OWNER´S MANUAL

CE

UK

Permobil K450

Power Wheelchair

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Important Information about this Owner's Manual

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.

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.

Ordering of Documentation

If you are in need of another copy of the Owner's Manual, it can be ordered from Permobil, ask for item No. 205230-UK-0.

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 part & accessories
Spare parts and accessories must be ordered through Permobil.

Scrapping
Contact Permobil BV 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 responsi-bility 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 fulfill the requirements according to EN 12184 and ISO 7176.

Safety rules - General

A power wheelchair is a motor-driven vehicle. Therefore, you need to be very careful when you use and handle it. It is important to read and follow the instructions and safety rules given in this owner´s manual before starting to use your wheelchair as incorrect use could lead to a risk of injury to users or damage to the wheelchair and its environment.

Warning labels
The owner´s manual contains the following “warning labels” which are intended to draw attention to situations which could lead to problems, near-accidents, personal injury or damage to the wheelchair, etc.

⚠ CAUTION

Take care here.

⚠ WARNING

Take extra care here.
Risk of personal injury or of damage to the wheelchair and its surroundings.

⚠ CAUTION

Permobil accepts no liability for personal injury or damage to property which may arise from the failure of the user or other persons to follow the recommendations, warnings and instructions given in this owner´s manual.

Safety rules - General

Your wheelchair may have been adjusted precisely to your needs on delivery, so you should always ask the advice of the person who ordered the seat on your behalf before making changes or adjustments to the wheelchair. Certain adjustments may impair the wheelchair's safety/functions or its suitability for your needs.

To minimise incorrect use of your wheelchair, it is also extremely important to take the necessary time to familiarise yourself with the wheelchair and its accessories, the various keys, function and steering controls and the various seat adjustment options, etc. before starting to use it.

Do not set out alone on your first test ride. Make sure you have assistance close by if you should need help.

To ensure that nothing has occurred to the seat during its transport to you, please check the following before first use:

- Check that all products ordered are included in the delivery. If you suspect that something is missing, contact your aids centre or Permobil as soon as possible for further information.
- Check that no transport damage or other damage has occurred to the seat and its accessories. If you discover any damage or see any other problem, contact your aids centre or Permobil as soon as possible for further information before you continue the check.

Check also that the wheelchair's batteries are fully charged and that the tires have the right air pressure before using the wheelchair.

If, in any situation, you find that the wheelchair does not behave as expected or you suspect that anything is wrong, stop your test ride as soon as possible, switch off the wheelchair and contact your service contact or Permobil for information.

Safety rules

⚠ WARNING

Operation
Do not allow children to drive the wheelchair unsupervised. If your wheelchair is fitted with lights, they must always be used in poor light and when you are near public roads. Always remember that drivers may find it difficult to see you.

Be extremely careful when you drive near unprotected ledges, on steep slopes or on raised surfaces. Unintentional movement or excessive speed in such areas may lead to personal injury or damage to property.

Do not drive the wheelchair over kerbs or other edges higher than 60 mm. When you drive over a kerb or similar raised surface, you must cross it at a 90-degree angle (at right angles). If you cross such surfaces at any other angle, the wheelchair may tip over.

Reduce speed when you drive on uneven ground or soft surfaces. Do not use the wheelchair on stairs or escalators. Always use a lift.

Do not lift or move the wheelchair by holding any of its moving parts. If you do so, the result may be personal injury or damage to property, including damage to the wheelchair.

⚠ CAUTION

Operation
Do not drive the wheelchair if you are under the influence of alcohol. Alcohol may affect your ability to use the wheelchair safely.

Some physical limitations or the ingestion of medicines, either prescription or over the counter medicines, may limit your ability to use the wheelchair safely. Always consult your physician about your limitations and medicines.

Safety rules

⚠ WARNING

Maintenance and service
Carry out only the service and maintenance activities noted in this owner´s manual. All other service, alterations to and interventions in the wheelchair and its accessories' vital systems must be carried out by a competent service engineer or a person with sufficient knowledge to do so in an expert manner. In case of doubt, always contact a competent service engineer or Permobil.

The power supply must be switched off during all work or servicing on the wheelchair's electrical system.

Use only spare parts or accessories approved or recommended by Permobil. All other use could lead to changes which might impair the functions and safety of the wheelchair. It could also lead to the warranty for your wheelchair becoming invalid.

Note that the seat is heavy and contains many moving parts, which means there will always be some risk of crushing.

Weight limits
The maximum user weight for your wheelchair is specified in the specifications section of the owner´s manual supplied with the seat model in question. If the wheelchair is used by anyone who weighs more than the maximum permitted user weight, the result may be personal injury or damage to property, including damage to the wheelchair. This may also invalidate the wheelchair's warranty.

Do not carry passengers on the wheelchair. This may result in personal injury or damage to property, including damage to the wheelchair.

⚠ CAUTION

Before driving
If necessary, and when certain medical conditions exist, the user should practise using the wheelchair together with an assistant who knows how the wheelchair works and the abilities and limitations of the user.

Safety Instructions

Safety rules

⚠ WARNING

Driving on sloping surfaces
When driving down a slope, you should always select the lowest speed and drive carefully. Driving down a slope with a front-wheel drive wheelchair can shift the user's center of gravity forwards. If the wheelchair moves faster than you want, you can stop the wheelchair by letting the joystick go and then start to drive downhill again at a lower speed.

Avoid sudden stops or starts. Stop by letting the joystick go. If the wheelchair is switched off using the ON/OFF key on the control panel while the wheelchair is moving, the wheelchair may stop suddenly. Ensure that any recommended fixing belt is always properly tightened.

When driving up a slope, you must try to maintain a steady speed. If you stop and start the chair while moving uphill, the wheelchair will be more difficult to control.

Do not drive up or down slopes that are steeper than specified in this owner´s manual. There is a risk that the wheelchair cannot be controlled safely.

Safety Instructions

Safety rules

⚠ WARNING

Driving on sloping surfaces
Do not drive the wheelchair where the side slope is steeper than specified in this owner´s manual. There is a risk of tipping.

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

When you drive up a slope, ensure that you drive the wheelchair straight up the slope (vertically). If you drive at an angle, the risk of tipping over or falling is increased. Be extremely careful when you drive up a slope.

