injury and property damage, reduce speed and reduce the sharpness of your turn when turning.

 WARNING!**Operation - Freewheel Mode**

In order to prevent the wheelchair from rolling away, ensure that the wheelchair is on a level surface before releasing the brakes.

In order to avoid personal injury do not use your Permobil in freewheel mode without an attendant present. Do not attempt to put the wheelchair in freewheel mode by yourself while seated in it.

Do not put your Permobil in freewheel mode while on an incline. This could cause the wheelchair to roll on its own, causing injury and property damage, including damage to the wheelchair.

 CAUTION!**Driving on a Loose/Soft Surface**

When the wheelchair is set to its lowest speed and the batteries are not fully charged, driving on certain surfaces, for example gravel, sand or thick carpeting, can involve constrained navigability.

 CAUTION!**Driving in Darkness**

Driving in the dark may only be done if your wheelchair is equipped with functioning lighting in the front and the back, or as per the applicable national or local traffic regulations.

 WARNING!**Passengers**

The wheelchair is not intended to transport passengers, regardless of the age of the passenger. The Maximum User Weight stated in the Owner's Manual for your seating system includes the user and any personal effects. The Maximum limit should not be exceeded. The wheelchair's manoeuvrability and stability can be degraded as a result.

 WARNING!**Driving with Seat Lift/Seat Tilt/ Backrest Recline**

Be careful in making sure that nothing gets stuck between the chassis and the seat when the seat lift/seat tilt is operated. Operating the seat lift, seat tilt/ backrest recline changes the center of gravity and increases the risk of tipping over. Always drive in low speed and only use those seat functions on level ground, and not on hills, ramps, slopes or other inclines. Using those seat functions while driving on inclines can lead to personal injury and property damage, including damage to the wheelchair.

 WARNING!**Center of Balance**

The possibility of this wheelchair tipping and the point where this wheelchair will tip forward, back or to the side depends on its center of balance. Please note that the following factors can affect the wheelchair's center of balance:

- Elevation of the seat
- Height and angle of the seat
- Body position or weight distribution
- Driving on an incline such as a ramp or a hill
- Use of a backpack or other accessories, depending on the amount of weight added.
- If your wheelchair begins to move in an unexpected manner, immediately release the joystick to stop the wheelchair. Except in an emergency, do NOT use the on/off button to stop your wheelchair, as this will cause the wheelchair to stop abruptly and may cause personal injury.

 WARNING!**Fixed seat post**

Adjusting the seat height may only be performed by an authorized service provider. See the service manual for more information.

 **CAUTION!****Positioning Belt**

Permobil positioning belts are designed to position the user only and will not protect you in an accident. You may even receive further injury from the belts.

 **WARNING!**

Support Wheels

If your wheelchair is equipped with support wheels, they must always be mounted when the wheelchair is being driven.

⚠ WARNING!**Transfer into and out of the chair**

Be sure that the power is turned OFF before entering or leaving the wheelchair and before lifting the control side armrest.

When transferring into or out of the wheelchair, every precaution should be taken to reduce the distance between the wheelchair and the place to which the user is transferring. Overextending this distance can cause user to overexert, lose balance, or fall.

Permobil recommends that users transfer in the presence of or with the assistance of an attendant.

Use caution when bending or reaching.

Never use the joystick as a handhold or point of support.

Do not use foot plates or armrests as supports when transferring into or out of the wheelchair. The footplates and armrests are not designed to be weight-bearing structures. Excessive force may cause them to give way, resulting in personal injury or property damage, including damage to the wheelchair.



 **CAUTION!****Driving in Extreme Climate Conditions**

Permobil's wheelchairs are designed to withstand most adverse weather conditions, however to minimize the risk of being caught in difficult situations you should avoid using the wheelchair outdoors during, for example, severe cold, heavy rain or thick snow.

Also bear in mind that certain surfaces on the wheelchair can be heated up or cooled down in the event of prolonged exposure to intense sunlight or cold respectively.

 **WARNING!****Transport**

The wheelchair must only be transported in vehicles approved for this purpose. Always ask for confirmation of the transporter that the vehicle is suitable designed, insured and equipped to transport a person in a wheelchair. A wheelchair is not designed as a car seat and cannot offer the same degree of safety that is offered by standard car seats, no matter how securely it has been fastened in the vehicle concerned.

Carefully check that the wheelchair is properly fixed and that the break release has not been activated (the wheelchair drive wheels must be locked). The wheelchair can be locked in position with loading straps from the transport eyes at the front and rear, marked with yellow stickers, or by using a Permolock locking system. If the wheelchair needs to be transported with the user seated in it, be sure to use an approved attachment system suitable for the total weight of the wheelchair to secure the wheelchair.

- The wheelchair can be fastened by securing it to the tie-down points on the wheelchair's chassis or in the Permolock locking system. The wheelchair must not be secured onto any accessories.
- Permobil recommends that the wheelchair be equipped with a headrest and that this is used during transportation.
- During transportation, it is essential that you are secured with a three-point safety belt that is attached to the floor and a side of the vehicle.
- A lap strap attached to the wheelchair only serves to keep the person in an upright position and cannot be considered on par with a car safety belt.

 WARNING!**Maintenance and Service**

Carry out only the service and maintenance which are stated in the Owner's Manual. All other service and maintenance including programming of the control system must be performed by a qualified service technician authorized by Permobil to perform such service on Permobil products. Incorrect settings could result in unsafe operation of the wheelchair and could cause the chair to become unstable or uncontrollable. Such modifications may also void the wheelchair's warranty.

During all work on the electrical system of the wheelchair, the Main fuse must always be in OFF position. To avoid the risk of electric shock, use extreme caution when using metal objects while working on the batteries. Short-circuiting can easily cause an explosion. Never perform service on the wheelchair without using protective gloves and goggles. Failure to do so can lead to personal injury.

Do not use parts or accessories not authorized by Permobil. Use of unapproved "aftermarket" accessories and parts may cause changes in the wheelchair, which may make the wheelchair unstable or uncontrollable. Such use may also void the warranty on the wheelchair.

Connecting any unapproved electrical or electronic devices to the wheelchair's electrical system can cause damage to the chair and caused the chair to become uncontrollable or drive erratically. Such use may also void the warranty. The wheelchair is heavy and contains many moving parts, which means that the risk of being caught between them is always present.

 WARNING!**Charging of Batteries**

Charging must be done in a well-ventilated room, not in a wardrobe or closet. Charging must not be done in a bathroom or wet room. Only chargers with a max 10 A charging current (average value) may be used (the RMS value of the charging current must not exceed 12 A). When the charger is connected, the chair must not and cannot be driven.

 WARNING!**Changing Batteries and Fuses**

The Main fuse must always be switched to OFF-position when batteries and fuses are replaced. Observe care in the use of metallic objects when working with batteries. A short-circuit can easily cause an explosion. Always use protective gloves and protective eye-glasses.

 WARNING!**Safety Circuits**

Permobil products are equipped with safety circuits. Inhibit circuits prevent the wheelchair from driving under certain conditions. Speed reduction circuits limit the wheelchair's maximum speed under certain conditions. Limit switch circuits limit the wheelchair's functions under certain circumstances. Overload protection circuits shut the wheelchair off in case of an overload. The user should stop using the wheelchair immediately and consult an authorized Permobil distributor if any of these circuits should become disabled.

Any attempt to modify the safety circuits will result in unsafe operation of the wheelchair and could cause the chair to become unstable or uncontrollable. Such modifications may also void the wheelchair's warranty.

 CAUTION!**Recycling of Batteries**

Used or broken drive batteries should be taken care of in an environmentally correct manner in accordance with locally applicable recycling directions.

 WARNING!**Filling Air into tires**

Check at regular intervals that the wheelchair's tires have the prescribed tire pressure. Incorrect tire pressure can cause deteriorating stability and maneuverability.

The prescribed tire pressure is 200-250 kPa (2-2.5 bar).

Note that overfilling causes a risk of explosion.

 WARNING!**Changing Tires**

Avoid the use of sharp-edged tools when working with tires.

 WARNING!**Storage**

The wheelchair and its accessories must always be shut off when they are not being used. Always store the wheelchair so that access for unauthorized individuals is avoided.

Never store the wheelchair in a room in which condensation can arise (mist or dampness on the surfaces) e.g. in pool areas, laundry rooms, or similar rooms.