Always avoid driving on slopes covered with snow, ice, gravel, clay, sand, wet leaves or similar or where the surface is uneven.

Safety rules

⚠ WARNING

Operation - turning/cornering
The risk of the wheelchair tipping over increases at high turning speed, in tight curves, on uneven surfaces, with fast changes of direction and if you drive from a place with low friction (for example a lawn) to a place with high friction (for example a gravel road).

To avoid tipping over, with the risk of personal injury or damage to property that entails, you should always drive slowly when turning/cornering and changing direction.

Operation - releasing the wheelchair's magnetic brakes
To prevent the wheelchair from rolling off, ensure that it is on a dry, level surface before releasing the brakes.

Always ensure that someone is present to help you if the brakes need to be released when you are in the wheelchair.

Never release the brakes if the wheelchair is on a slope. This could result in the wheelchair rolling off, which could result in personal injury or damage to property, including damage to the wheelchair.

Safety rules

⚠ CAUTION

Driving on loose or soft surfaces
When the wheelchair is set to the lowest speed and the batteries are not fully charged, it may be difficult to drive on some surfaces, for example gravel, sand or thick floor coverings.

Driving in the dark and poor light
You should only drive in the dark on public roads if your wheelchair is fitted with functioning lights front and rear or according to national or local traffic rules.

Safety rules

⚠ WARNING

Operation of seat lift/seat angle/back angle
Make sure that there is no risk of anything getting in between the chassis and the seat when the seat lift/seat angle and back angle functions are being used. Using these functions alters the center of gravity, which always means an increased risk of tipping. Always drive at low speed and only use these seat functions on a level surface and not on slopes, ramps, hills or other gradients.

Center of gravity
Note that the following factors may affect the center of gravity of the seat/ wheelchair and thus the risk of tipping:

- Raising the seat lift
- Height and angle of seat
- Position or weight distribution of the body
- Driving on sloping surfaces, for example a ramp or hill
- When wearing a rucksack or using other accessories, depending on the extra weight.

If your wheelchair starts to move in an unexpected way, immediately let go of the joystick to stop the wheelchair. Except in an emergency, never use the on/off key to stop the wheelchair. This could lead to the wheelchair stopping quickly and violently and could lead to personal injury.

Fixed seat tube
The seat height should only be adjusted by a competent service engineer or someone with adequate knowledge to perform the adjustment in an expert manner. See the service manual for further information.

Safety rules

⚠ WARNING

Fixing belt
Permobil's fixing belt is only designed to hold the user in place and not as protection in the case of collision/accident. Check the condition of the belts regularly in case any damage or worn places have developed.

Support wheels
If your wheelchair is fitted with support wheels, they must always be fitted when you drive.

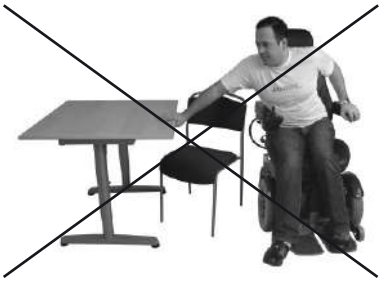
Getting in and out of the chair
Make sure the power is turned OFF before getting into or out of the wheelchair and before raising the arm rest with the control panel. When getting into or out of the wheelchair you should take all precautions to reduce the distance between the wheelchair and the point to which the user is moving. If this distance is increased, it could result in the user losing balance or falling over.

Permobil recommends that users get in and out with another person present to keep an eye on the operation or to help.

Be careful when bending down or reaching out to get something.

Never use the joystick as a handle or support.

Do not use the foot plates or arm rests as supports when getting into and out of the wheelchair. The foot plates and arm rests are not intended to support heavy loads. Unnecessarily high load could cause them to give way, which could result in personal injury or damage to property, including damage to the wheelchair.



Safety rules

⚠ WARNING

Passengers
The wheelchair is not designed to transport passengers, whatever their age. Nor is it designed for taking heavy items other than the user's personal belongings. The maximum user weight specified in the owner´s manual for the seat in question must not be exceeded. Ignoring this could impair the wheelchair's maneuverability and stability.

Operation in different climates
Permobil's wheelchairs are designed to tolerate most weather conditions, but you should avoid exposing the wheelchair to severe cold, persistent dampness, heavy rain/snowfall and similar situations. If the wheelchair has been exposed to any of these, do not use it again before it has completely dried out.

Remember also that certain surfaces on the wheelchair/seat may heat up or cool down under lengthy exposure to strong sunshine or cold, etc.

If any of the seat covers or the control panel box shows signs of cracking, etc., they should be replaced so no moisture can penetrate and damage the electronics.

Do not use the wheelchair when it is icy or slippery outdoors. These conditions may impair the performance and safety of the wheelchair, which could result in accident, personal injury and damage to property, including damage to the wheelchair.

NB: Be extremely careful when you use oxygen in the immediate proximity of electronic circuits and other inflammable substances. Contact your oxygen supplier for instructions on the use of oxygen.

Safety rules

⚠ 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 accessorie.
- 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.

Safety rules

⚠ WARNING

Maintenance and service
Carry out only the service and maintenance activities noted in this owner´s manual. All other service, alterations to and interventions in the wheelchair and its accessories' vital systems must be carried out by a competent service engineer or a person with sufficient knowledge to do so in an expert manner.

During all work on the wheelchair's electrical system, the battery isolator must be in the OFF position.

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.

Use only spare parts or accessories approved or recommended by Permobil. All other use could lead to changes which might impair the functions and safety of the wheelchair. It could also lead to the warranty for your wheelchair becoming invalid.

If you connect non-approved electrical or electronic appliances to the wheelchair's electrical system, the chair may be damaged and it may no longer be controllable or may drive erratically. Such use may also invalidate the warranty.

Note that the wheelchair is heavy and contains many moving parts, which means there will always be some risk of crushing and of clothes, etc. getting caught.

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

Safety rules

⚠ WARNING

Electronic safety circuits
Permobil's products are fitted with safety circuits. Inhibit circuits prevent the chair from driving under certain conditions. Speed reduction circuits limit the wheelchair's maximum speed under certain circumstances. Limit circuits limit the wheelchair's functions in certain circumstances. Overload protection circuits switch the wheelchair off if it is overloaded. The user should immediately stop using the wheelchair and contact an authorised service engineer or Permobil if he or she suspects that any of these circuits is no longer working.

Any attempt to modify the safety circuits will result in unsafe use of the wheelchair and may lead to the chair being unstable or uncontrollable. Such use may also invalidate the warranty.

Replacing the batteries and fuses
The main fuse must always be switched off when fuses and batteries are replaced.

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.

Filling tires with air
Check at regular intervals that the wheelchair's tires have the correct tire pressure. The incorrect tire pressure may result in lower stability and maneuverability.

The correct tire pressure is 200-250 kPa (2-2.5 bar). Note that overfilling entails a risk of explosion.

Safety rules

⚠ WARNING

Tire replacement/repair
Avoid using pointed/sharp tools when changing/repairing tires.

Storage
The wheelchair and its accessories must always be switched off when they are not being used. Always store the wheelchair so that unauthorized persons do not have access to it.

Never store the wheelchair in areas subject to condensation (steam or moisture on surfaces), for example utility rooms or similar.

If you are unsure how best to store your wheelchair and its accessories, contact your supplier or Permobil for information**.**

Damage to/breakdowns in the wheelchair and its accessories
If you start noticing that the wheelchair and its various functions are not behaving as expected or if you suspect anything is wrong, stop your test drive as soon as possible, turn off the wheelchair and contact your aids centre or Permobil for information.

It is extremely important that Permobil is informed that the wheelchair and its accessories have been damaged during transport, during driving or for some other reason as soon as possible after the damage has occurred. There could be a risk that the wheelchair and its accessories can no longer be operated safely and without danger.

Safety rules

⚠ CAUTION

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

EMC requirements
The electronics of a power wheelchair may be affected by external electromagnetic fields (for example from cell phones). Likewise the wheelchair electronics themselves may emit electromagnetic fields which may affect the environment (for example alarm systems in shops).

The threshold values for Electromagnetic Compatibility (EMC) relating to power wheelchairs are laid down in harmonised standards under EC Directive 93/42/EEC Medical Devices.

Permobil's power wheelchairs meet these threshold values.

Design & Function

General

The Permobil K450 is a power wheelchair for outdoor and indoor use. 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/leg rest and any accessories/options such as a head rest, etc.

In this owner´s manual, we have chosen to show the wheelchair with our MX seat. However, the operation of the chassis and most of its functions are the same regardless of the seat model chosen.

Overview

1. Back rest
2. Arm rest
3. Chassis
4. Rear wheels (drive wheels)
5. Front wheels
6. Foot plate
7. Leg rest
8. Seat
9. Control panel

Driving

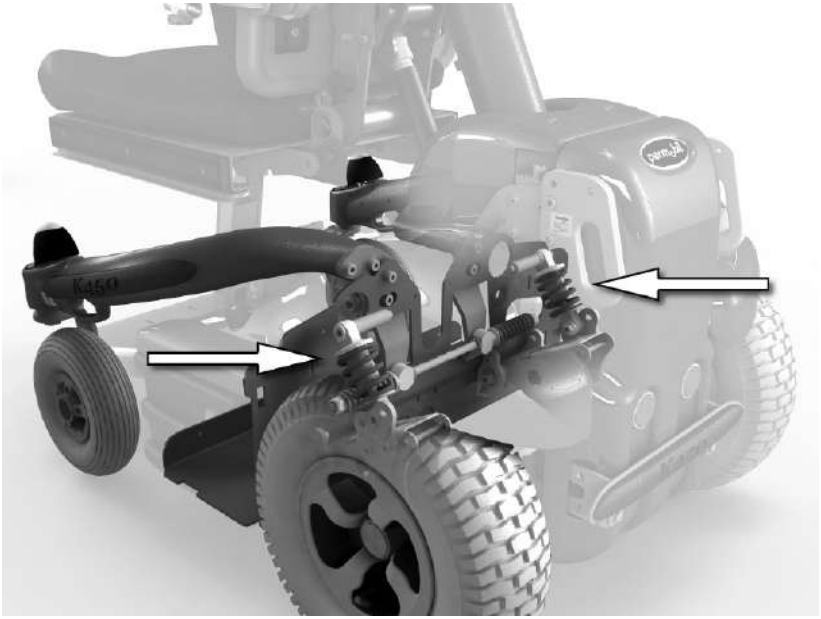
The Permobil K450 is fitted with a drive pack for each drive wheel. The drive pack consists of an electric motor with a drive gear and brake (electromagnetic).

Shock absorbers

The wheelchair is fitted with four shock absorbers with adjustable spring force.

Adjustment of the spring force

The adjustment should be performed by personnel who are very familiar with the design and function of the wheelchair. If adjustment is required, please contact your nearest service engineer/service center or Permobil Service.



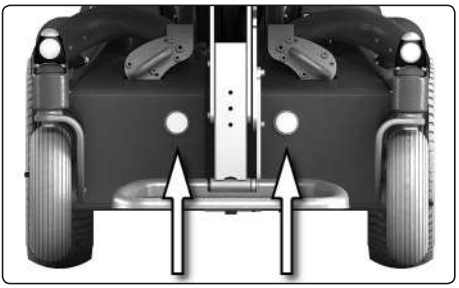
Shock absorbers

Wheels

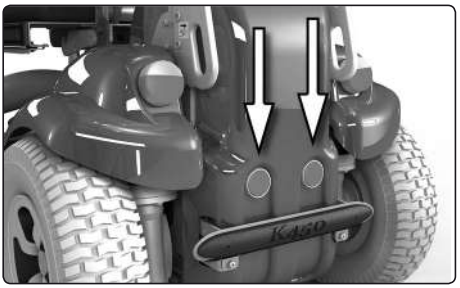
The rear wheels of the wheelchair, the drive wheels, have pneumatic tires. The front wheels, the steering wheels, have solid rubber tires.