If you are unsure as to how your wheelchair and its accessories should be properly stored, contact your supplier or Permobil for more information.

 WARNING!**Damages/malfunctions on the wheelchair and its accessories**

If you experience that the wheelchair in any manner is not behaving as expected or if you suspect that something is wrong: Stop driving as soon as possible, shut off the wheelchair and contact your service contact or Permobil for more information.

It's also of greatest importance that Permobil be informed if the wheelchair and its accessories have been subjected to transport damages, damages during driving or damages due to another cause as soon as possible after the event. There exists a risk that the wheelchair and its accessories can no longer be used in a safe and secure manner.

 CAUTION!**EMC Requirements**

The electronics of an power wheelchair can be affected by external electromagnetic fields (for example from mobile telephones). Similarly, the electronics of the wheelchair itself can also emit electromagnetic fields that can affect the immediate surroundings (for example certain alarm systems in businesses).

The limit values for Electromagnetic Compatibility (EMC) with respect to power wheelchairs is set in the harmonized standards for the EU in the Medical Devices Directive, No. 93/42/EEC.

Permobil's electronic wheelchair's comply with these limit values.

DESIGN AND FUNCTION

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General

This wheelchair is an electric rear-wheel drive wheelchair for outdoor driving. It is intended for people with physical disabilities.

The wheelchair consists of a chassis and a seat. The chassis contains the wheelchair's electronics, power supply and drive functions.

The seat can be fitted with a fixed or electric seat lift and both manual and electric seat functions.

In this user manual, we have chosen to show the wheelchair with our Corpus 3G seat. However, the operation of the chassis and most of its functions are the same regardless of the seat model chosen.

1. Backrest
2. Control panel
3. Seat
4. Foot plate
5. Front wheel
6. Rear wheel (drive wheel)
7. Serial number label
8. Chassis
9. Arm rest



Figure 1. Overview

Drive package

The wheelchair has a drive pack for each drive wheel. The motors regulate the speed and braking. A joystick on the control panel sends signals to the electronics unit. The electronics unit then controls the motors.

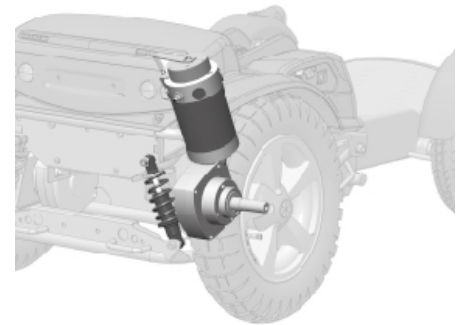


Figure 2. Drive package and shock absorber.

Shock absorbers

The rear of the wheelchair is equipped with two shock absorbers that increase comfort when driving on uneven surfaces..

Wheels

The wheelchair's wheels have pneumatic tyres.

Lights and reflectors

In the standard version, this wheelchair is fitted with reflectors at the front and rear as well as the sides. There are also lights and indicators at the front and rear.

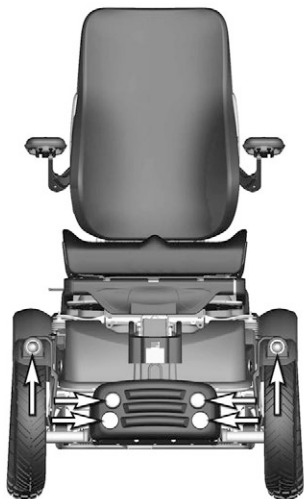


Figure 3. Front Lights



Figure 4. Rear Lights



Figure 5. Side Reflectors

Batteries

The wheelchair's two batteries are located in the chassis and are easily accessible for maintenance and service.

⚠ WARNING!

Be careful when using metal objects when working with batteries. A short-circuit can easily cause an explosion. Always use safety gloves and safety goggles.
Remember that the batteries are heavy and must be handled with great caution.

⚠ CAUTION!

Used or malfunctioning batteries should be disposed of responsibly in accordance with local recycling regulations.

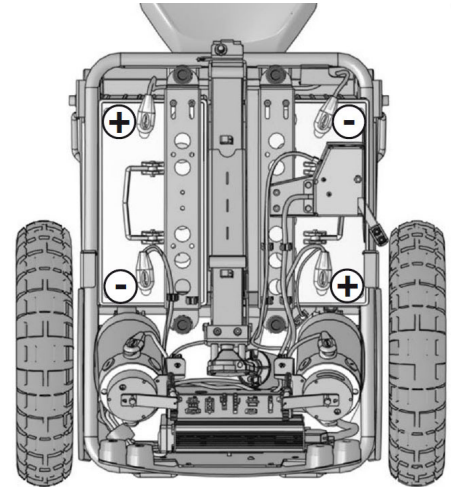


Figure 6. Location of batteries

Electronics

Circuit breaker

This wheelchair is fitted with a 100 A automatic main fuse that can be reset when it has been triggered. It also functions as a battery isolator and is controlled (ON/OFF) via a recess in the front of the chassis.

CAUTION!

Always switch off the power supply to the control panel before interrupting the power with the main fuse.

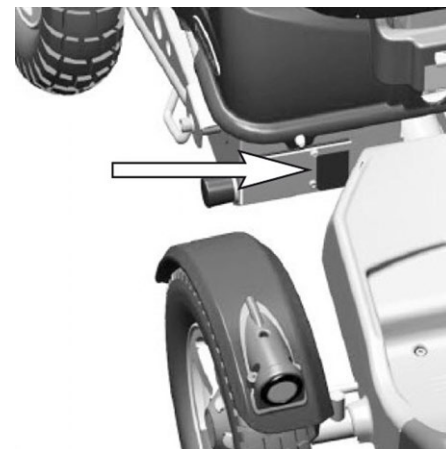


Figure 7. Main fuse

⚠ WARNING!

If the main fuse is triggered, there is often a major electrical fault. The cause of the fault should be checked carefully before the switch is reset. Contact Service in case of doubt.

Fuses

Other fuses are located under the rear chassis cover. The charging fuse is located in front of the right drive motor. This fuse and other fuses are accessible from beneath the chassis.

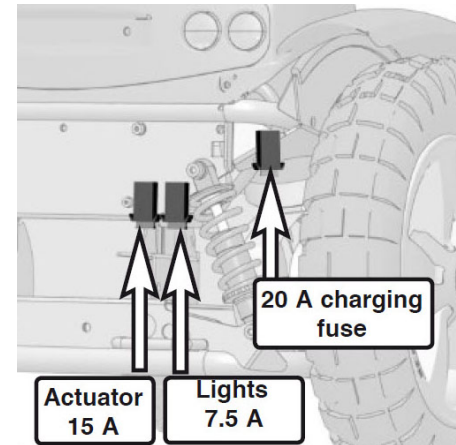


Figure 8. Fuses

⚠ WARNING!

Always switch off the power supply to the control panel before changing the charging fuse. The battery charger must not be connected when the charging fuse is changed.

If the charging fuse is triggered, there may be problems or faults with the batteries, the charger/charging cables, or the wheelchair's charging socket.

The cause of the charging fuse being triggered should be checked carefully before the fuse is changed.

Charging socket

The charging socket is located on the right side of the chassis.

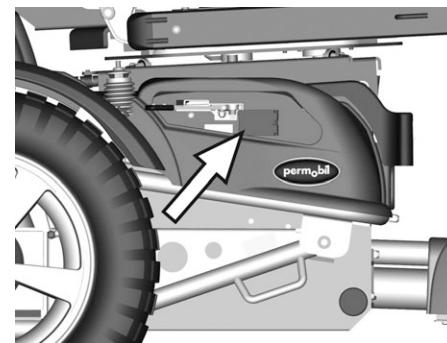


Figure 9. Charging socket

Seat lift

The wheelchair can be fitted with an electrically controlled seat lift that allows the seat to be raised steplessly up to 200 mm in order to adjust the height to tables, benches, etc. If the seat lift is raised from its lowest position, the wheelchair's maximum speed forwards is reduced to 7 km/h and the maximum speed backwards to 4 km/h. The seat lift function works only when the wheelchair is stationary.

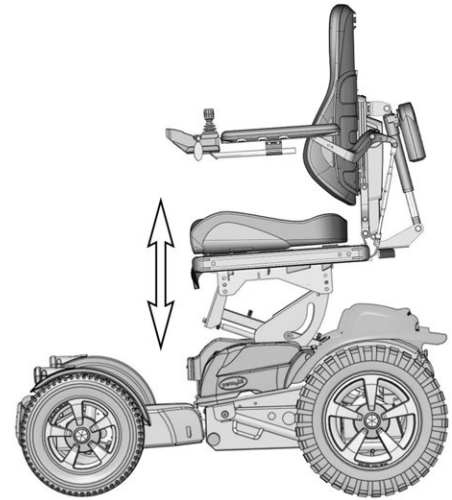


Figure 10. Seat lift.

Seat rotation

The wheelchair can be fitted with electric seat rotation.

⚠ WARNING!

There will always be a crushing risk when the electric seat functions are in action. Be careful and make sure that nothing can get stuck or crushed between the chassis and the seat when the seat rotation is operated.

There is a risk of personal injury.

Seat rotation must not be used when the wheelchair is on a sloping surface. There is a risk of personal injury.

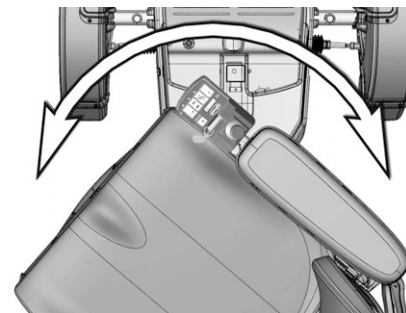


Figure 11. Seat rotation

Seat angle

The seat angle can be adjusted to three fixed positions, inclined forwards, neutral and inclined backwards. If the seat is fitted with seat rotation, the seat must always be fitted in the neutral position, i.e. the level position.

The wheelchair can also be equipped with electric seat tilt, which makes it possible to adjust the angle of the seat.

Other adjustments

The control panel, arm rest, foot plates, and other accessories have manual adjustment and setting options.

CONTROL PANEL

General

The Control Panel consists of a joystick, function keys and indications symbols.

Your wheelchair may also be fitted with a Seat Control Panel connected to the control panel. In that case, you can choose whether you want to control the electric seat functions from the Seat Control Panel or the control panel.



Figure 12. Overview, panel display

Function buttons and Indication symbols

Lights button and indicator

press the switch to switch on the wheelchair's lights. Press the key again to switch off the lights. When the lights are on, the indication lamp lights up as well.



Figure 13. Lights

Horn button

Press the switch to produce a signal to attract attention.



Figure 14. Horn

Indicators button and indicator

Press the right or left arrow to activate the wheelchair's indicators. The indication lamp on the control flashes as well.



Figure 15. Indicators

Seat lift button and indicator

Switch for moving the seat lift up and down. When the seat lift is in operation, the indication lamps light up. When the seat lift is activated from its lowest position, the maximum speed is halved to approximately 7 km/h.



Figure 16. Seat lift

On/Off button

This switch is used to start or switch off the wheelchair. The start key must be pressed for the wheelchair to work.

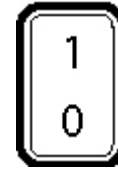


Figure 17. Start key On/Off

⚠ WARNING!

Never use the ON/OFF key to stop the wheelchair when driving unless there is an emergency. There is a risk of the user being ejected from the chair or of the life of the wheelchair's drive components being reduced.

Speed selector button and indicator

Indicates the maximum speed set for the wheelchair.

Low = 0–3 km/h, 1 lamp lit

Medium = 0–9 km/h, 2 lamps lit

High = 0–14.5 km/h, 3 lamps lit



Figure 18. Speed selector

Battery Voltage Indicator

Shows the voltage remaining for the batteries (from left to right):

Red/Yellow/Green = Fully charged

Red/Yellow = Half charged

Red = Charge the batteries

A good way of using this indicator is to learn how it works while you are driving. Like a fuel gauge in a car, it does not show exactly how much “fuel” is left, but it gives you a rough idea so that you can avoid unnecessary stops because the batteries are discharged.

The indicator shows a more exact value after approximately 1 minute of driving.

The battery voltage indicator also functions as a “fault indicator” for the wheelchair’s electronics. See the service manual for further information.

Key switch

The key switch must be in place before the wheelchair can be started. When the key is removed, the wheelchair is locked and cannot be used by unauthorised persons.



Figure 19. Battery voltage indicator

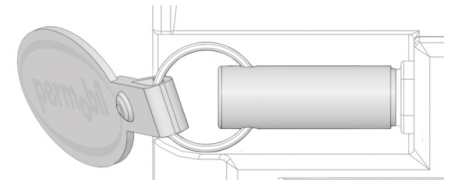


Figure 20. Key switch

Joystick

The joystick is used to control the wheelchair's speed forwards and backwards, to turn and to brake.

The speed is directly proportional to the joystick movement (little movement, low speed — big movement, high speed). The wheelchair is brought to a controlled stop when you move the joystick back towards the neutral position or let it go.

The wheelchair is turned by moving the joystick to one side or the other.



Figure 21. Joystick

Seat Control Panel

The wheelchair's Seat Control Panel is fixed to the right or left arm rest behind the control panel. The Seat Control Panel is used to control the various options such as the wheelchair's extension, seat rotation and back angle.

The pictures below show the different functions of the Seat Control Panel.

Back rest angle

The back rest can be angled backwards as the user wishes. Press the upper surface of the symbol to raise the back. Press the lower surface to lower the back.

The back can be angled down to 130°.



Figure 22. Seat Control Panel



Figure 23. Back rest angle.

Extension

The distance between the foot plate and the seat on the wheelchair is adjustable. Press the upper surface of the symbol to move the foot plate out and on the lower surface to retract it.

This makes it easy to set the leg length for the user and you have the chance to stretch your legs while driving.

When the extension is fully extended, the wheelchair drives more softly outdoors. When the extension is retracted, driving is easier indoors.

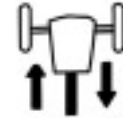


Figure 24. Extension.

⚠ WARNING!

Make sure that there is nothing stuck between the chassis and the foot plate when the length of the wheelchair is reduced. There is a risk of personal injury.

The seat rotation must not be used when the wheelchair is on a sloping surface. There is a risk of personal injury.

Seat rotation

The seat rotation function allows you to rotate the seat. This makes it easier to get into and out of the seat. Press on the upper surface of the symbol to rotate the seat clockwise. Press on the lower surface of the symbol to rotate the seat anticlockwise. The seat rotates until the position is straight forward or the right or left end position.

When the seat rotation is activated, a lamp lights up above the seat lift symbol on the control panel. While the seat is rotating, it is not possible to drive the wheelchair.

With the front wheels turned as far as they will go to either the left or right, there is more leg room, which makes seat rotation easier. Turn the front wheels as far as they will go using the joystick. Hold the joystick in the desired position and turn off the wheelchair using the main switch on the control panel. Then switch the wheelchair on again without touching the joystick. Activate the seat rotation. When the joystick is moved, the front wheels return to the neutral position, i.e. straight forwards.



Figure 25. Seat rotation.

Seat Tilt

The seat is angled backwards when the bottom part of the seat tilt angle button is pressed and moves forward when the top part of the button is pressed.

When the seat tilt is activated, the lamp above the seat lift button flashes, this indicates that the seat lift cannot be used.



Figure 26. Seat Tilt.

Joystick menu

Enabling/disabling the Joystick menu

It is possible to choose whether you want to have access to the Joystick menu or not. To enable/disable the Joystick menu, hold down the lights key and the right indicator key when turning on the wheelchair. Three beeps indicates that the Joystick menu is enabled and two beeps indicates that the Joystick menu is disabled.

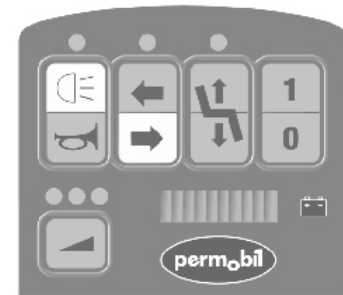


Figure 27. Enabling Joystick menu

Using the Joystick menu

There are two different ways of entering the Joystick menu. One way is to press and hold the lights key for two seconds. The other way is to move the joystick to the maximum left or right position and hold it there for two seconds. This action is confirmed with a short acoustic signal.

NOTE!

To be able to enter the Joystick menu with the joystick, the wheelchair electronics must be configured. Contract your service engineer for help.