Lights and reflectors

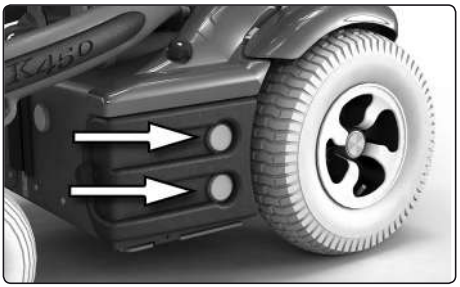
In the standard version, the wheelchair is fitted with reflectors at the front and rear and on the sides.
Lighting and direction indicators (blinkers) are available as accessories.



Front reflectors



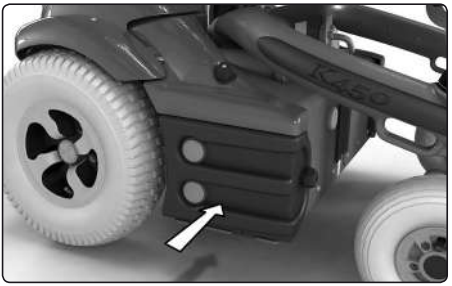
Rear reflectors



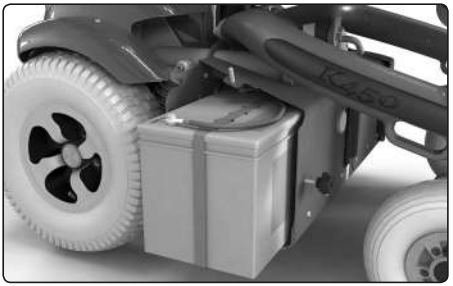
Side reflectors

Batteries

The two batteries on the wheelchair are fitted inside the covers on each side of the wheelchair. The batteries are easily accessible when they have to be replaced.



The battery is behind the side cover.



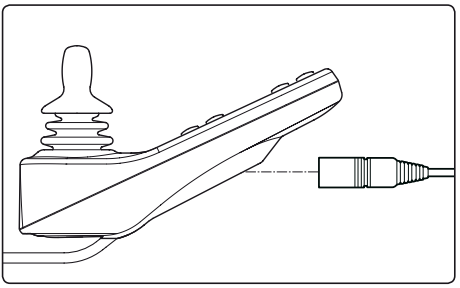
Battery.

Main fuse/battery isolator

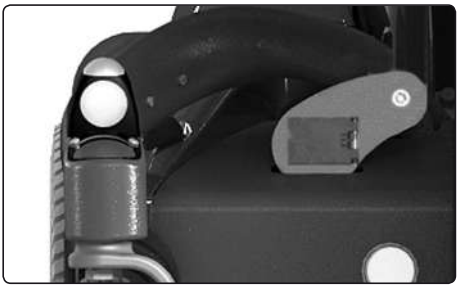
The wheelchair is fitted with an automatic main fuse that can be reset when it has been triggered. It also functions as a battery isolator and is controlled (ON/OFF) via the lever located above the left battery cover.

Charging socket

The charging socket is located on the bottom of the control panel. K450 can also be equipped with a charging socket on the front of the chassis.



Charging socket



Charging socket

R-Net control panel LCD monochrome display

The control panel consists of a joystick, function keys and an LCD screen. On the rear of the panel are also the charging contact and two jack contacts.

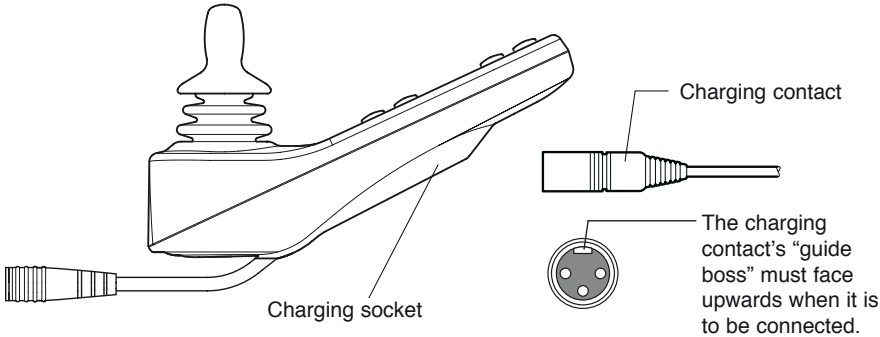
In addition to the control panel, your wheelchair may also be fitted with an additional control panel for the seat.

Overview of the control panel

R-Net control panel LCD monochrome display

Charging socket

This socket is used only to charge or lock the wheelchair. Do not connect any programming cable to this socket. The socket must not be used as a power source for any other electrical equipment. Connecting other electrical equipment may damage the control system or lead to the wheelchair having poorer electromagnetic compatibility (EMC).

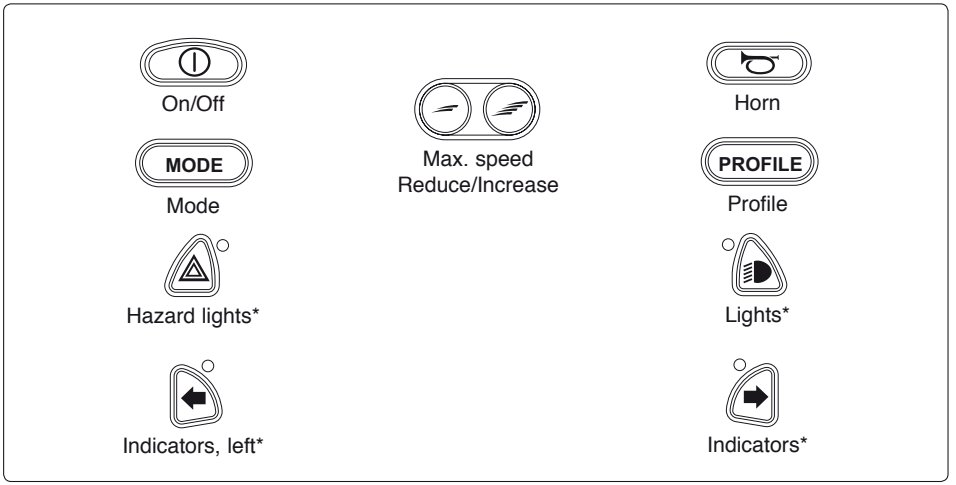


⚠ WARNING

The wheelchair's warranty ceases to apply if any equipment other than the battery charger belonging to the wheelchair or the key used for locking is connected to the control panel's charging contact.