When you have entered the Joystick menu, the lamp above the lights key and the horn key will be lit. All other lamps are off, including the LED indication for the battery voltage.

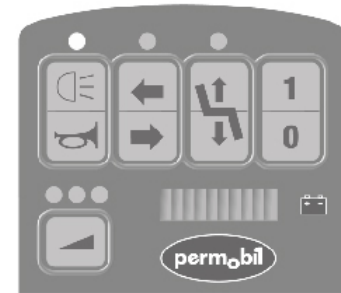


Figure 28. Indication of Joystick menu

Functions in the Joystick menu

When the lamps above the lights key and horn key are lit, the lights can be activated by moving the joystick forwards and the horn can be activated by moving the joystick backwards. Therefore, moving the joystick forwards has the same effect as pressing the upper key. The function remains active until the joystick is returned to its original position.

Each step (including the “key pressed”) is followed by a short acoustic signal.

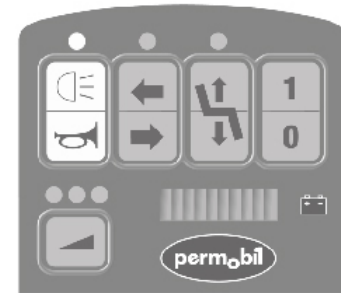


Figure 29. Activation of lights/horn

Other Joystick menu functions

- Indicators – right/left
- Seat lift up/down
- Speed
- Extra Seat Control Panel
- Switch off the wheelchair

Activation of indicators

To activate the indicator function, move the joystick to the right until the lamp above the indicator keys is lit. Move the joystick forwards to activate the left indicators. Move the joystick backwards to activate the right indicators.

NOTE!

After any of the indicator functions has been activated, the Joystick menu will automatically return to the drive position. See also *Exiting the Joystick menu*, Page 60.

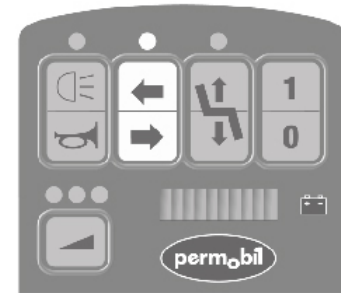


Figure 30. Activation of indicators

Activation of the seat lift

Move the joystick to the right until the lamp above the seat lift key is lit. To raise the seat lift, move the joystick forwards. To lower the seat lift, move the joystick backwards.

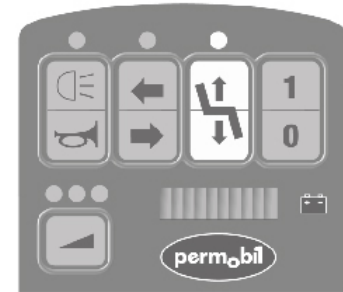


Figure 31. Activation of the seat lift

Activation of the speed selector

Move the joystick to the right until the lamp above the speed selector is lit. Move the joystick forwards to increase the speed. Move the joystick backwards to reduce the speed.

The speed can be set to any one of three fixed positions. These are indicated by the number of lamps lit (one, two or three).

NOTE!

Moving the joystick to the right or left without activating any function allows for stepping forwards or backwards through the Joystick menu. This continues until the joystick is released.

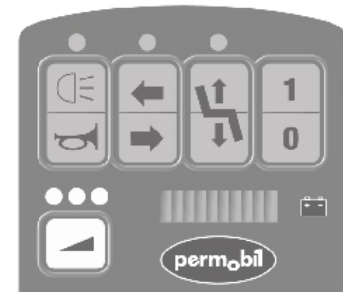


Figure 32. Activation of speed selector

Controlling the functions of the Seat Control Panel

To control the functions of the extra Seat Control Panel, step forwards in the Joystick menu until you reach the battery voltage indicator. The first four LEDs there (three red and one yellow), are used to indicate the functions of the Seat Control Panel.

The first LED corresponds to the left key of the Seat Control Panel. The second LED corresponds to the second key from the left, etc. The function is activated by moving the joystick either forwards or backwards.

NOTE!

Your wheelchair does not need to be fitted with an extra Seat Control Panel for you to be able to use the corresponding functions when in the Joystick menu.

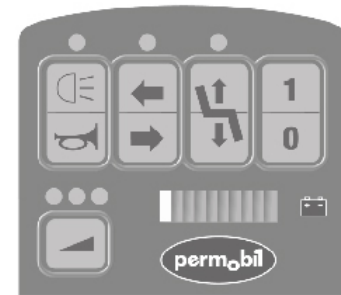


Figure 33. Activation of the Seat Control Panel

Exiting the Joystick menu

There are two methods of exiting the Joystick menu.

1. Go to the last menu position

Move the joystick to the right until all ten LEDs on the battery voltage indicator light up (three red, four yellow and three green). The other indication lamps on the control panel also light up. Return to the drive position by moving the joystick forwards. The wheelchair can also be switched off by moving the joystick backwards and holding it in that position for at least three seconds.

2. Activate the indicator function

Move the joystick to the right until the light above the indicator key is lit. Activate either the left or right indicators. The Joystick menu will then be exited and the wheelchair will return to the drive position.

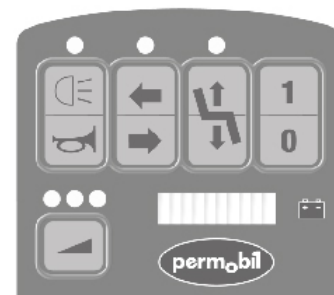


Figure 34. 1. Exit Joystick menu

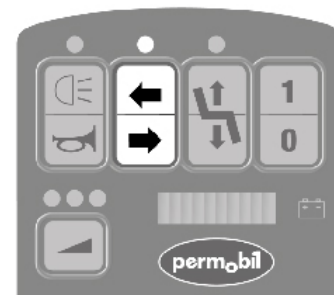


Figure 35. 2. Exit Joystick menu

OPERATION

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General

This wheelchair is an electric rear-wheel drive wheelchair for outdoor driving. It is intended for people with physical disabilities.

The wheelchair consists of a chassis and a seat. The chassis contains the wheelchair's electronics, power supply and drive functions. The seat consists of a seat frame, seat plate/back rest, arm rest, seat lift/fixed seat tube and any accessories/options such as a headrest, etc.

Driving

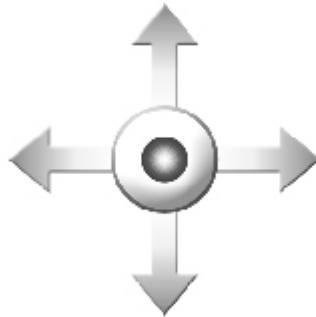
Check that the control panel is correctly fitted and that the joystick is in the neutral position. Ensure that you have good support, for example the wheelchair's arm rest, for the part you use to handle the joystick with. Do not just use the joystick as a support. Fast turns and driving on uneven surfaces can interfere with your ability to handle the wheelchair safely.

1. Insert the key switch into the control panel.
2. Switch on the power by pressing the on/off switch (1) on the control panel.
3. Set the appropriate speed range by pressing the speed selector until the desired indication lamp lights up for your type of driving. It is a good idea to start at the low speed.
4. Move the joystick carefully forwards to drive forwards or backwards to reverse.
5. The speed of the wheelchair is controlled steplessly by moving the joystick forwards or backwards to different degrees. The wheelchair's electronics allow for very slow driving over edges. You can drive up to the edge and then carefully drive over it.

Driving technique

The control panel's electronics "interpret" the movements of the joystick and move the wheelchair as intended. For normal driving, no complex techniques are needed. This is an advantage if the user does not have much experience. A good way to start driving the wheelchair is quite simply to move the joystick in the desired driving direction. The wheelchair then moves in the direction that the joystick is pointing.

However, always remember to drive as gently as possible and to avoid sudden braking and evasive manoeuvres.



IMPORTANT!

Do not take the first test drive alone. The test drive is intended to establish how the wheelchair and you work together. You may need assistance.

Before driving, check that the brake release lever is in the drive position.

 **WARNING!**

Do not use the joystick as support. Fast turns and driving on uneven surfaces can interfere with the ability to safely handle the wheelchair.

If the wheelchair moves in an undesired direction, **RELEASE THE JOYSTICK!**

The wheelchair will then stop moving and return to a neutral state.

Driving rules

WARNING!

Always be aware that high speed and a longer braking distance mean an increased risk of having an accident. Never drive fast/at full speed in narrow passages, on narrow pavements, etc. because an incorrect manoeuvre/steering error can lead to an accident.

Remember that a surface that has a sideways slope will affect the wheelchair and may make it steer sideways. Therefore, never drive at full speed on surfaces with a sideways slope.

Driving over obstacles

Do not drive the wheelchair over obstacles higher than 110 mm. Driving over higher edges increases the risk of tipping and of damage to the wheelchair.

Always use caution when driving over obstacles.



Figure 36. Driving over obstacles

⚠ WARNING!

Do not drive the wheelchair over obstacles higher than 110 mm. Use extreme caution when driving over obstacles.

⚠ WARNING!

A raised seat lift/seat angle/back angle changes the centre of gravity and increases the risk of tipping. Only use these seat functions when on flat surfaces. Drive with extreme caution and using a low speed.

Driving on side slopes

You should always drive on side slopes with great caution.

Avoid sudden evasive manoeuvres and never drive so fast that you are unable to control the wheelchair safely without risks.

Use extreme caution when driving on side slopes with an uneven surface (for example grass, gravel, sand, ice and snow).



Figure 37. Driving on side slopes

⚠ WARNING!

Do not drive the wheelchair on side slopes steeper than 15°. There is a risk of tipping.

⚠ WARNING!

A raised seat lift/seat angle/back angle changes the centre of gravity and increases the risk of tipping. Therefore, use these seat functions only on flat surfaces and always drive with great caution and at low speed.

Driving downhill

When driving downhill use a low speed and extreme caution.

Avoid braking suddenly and sudden evasive manoeuvres and never drive so fast that you are unable to control the wheelchair safely without risks.

You should be extremely careful when driving downhill on an uneven surface (for example grass, gravel, sand, ice and snow).



⚠ WARNING!

Do not drive downhill on a gradient greater than 18°.
Dynamic stability according to ISO 7176-2 = 10°.

⚠ WARNING!

A raised seat lift/seat angle/back angle changes the centre of gravity and increases the risk of tipping. Use these seat functions only on flat surfaces and always drive with extreme caution and at a low speed.

Driving uphill

Use extreme caution when driving uphill.

Avoid sudden evasive manoeuvres and never drive so fast that you are unable to control the wheelchair safely without risks.

You should be extremely careful when driving uphill on an uneven surface (for example grass, gravel, sand, ice and snow).



WARNING!

Do not drive uphill on a gradient greater than 15°.
Dynamic stability according to ISO 7176-2 = 10°.

WARNING!

A raised seat lift/seat angle/back angle changes the centre of gravity and increases the risk of tipping. Use these seat functions only on flat surfaces and always drive with extreme caution and at a low speed.

Seat lift

The wheelchair can be fitted with an electrically controlled seat lift that allows the seat to be raised steplessly up to 200 mm in order to adjust the height to tables, benches, etc. This function is controlled from the Control Panel.

If the seat lift is raised from its lowest position, the wheelchair's maximum speed forwards is reduced to 7 km/h and the maximum speed backwards is reduced to 4 km/h. The seat lift function works only when the wheelchair is stationary.

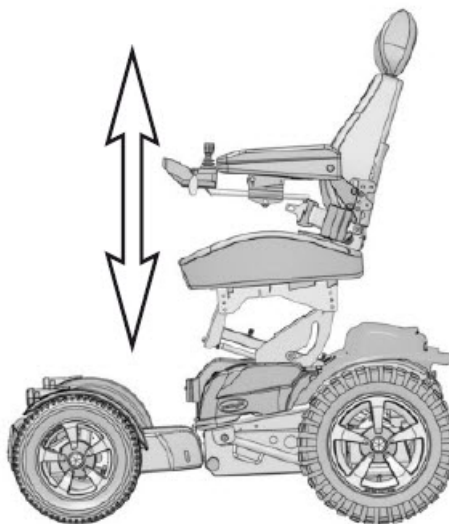


Figure 38. Seat lift

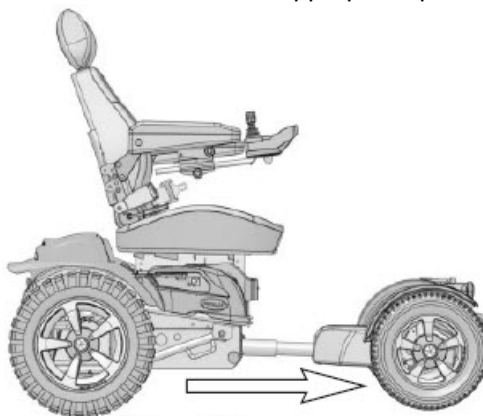
Extension

The distance between the foot plate and the seat on the wheelchair is adjustable by up to 20 cm. This function is controlled from the Seat Control Panel.

Press the upper surface of the symbol to increase the distance between the seat and the front wheels. Press the lower surface to decrease the space. This function only works when the wheelchair is stationary.

Manual extension (settings)

This is done by adjusting the adjustment rod in the rear to the appropriate position (0–20 cm).



Max 20cm

Figure 39. Extension

Seat rotation

Seat rotation makes it easier to get into and out of the seat. The electric seat rotation is controlled from the Seat Control Panel. It is not possible to drive the wheelchair when the electric seat rotation is activated.

⚠ WARNING!

There will always be a crushing risk when the electric seat functions are in action. Be careful and make sure that nothing can get stuck or crushed between the chassis and the seat when the seat rotation is operated. There is a risk of personal injury.

Seat rotation must not be used when the wheelchair is on a sloping surface. There is a risk of personal injury.

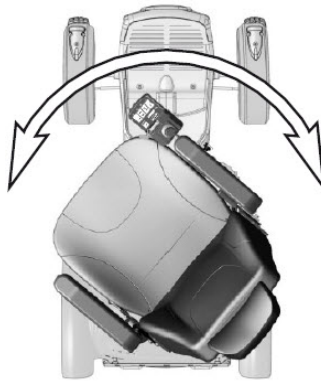


Figure 40. Seat rotation

Brake release

The wheelchair is fitted with a manual brake release that can be released to make it possible to move the wheelchair manually. The brake release lever is located on the right side of the chassis. See the illustration.

Releasing the brakes

1. Switch off the wheelchair with the On/Off key on the control panel.
2. While pressing the lever's safety catch down to release the lever, move the lever forwards to release the brakes. The chair can now be moved manually.

Resetting released brakes

1. Move the lever backwards to its rearmost position.

NOTE!

Always check that the release lever goes right to its rearmost position.

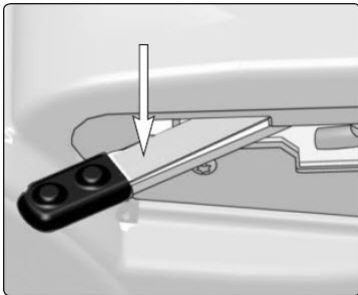


Figure 41. Press catch down

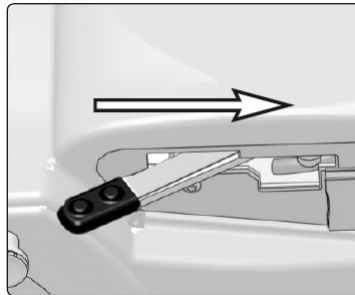


Figure 42. Brakes activated

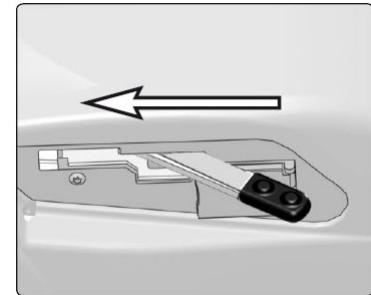


Figure 43. Brakes released

 **WARNING!**

Never use the wheelchair on a sloping surface with the brakes released.

Always ensure that the wheelchair is switched off when the brakes are released/activated.

To prevent the wheelchair from rolling away, ensure that it is on a dry, level surface before releasing the brakes.

Anyone who pushes a wheelchair with the brakes released must ensure that this is done safely without risks.

Always reset the brake release after moving the wheelchair manually.

When the brakes are released, it should not be possible to drive the wheelchair. If the wheelchair can still be driven, contact your service contact or Permobil immediately.

Charging batteries

When should the batteries be charged?

How frequently you need to charge the batteries in your wheelchair depends on a number of factors, including how you use your wheelchair, the temperature and age of the batteries and how they are made. All batteries gradually lose capacity as they age.