R-Net control panel LCD monochrome display

There are a total of 10 function keys on the control panel.



** Applies only if the wheelchair is fitted with lights.*

On/off key

The on/off key is the switch for the control system's electronics which, in turn, supply power to the wheelchair's motors.

⚠ WARNING

Do not use the on/off key to stop the wheelchair, except in an emergency. You may be thrown out of the chair, or you may shorten the life of the wheelchair's drive system.

Max. speed

These keys normally reduce or increase the wheelchair's maximum speed. Depending on how the control system has been programmed, a temporary screen may be displayed when this key is pressed.

Horn

Press the switch to produce a signal to attract attention.

R-Net control panel LCD monochrome display

Mode
The user can use the Mode key to scroll between the control system's available modes. The available modes depend on the programming and on which other output devices are connected to the control system.

Profile
The user can use the Profile key to scroll between the control system's available profiles. The number of available profiles depends on how the control system has been programmed. Depending on how the control system has been programmed, a temporary screen may be displayed when this key is pressed.

Hazard lights*
This key activates and deactivates the wheelchair's hazard lights. Hazard lights are used when the wheelchair is stationary in a position which may represent a risk or an obstacle for others. Press this key to activate the hazard lights. Press it again to deactivate them. When the hazard lights are active, the indicator lamp next to the control key flashes in time with all the indicators on the wheelchair.

Lights*
This key activates and deactivates the wheelchair's lights. Press this key to switch on the lights. Press it again to switch them off. When the lights are activated, the indicator lamp next to the control key is also switched on.

Indicators, left*
This key activates and deactivates the wheelchair's left indicators. Press the key to activate the indicators. Press it again to deactivate them. When the indicators are active, the indicator lamp next to the control key flashes in time with the left indicators on the wheelchair.

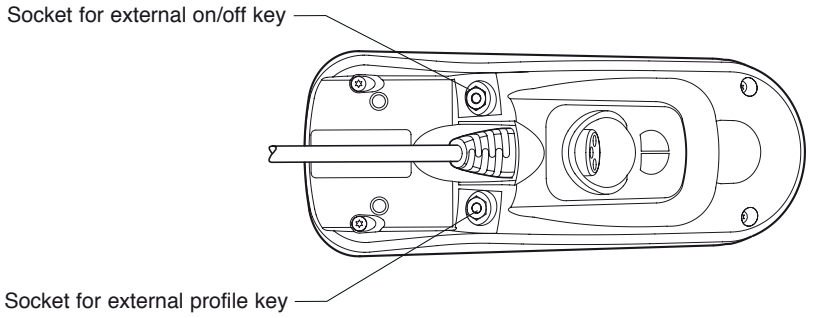
Indicators, right*
This key activates and deactivates the wheelchair's right indicators. Press the key to activate the indicators. Press it again to deactivate them. When the indicators are active, the indicator lamp next to the control key flashes in time with the indicators on the wheelchair.

*) Applies only if the wheelchair is fitted with lights.

R-Net control panel LCD monochrome display

Socket for external on/off key
You can use this socket to activate and deactivate the control system with an external device.

Socket for external profile key (applies if profiles are programmed and used).
You can use this socket to select a profile with an external device.



R-Net control panel LCD monochrome display

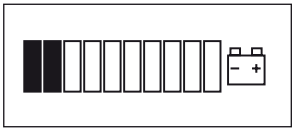
Display

By looking at the control panel display, you can get an idea of the status of the control system. The control system is active when the screen is lit.

Symbols

Some symbols on the R-net display are always displayed and some symbols are only displayed under certain conditions. Below is the typical appearance of the display when driving with profile 1.

Battery indicator



The battery indicator displays the status of the battery.

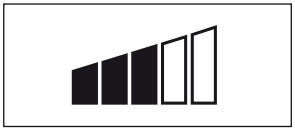
Constantly on
This shows that everything is working correctly.

Flashing slowly
The control system is working correctly but the battery needs to be charged as soon as possible.

Moving
The wheelchair's batteries are being charged. The wheelchair cannot be driven until the charger has been disconnected and the control system has been restarted.

R-Net control panel LCD monochrome displayl

Max. speed indicator



This displays the current maximum speed setting.

The maximum speed setting is adjusted using the keys for higher and lower max. speed.

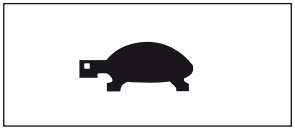
Current profile

The profile number describes the profile currently being used by the control system. The profile text is the name or description of the profile currently being used by the control system.

In focus

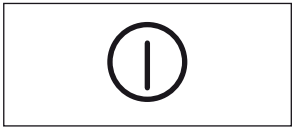
When the control system has more than one method for direct control, like another joystick module or a double module for companion control, the module currently controlling the wheelchair displays the In focus symbol.

Speed limitation



This symbol is displayed when the wheelchair's speed is limited, for example when the seat is raised. If the wheelchair is prevented from driving, the symbol flashes.

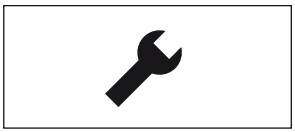
Restart



This symbol flashes when the control system needs to be restarted, for example after a module has been reconfigured.

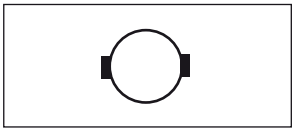
R-Net control panel LCD monochrome display

Fault



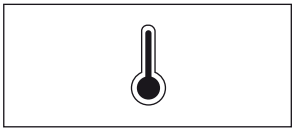
The control system can detect a large number of faults. When the system has detected a fault that is not serious enough to cause a stoppage, this symbol is displayed.

Motor temperature



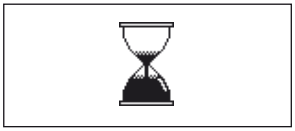
This symbol is displayed when the control system has intentionally reduced the power supply to the motors to protect them against overheating.

Control system temperature



This symbol is displayed when the control system has intentionally reduced its own power supply to protect itself against overheating.