The most important factor for the life of the batteries is how much power is taken out of them before they are charged and how often they are charged/discharged.

To achieve the best life, batteries should not be completely discharged. Always charge the batteries immediately after they have been discharged.

If the battery voltage indicator shows that the batteries appear to be losing power faster than normal, the batteries may be worn out and need to be replaced.

 WARNING!

Use only the charger supplied with your wheelchair or recommended by Permobil. Using other chargers may damage the batteries, the wheelchair electronics, or the charger itself. Using an incorrect charger can also result in overheating and risk of fire.

Be careful when using metal objects when working with batteries. A short-circuit can easily cause an explosion. Always use safety gloves and safety goggles.

You may only use a charger with a maximum charging current of 12 A (average).

The batteries must be charged in a well-ventilated room, not in a wardrobe. The batteries must not be charged in a bathroom or other damp environment.

To interrupt the charging process, switch off the main voltage before the charging contact is disconnected from the wheelchair's charging socket. This is to avoid sparking and wear and tear to the charging contact.

Do not extend the charging cable.

Do not cover the charger, as it may get hot. Place the charger so that it has free space on all sides.

Replace the charging cable contact if it is damaged or gets hot during charging. Both the contact on the charger's cable and the wheelchair's charging socket should be replaced if one part is damaged or worn. The replacement work must be done by qualified personnel.

Charging

Ensure that the wheelchair is switched off, using the On/Off key on the control panel. Then connect the charging plug to the wheelchair's charging socket.

 IMPORTANT!

CAREFULLY READ THE INSTRUCTION SUPPLIED WITH THE CHARGER BEFORE STARTING TO CHARGE THE WHEELCHAIR.

⚠ CAUTION!

Switch off the wheelchair with the ON/Off key on the control panel before charging but ensure that the main fuse is in the ON position.

Ensure that the charging contact has been fully inserted in the wheelchair's charging socket.

The wheelchair cannot be driven when the charger is connected.

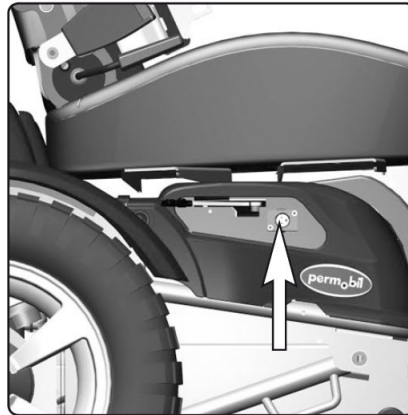


Figure 44. Charging socket

TRANSPORT

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General

The wheelchair must only be transported in vehicles approved for this purpose.

Check that the wheelchair is properly secured and the brakes are not released. The wheelchair can be locked in position with loading straps from the transport eyes at the front and rear, marked with yellow stickers. Always make sure that the front strap (1) is positioned on top of the wheelchairs front axle (2). See fig. below.

Anchor the wheelchair with the vehicle's anchoring system and according to the manufacturer's instructions. Always check that the fixing points on the transport vehicle are well anchored.



Figure 45. Transport instructions

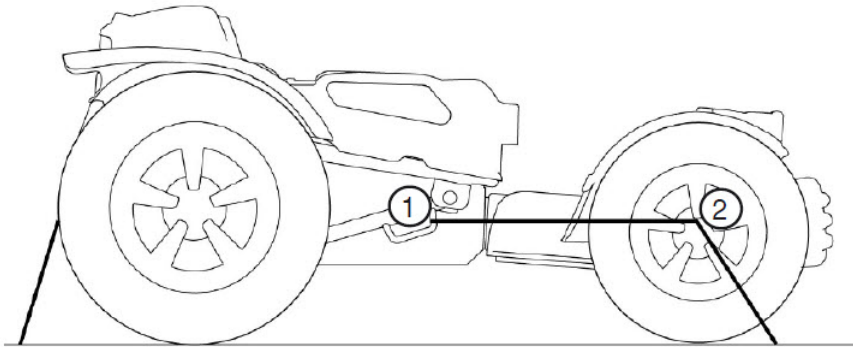


Figure 46. Loading strap positions

 **WARNING!**

The wheelchair must only be transported in vehicles approved for this purpose. Always ask for confirmation of the transporter that the vehicle is suitable designed, insured and equipped to transport a person in a wheelchair. A wheelchair is not designed as a car seat and cannot offer the same degree of safety that is offered by standard car seats, no matter how securely it has been fastened in the vehicle concerned.

Carefully check that the wheelchair is properly fixed and that the break release has not been activated (the wheelchair drive wheels must be locked). The wheelchair can be locked in position with loading straps from the transport eyes at the front and rear, marked with yellow stickers, or by using a Permolock locking system.

If the wheelchair needs to be transported with the user seated in it, be sure to use an approved attachment system suitable for the total weight of the wheelchair to secure the wheelchair.

- The wheelchair can be fastened by securing it to the tie-down points on the wheelchair's chassis or in the Permolock locking system. The wheelchair must not be secured onto any accessories.
- Permobil recommends that the wheelchair be equipped with a headrest and that this is used during transportation.
- During transportation, it is essential that you are secured with a three-point safety belt that is attached to the floor and a side of the vehicle.
- A lap strap attached to the wheelchair only serves to keep the person in an upright position and cannot be considered on par with a car safety belt.

Air Transport

When transporting the Permobil wheelchair by aircraft, there are three important things to keep in mind:

1. Batteries

Gel batteries: In most situations, gel batteries do not need to be removed from the wheelchair.

If the wheelchair has an automatic main fuse, this must be set to the Off position.

Acid batteries: Most airlines require that acid batteries be removed from the wheelchair and transported in special containers that the airline may provide.

2. Wheelchair's size and weight

The wheelchair's weight and size are important to keep in mind depending on the type of aircraft in which the wheelchair will be transported. Smaller aircraft may not be able to accommodate large or heavy wheelchairs. Check with the airline to see what rules apply.



IMPORTANT!

If you are unsure of what type of main fuse your wheelchair uses, contact Permobil or your service contact.

3. Preventing damage

During air transportation, the wheelchair is placed with other goods in a confined space. It is therefore important to take preventative action to minimise transit damage to the wheelchair.

Cover the control panel with soft, shock-absorbing material (foam plastic of similar) and fold it in towards the backrest. Protect other protruding objects in a similar manner. Tape any loose cables to the seat or covers.



IMPORTANT!

To ensure that the wheelchair can be transported safely and to avoid last minute problems, always contact the airline well in advance of your travelling date.

MAINTENANCE AND REPAIRS

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General

To ensure that your wheelchair works well, it is important for it to be used correctly and regularly maintained. A well maintained wheelchair lasts longer and has a lower risk of faults.

WARNING!

Any unauthorized alterations to the wheelchair and its systems may lead to an increased risk of accident. All alterations to and interventions in the wheelchair's vital systems must be performed by a competent service engineer. In case of doubt, always contact a competent service engineer.

CAUTION!

Some repairs may require tools other than those supplied with the wheelchair. The main fuse must always be switched off when batteries and fuses are replaced. Always switch off the power supply to the control panel before interrupting the power with the main fuse.

Toolbag

The wheelchair comes with a toolbag with the following contents that can be used for maintenance and minor repairs.

TOOL	AREA OF USE
Allen keys	General maintenance/seat adjustment
11, 13 mm, 1/2"-9/16" spanners	General maintenance/replacing batteries
Box spanner 13 mm.	Manually raising the seat lift
Screwdriver	General maintenance
Security key	Locking/unlocking the wheelchair

 IMPORTANT!

Some repairs may require tools other than those supplied with the wheelchair.

 IMPORTANT!

The main fuse must always be switched off when batteries and fuses are replaced. Always switch off the power supply to the control panel before interrupting the power with the main fuse.

 WARNING!

Any unauthorized alterations to the wheelchair and its systems may lead to an increased risk of accident. All alterations to and interventions in the wheelchair's vital systems must be performed by a competent service engineer. In case of doubt, always contact a competent service engineer.