Wait



This symbol is displayed when the control system switches between different stages. For example, it may be displayed when you enter programming mode. The symbol is animated so that you can see the sand running through the hourglass.

Emergency stop

If the control system has been programmed for locked operation or automatic adjustment of the seat, an emergency stop key is normally connected via the socket for an external profile key. If the emergency stop key is used or disconnected, this symbol flashes.

R-Net control panel LCD color display

General

The Control Panel consists of a joystick, function buttons and a display. At the front of the panel is the Charger Socket. Two Jack Sockets are located on the bottom of the panel.

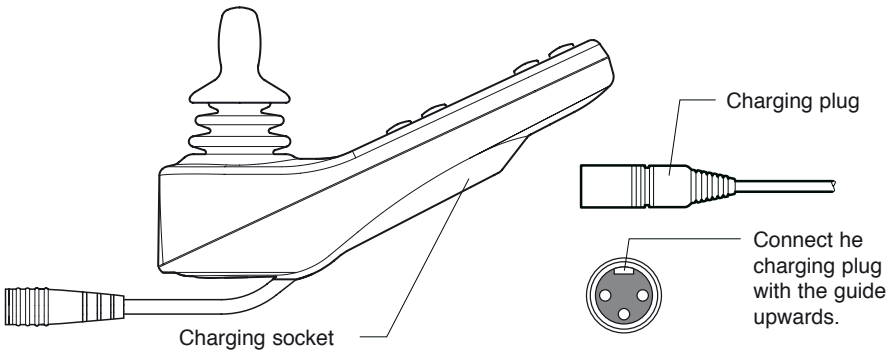
Your wheelchair may also be equipped with a Seat Control Panel in addition to the control panel.

Control Panel Overview

R-Net control panel LCD color display

Charger Socket

This socket should only be used for charging or locking the wheelchair. Do not connect any type of programming cable into this socket This socket should not be used as a power supply for any other electrical device. Connection of other electrical devices may damage the control system or affect the E.M.C. performance of the wheelchair.).



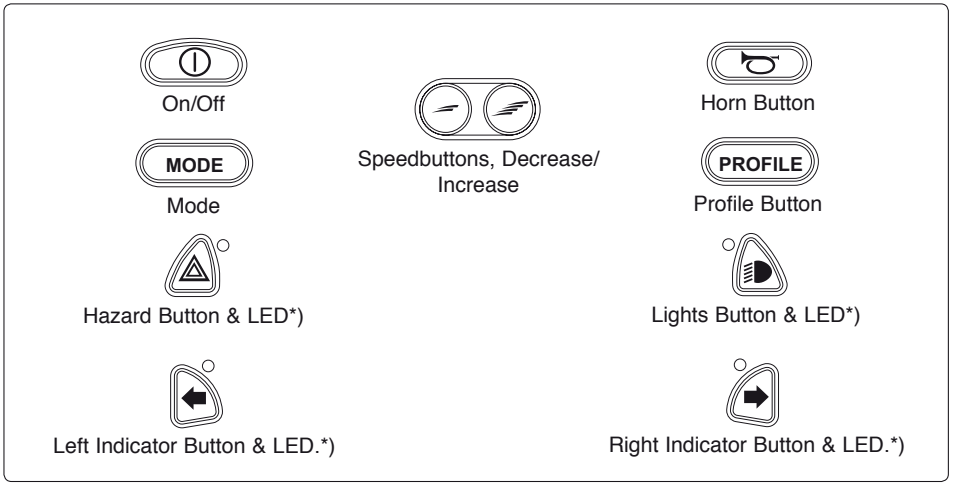
⚠ WARNING

The wheelchair's warranty will be voided if any device other than a battery charger supplied with the wheelchair, or the lock key is connected into the control panels charger socket.

R-Net control panel LCD color display

Function Buttons

On the control panel there are a total of 10 Function Buttons.



*) Only active if the wheelchair is equipped with lights.

On/Off Button

The On/Off button applies power to the control system electronics, wich in turn supply power to the wheelchair's motors.

⚠ WARNING

Do not use the On/Off Button to stop the wheelchair unless there is an emergency. If you do, you may get thrown out of the chair or shorten the life of the wheelchair drive components.

Horn Button

The horn will sound while this button is depressed.

Maximum Speed Buttons

These buttons decreases/increases the wheelchairs maximum speed. Depending on the way the control system has been programmed a momentary screen may be displayed when these buttons are pressed.

R-Net control panel LCD color display

Mode Button
The Mode button allows the user to navigate through the available operating Modes for the control system. The available modes are dependant on programming and the range of auxiliary output devices connected to the control system.

Profile Button
The profile button allows the user to navigate through the available Profiles for the control system. The number of available Profiles is dependant on how the control system is programmed. Depending on the way the control system has been programmed a momentary screen may be displayed when the button is pressed.

Hazard Warning Button and LED*)
This button activates/deactivates the wheelchairs hazards lights. This function is used when the wheelchair is positioned in a way making it a obstruction for others. Push the button to activate the hazard lights and push it again to deactivate them. When activated the indicator LED will flash in sync with the wheelchair's indicators.

Lights Button and LED*)
This button activates and deactivates the wheelchair's lights. Depress the button to turn the lights on and depress the button again to turn them off. When activated the lights LED will illuminate.

Left Indicator Button and LED*)
This button activates and deactivates the wheelchair's left indicator. Depress the button to turn the indicator on and depress the button again to turn it off. When activated the left indicator LED will flash in sync with the wheelchair's indicator.

Right Indicator Button and LED*)
This button activates and de-activates the wheelchair's right indicator. Depress the button to turn the indicator on and depress the button again to turn it off. When activated the right indicator LED will flash in sync with the wheelchair's indicator.

*)Only active if the wheelchair is provided with lights.