General - batteries/storage

- Please note that a battery discharges itself and that a discharged battery can burst when it is cold. If the wheelchair is to be stored unused for an extended period of time, the batteries must always be charged once a month to avoid them being damaged.
- The wheelchair must not be stored in areas subject to condensation (steam or moisture on surfaces), for example utility rooms or similar.
- The wheelchair may be stored in an unheated room. From the point of view of corrosion, it is best for the room to be a few degrees warmer than the surroundings as this keeps the room drier.
- If the wheelchair is fitted with acid batteries, the acid level should be checked regularly. If the wheelchair is fitted with gel batteries, the liquid level does not need to be checked.
- The life of the batteries depends entirely on regular charging.

Short-term storage

For the charging process to produce a battery with good capacity, the temperature in the storage room should not be lower than +5 degrees. If it is stored at a temperature below +5 degrees, there is a higher risk that the battery has not been fully charged when it comes to be used and also a higher risk of corrosion.

Long-term storage

The battery may be stored in an unheated room but it should be charged at least once a month for maintenance purposes.

WARNING!

Be careful when using metal objects when working with batteries. A short-circuit can easily cause an explosion. Always use safety gloves and safety goggles.

Cleaning

Regular care and maintenance will prevent unnecessary wear and damage to your wheelchair. The following is general advice recommended by Permobil. For severe soiling of the upholstery or damage to the surface finish, contact Permobil for information.

Upholstery, cloth/vinyl

For normal cleaning, wash the upholstery with lukewarm water and a mild non-abrasive soap. Use a soft cloth or brush. Before the surface dries, wipe off any water/soap residues with a clean, dry cloth. This procedure may be repeated to remove stubborn dirt or stains.

If necessary, the cover may be removed before cleaning. See also the washing instructions on the upholstery materials.

Metal surfaces

For normal cleaning it is best to use a soft cloth/sponge, hot water and a mild detergent. Wipe down carefully with a cloth and water, and dry off.

Remove scuff marks from semi-matt surfaces with soft wax (follow manufacturer's instructions).

Remove scuff marks and scratches from shiny surfaces using car polish, either liquid or paste. After polishing, apply soft car wax to restore the original surface gloss.

Plastics

For normal cleaning, wash plastic surfaces with a soft cloth, mild detergent and hot water. Rinse thoroughly and dry with a soft cloth. Do not use solvents or abrasive kitchen cleaners.

Control panel

Use a soft cloth moistened with mild detergent and be careful when cleaning the joystick and the panel's display. Do not use solvents or abrasive kitchen cleaners. The panel must not be rinsed with water or any other liquid.

Seat Belts

Check the condition of the seat belts regularly in case damage or worn places have developed.

WARNING!

Never hose the wheelchair down as the electronics may be damaged. The wheelchair must always be turned off when being cleaned.

Wheels

Check at regular intervals that the wheelchair's tyres have the correct air pressure. Incorrect pressure may result in less stability and manoeuvrability. Low air pressure in the tyre also results in abnormal wear and shorter range. Regularly check that the air pressure in the tyre is 200–250 kPa (2–2.5 bar).

Filling tyres with air

1. Unscrew and remove the plastic cap on the valve of the tyre.
2. Connect the compressed air nozzle to the valve and adjust the tyre pressure to the correct level.



Figure 47. Filling valve

 WARNING!

The recommended tyre pressure for both front and rear tyres is 200–250 kPa (2–2.5 bar). Overfilling tyres can cause an explosion. Incorrect pressure may result in less stability and manoeuvrability. Regularly check that the air pressure is correct.

Inner tube replacement

1. Chock up the wheelchair so that the wheel turns freely and carefully release the air.
2. Remove the tyre from the wheel rim.
3. Replace the inner tube.
4. Put the tyre back on the wheel rim and fill to the correct air pressure.

Battery replacement

1. Place the wheelchair on a level surface and raise the seat lift for better access. If the battery is completely dead, it is possible to manually raise the seat lift using the screw at the front edge under the seat. Do not use an electric drill. If there is a fixed seat bracket, remove the rear chassis cover. Then remove the seat's rear mounting screw and tip the seat forwards. See fig. 50.

Remove the front cover. This is fixed with two knobs on the sides and two guide pins at the front. Lift the cover up and forwards.

2. Switch off the power supply using the ON/OFF key on the control panel and set the automatic main fuse to the OFF setting.

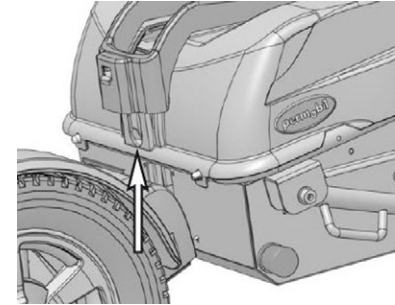


Figure 48. Manually raising the seat lift

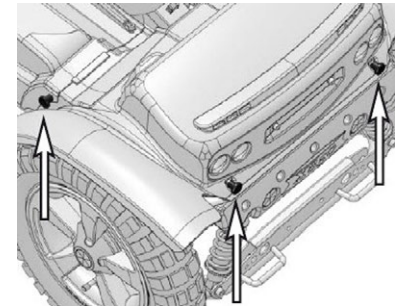


Figure 49. Covers are fixed with two knobs at the rear and one knob each on the left and right sides

3. Remove the rear cover. This is fixed with two knobs at the rear. Lift the cover up and backwards.
4. Remove the batteries' fixing bars. They are fixed with two knobs each (see illustration). Turn the fixing bars backwards without detaching the cables.
5. Detach the battery connections. Lift the batteries out of the chassis.
6. Fit the two new batteries. Place the batteries with the poles facing the outer sides of the chassis. Reattach the battery connections.
(See also the sticker on the inside of the front chassis cover.)
7. Fit the batteries fixing bars. They are fixed with two knobs each (see illustration).
8. Refit the chassis covers. On a wheelchair without an electric seat lift, refit the seat. Switch the automatic main fuse to ON.

WARNING!

Be careful when using metal objects when working with batteries. A short-circuit can easily cause an explosion. Always use safety gloves and safety goggles.
Remember that the batteries are heavy and must be handled with great caution.

IMPORTANT!

Used or malfunctioning batteries should be disposed of responsibly in accordance with local recycling regulations.

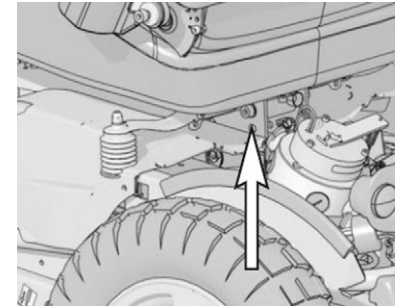


Figure 50. The seat's rear bracket on the chassis without an electric seat lift

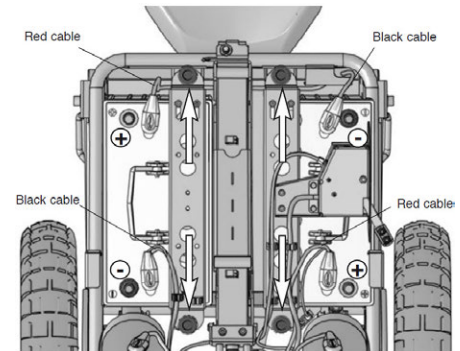


Figure 51. Fixing bars and connections for the batteries

Resetting the main fuse/battery isolator

⚠ WARNING!

If the main fuse is triggered, there is often a major electrical fault. The cause of the fault should be checked carefully before the switch is reset. Contact Service in case of doubt.

The main fuse also functions as a battery isolator but it is called the main fuse in the owner's manual.

It is not normally necessary to replace the main fuse as it is automatic and can be reset when it has been triggered. It is reset by switching the switch to ON.

⚠ CAUTION!

Always switch off the power supply to the control panel before interrupting the power with the main fuse.



Figure 52. Main fuse.

Replacing fuses for charging, actuator, lights/indicators

Fuses for the actuator (15 A) and the lights/indicators (7.5 A) are located at the lower edge of the rear of the wheelchair (connection box). The charging fuse (20 A) is located between the right drive motor and the chassis. All the fuses are accessible from the rear of the wheelchair (see illustration).

⚠ IMPORTANT!

The fuses in the Safe Gate electronics may, in very special situations, break the circuit. In these situations, a service engineer should carry out an inspection before the fuse is replaced.
See the service manual for further information.

⚠ WARNING!

Always switch off the power supply to the control panel before changing the charging fuse. The battery charger should be disconnected when the charging fuse is changed.
If the charging fuse is triggered, there may be problems or faults with the batteries, the charger/charging cables or the wheelchair's charging socket. The cause of the charging fuse being triggered should be checked carefully before the fuse is changed.