R-Net control panel LCD color display

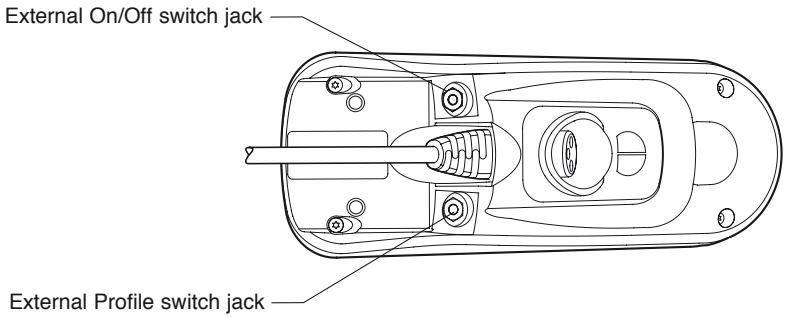
External On/Off Switch Jack

This allows the user to turn the control system on and off using an external ability switch, such as a buddy button.

External Profile/Mode Switch Jack

(This jack's function varies depending on the programming.)

This allows the user to select Profiles using an external ability switch, such as a buddy button.



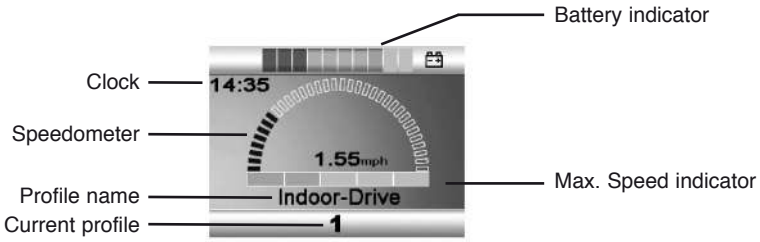
R-Net control panel LCD color display

Display

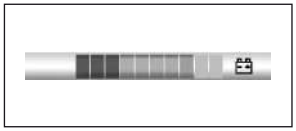
The status of the control system is shown in the display. The control system is on when the display is backlit.

Screen Symbols

The Drive screen for the R-net has common components, which will always appear, and components which will only appear under certain conditions. Below is a view of a typical Drive screen in Profile 1.



Battery Indicator



This displays the charge available in the battery and can be used to alert the user of the status of the battery.

Steady

This indicates that all is well.

Flashing Slowly

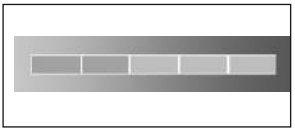
The control system is functioning correctly, but you should charge the battery as soon as possible.

Stepping Up

The wheelchair batteries are being charged. You will not be able to drive the wheelchair until the charger is disconnected and you have switched the control system off and on again.

R-Net control panel LCD color display

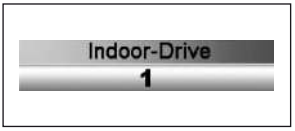
Speed Indicator



This displays the current speed setting.

The speed setting is adjusted using the Speed Buttons.

Current Profile

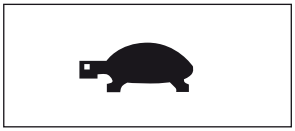


The Profile Number describes wich Profile the control system is currently operating in. The Profile Text is the name or description of the Profile the control system is currently operating in.

In Focus

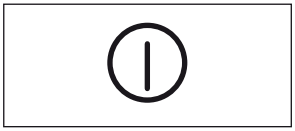
When the control system contains more then one method of direct control, such as a secondary Joystick Module or a Dual Attendant Module, then the Module that has control of the wheelchair will display the In Focus symbol.

Speed Limit



If the speed of the wheelchair is being limited; for example, by a raised seat, then this symbol will be displayed. If the wheelchair is being inhiited from driving, then the symbol will flash.

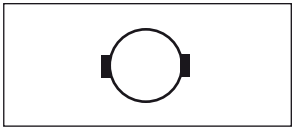
Restart



When the control system requires a restart; for example, after a module re-configuration, this symbol will be flashed.

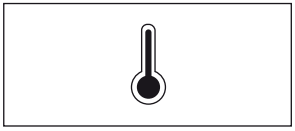
R-Net control panel LCD color display

Motor Temperature



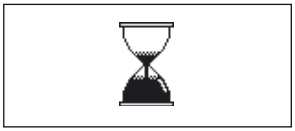
This symbol is displayed when the control system has intentionally reduced the power to the motors, in order to protect them against heat damage.

Control system Temperature



This symbol is displayed when the control system has intentionally reduced its own power, in order to protect itself against heat damage.

Timer



This symbol is displayed when the control system is changing between different states. An example would be entering into Programming Mode. The symbol is animated so that you can see the sand running through the hourglass.

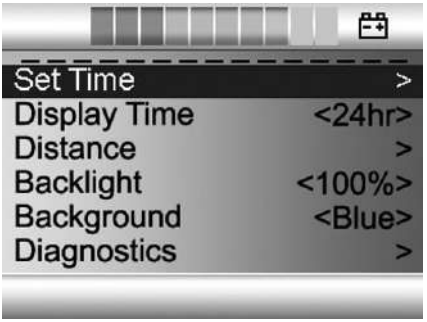
E-Stop

If the control system is programmed for latched operation, then it is normal for an Emergency Stop Switch to be connected into the External Profile Switch Jack. If the Emergency Stop Switch is operated or disconnected, this symbol will flash.

R-Net control panel LCD color display

Installation menu
The installation menu permits the user to set the clock, the display brightness, background color etc. Access the menu by holding down the keys for higher and lower maximum speed simultaneously. Scroll through the menu by moving the joystick up or down.

Exit the installation menu by first selecting “Exit” at the bottom of the menu and then moving the joystick to the right.



Setting the time (Set Time)
Select “Set Time” in the menu. Move the joystick to the right to go to the menu for setting the time. Then select “Year”, “Month”, “Date”, “Hours” and “Minutes” by moving the joystick left or right. Set the desired value by moving the joystick up or down. Exit the installation menu by selecting “Exit” and then moving the joystick up or down.

Displaying the time (Display Time)
Select “Display Time” in the menu. Move the joystick right or left to select 12 or 24 hour display, or “Off” to remove the clock from the display.

Control panel R-Net LCD color display

Distance measurement (Distance)
Select “Distance” in the menu. Move the joystick to the right to go to the menu for setting distance measurement. Then select “Total distance”, “Trip”, “Distance display” or “Reset” by moving the joystick up or down.