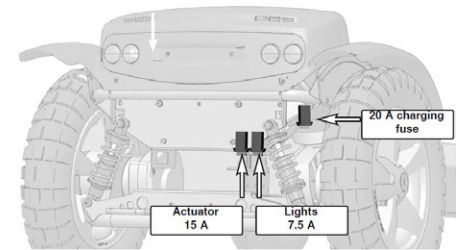


Figure 53. Fuses are accessible from the rear of the wheelchair

Brake release

Check regularly, approximately once a month, that the brake release and the brake release lever are working properly.

When the brakes are released, it should not be possible to drive the wheelchair.

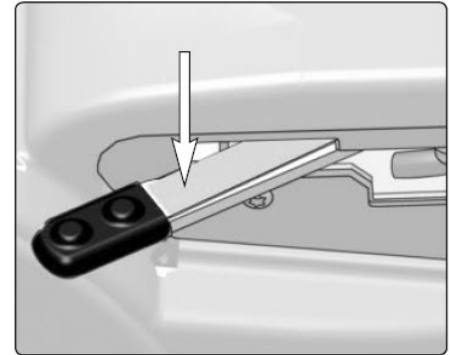


Figure 54. Brake release lever

ACCESSORIES

Accessories for Permobil power wheelchairs are subject to continuous development. Contact your nearest Permobil dealer for more information on the accessories available for your wheelchair.

TECHNICAL SPECIFICATIONS

The specifications given on the following pages apply only to the Permobil X850 3G Corpus. For dimensions and weight specifications for each seat, see the user manual supplied with it.



Length 1260–1460 mm.
Height 1200 mm.



Width 720 mm.



Smallest transportation size
Length 1260 mm.
Width 720 mm.
Height 910 mm.

TECHNICAL SPECIFICATIONS

General

Product name	Permobil X850
Wheelchair class	C

Dimensions and weight

Length	1260–1460 mm.
Width	720 mm.
Height	1200 mm.
Minimum transport dimensions, l x w x h	1260 mm. x 720 mm. x 910 mm.
Weight, incl. batteries	203 kg
Seat plane angle	0 Degrees
Effective seat depth	370–570 mm.
Effective seat width	420–570 mm.
Seat surface height at front edge	540–740 mm.
Back rest angle	90–123 Degrees
Back rest height	470–670 mm.
Footrest to seat distance	360–460 mm.
Armrest to seat distance	185–320 mm.
Front location of armrest structure	0–435 mm.

TECHNICAL SPECIFICATIONS

Wheels

Rear wheel tire dimensions	3.50" x 10"
Front wheel tire dimensions	2.50" x 8"
Rec. tire pressure	200-250 kPa (2-2.5 bar)

Performance

Range	35–45 km
Min. turning radius	1680 mm.
Reversing width	2250 mm.
Ability to Negotiate Obstacles (approach distance 50 cm)	110 mm.
Min. ground clearance	82 mm.
Hill-climbing ability	18 Degrees
Rated slope	15 Degrees
Static stability downhill	17 Degrees
Static stability uphill	20 Degrees
Static stability sideways	15 Degrees
Max. Speed forward	15 km/h
Min. braking distance from max. speed.	3,5 m.
Max. User weight	136 kg

TECHNICAL SPECIFICATIONS**Electronics**

Type	SafeGate
------	----------

Batteries

Recommended battery type	24 cells, gel
Battery capacity	2x97 Ah
Nominal voltage	12V
Charging time	11 hours
Weight	2x31 kg

Fuses

Main fuse	100 A
-----------	-------

Control force

Joystick	1,5 N
Keys	2 N

TROUBLESHOOTING

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Troubleshooting guide

The following troubleshooting guide describes a number of faults and events which may occur when you use your wheelchair, together with suggested remedies. Note that this guide cannot describe all the problems and events which may occur and you should always contact your service contact or Permobil in case of doubt.

EVENT	POSSIBLE CAUSE	REMEDY
Wheelchair cannot be started.	Batteries discharged.	Charge the batteries.
	Main fuse switched to OFF position after, for example, battery replacement.	Reset the main fuse. See page 96
	Main fuse triggered.	See page 96
Wheelchair cannot be driven.	Battery charger connected.	Stop charging and disconnect the charging cable from the wheelchair's charging socket.
	Brake release activated.	Reset the brake release.
	Wheelchair locked with the security key.	Unlock the wheelchair.
	Seat rotation activated.	Return the seat position to the drive position (straight forwards). See page 72
Battery voltage indicator on the control panel flashes at 2.5 second intervals and the wheelchair cannot be driven.	Electronics' power saving position is activated.	Switch off and switch on the power using the start key on the control panel.
Battery voltage indicator on the control panel flashes quickly and the wheelchair cannot be driven.	Electronics fault.	Contact service.
Wheelchair stops while being driven.	Main fuse triggered.	See page 96

EVENT	POSSIBLE CAUSE	REMEDY
Wheelchair can only be driven at reduced speed. <i>Applies to wheelchairs with an electric seat lift.</i>	Seat lift or seat angle raised too high.	Lower the seat lift.
Wheelchair cannot be charged.	Main fuse switched to OFF position after, for example, battery replacement.	Reset the main fuse. See page 96
	Charging fuse triggered, for example, on account of a fault in the batteries, charger, charging cables, or charging socket.	Check possible causes carefully before changing the charging fuse. See page 97

STICKERS

Take a good look at all the stickers on your wheelchair to become familiar with their meaning. These stickers contains important information for safe and proper use.

Never remove a sticker from your wheelchair. If a sticker becomes difficult to read or falls off, new replacement stickers may be ordered from Permobil.

Read the instructions

The sticker indicates that there are instructions that should be read and understood before use or before adjustment is performed.



Figure 55. Read the instructions.

Circuit Breaker/Battery Isolator

The sticker shows in what position the switch should be to turn the main power Off respectively On.

Description of the Circuit Breakers function is found on page 96.

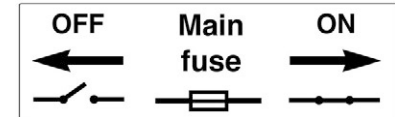


Figure 56. Circuit Breaker/Battery Isolator.

Wheel Locks

The sticker shows the wheel lock release levers position, in released respectively activated state.



Figure 57. Wheel Locks.

Tie-down point

The sticker indicates where the wheelchair must be secured during transport. There is a sticker next to each tie-down point.

Description of transport of the wheelchair is found on page 80



Figure 58. Tie-down point

Use as seat in motor vehicle prohibited

The sticker indicates that the wheelchair is not approved for use in motor vehicles. General advise regarding transport is found on page 80

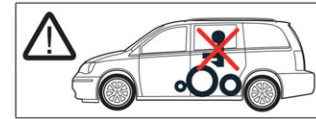


Figure 59. Use as seat in motor vehicle prohibited.

Crushing Hazard

The sticker indicates Crushing Hazard.



Figure 60. Crushing Hazard.

Battery Connections and Fuses

The sticker shows the polarity of the batteries and where the fuses are found on the wheelchair.

Description of changing batteries is found on page 94.

Description of changing fuses is found on page 97.

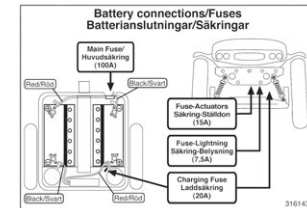


Figure 61. Battery Connections and Fuses.

Serial number label

1. Made in (country of final assembly) by (address of site of final assembly)
2. Serial number
3. Product type
4. Date of assembly
5. EAN code
6. Maximum user weight

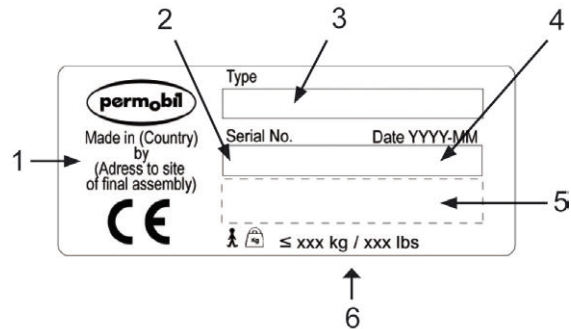


Figure 62. Serial number label.

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