- **Total distance** (Total Distance): Shows the total distance traveled by the control system.
- **Trip** (Trip Distance): Shows the total distance traveled since the last reset.
- **Distance display** (Display Distance): Selects Trip or Total Distance in the display.
- **Reset** (Clear trip distance): Move the joystick to the right to reset the Trip measurer.
- **Exit** (Exit): Move the joystick to the right to exit the installation menu.

Brightness (Backlight)
Select “Backlight” in the menu. Move the joystick to right or left to set the desired brightness for the display backlight. Ten fixed levels are available from 10-100%.

Background (Background)
Select “Background” in the menu. Move the joystick right or left to select “Blue”, “White” or “Auto”.

- **Blue** (Blue): The display background is blue in all profiles.
- **White** (White): The display background is white in all profiles.
- **Automatic** (Auto): The display background is programmed in the various travel profiles. E.g. blue background for slow profile for indoors travel and white background for rapid profile for outdoors travel.

Diagnostics (Diagnostics)
For qualified technicians only.

R-Net control panel LED

General

The Control Panel consists of a joystick, function buttons and a display. At the front of the panel is the Charger Socket. Two Jack Sockets are located on the bottom of the panel.

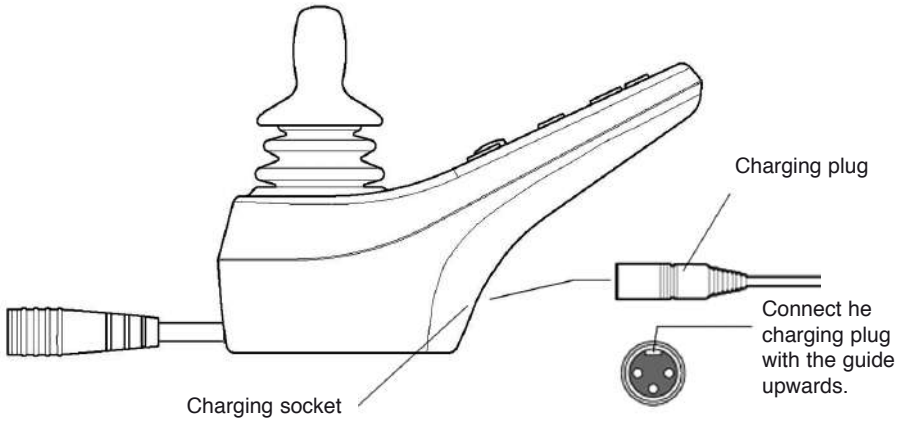
Your wheelchair may also be equipped with a Seat Control Panel in addition to the control panel.

Control Panel Overview

R-Net control panel LED

Charger Socket

This socket should only be used for charging or locking the wheelchair. Do not connect any type of programming cable into this socket This socket should not be used as a power supply for any other electrical device. Connection of other electrical devices may damage the control system or affect the E.M.C. performance of the wheelchair.).



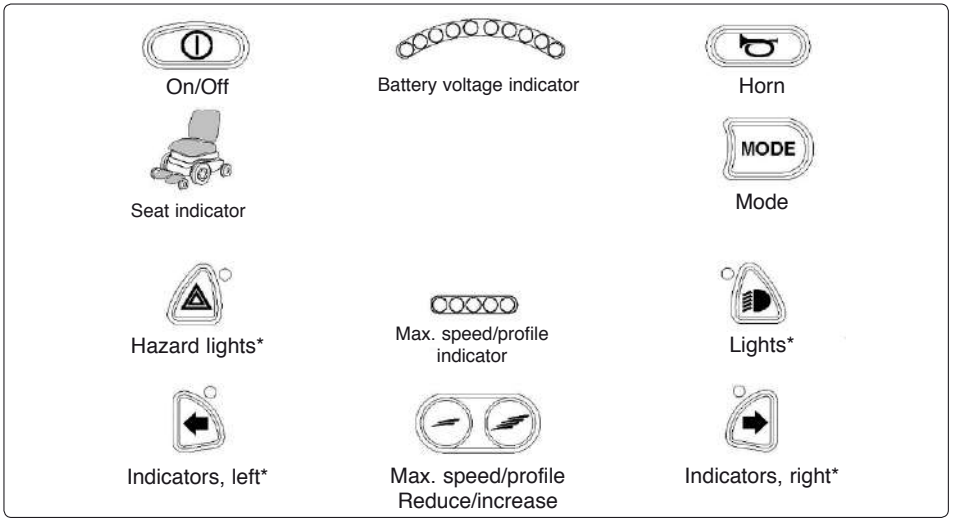
⚠ WARNING

The wheelchair's warranty will be voided if any device other than a battery charger supplied with the wheelchair, or the lock key is connected into the control panels charger socket.

R-Net control panel LED

Function keys

There are a total of 9 function keys on the control panel with LEDs.



* Applies only if the wheelchair is fitted with lights.

On/off key

The on/off key is the switch for the control system's electronics which, in turn, supply power to the wheelchair's motors.

⚠ WARNING

Do not use the on/off key to stop the wheelchair, except in an emergency. You may be thrown out of the chair, or you may shorten the life of the wheelchair's drive system.

Horn

Pressing the switch produces a sound signal for attracting attention.

Max. speed/choice of profile

These keys normally reduce or increase the wheelchair's maximum speed. In special applications, the keys can instead control the choice of driving profile.

R-Net control panel LED

Mode
With the Mode key the user can scroll between the control system's available operating modes. The available modes depend on the programming and on which other output devices are connected to the control system.

Hazard lights*)
This key activates and deactivates the wheelchair's hazard lights. Hazard lights are used when the wheelchair is stationary in a position which may represent a risk or an obstacle for others. Press this key to activate the hazard lights. Press it again to deactivate them. When the hazard lights are active, the indicator lamp next to the control key flashes in time with the wheelchair's direction indicators.

Lights*
This key activates and deactivates the wheelchair's lights. Press this key to switch on the lights. Press it again to switch them off. When the lights are activated, the indicator lamp next to the control key also lights up.

Indicators, left*
This key activates and deactivates the wheelchair's left-hand direction indicators. Press the key to activate the indicators. Press it again to deactivate them. When the indicators are active, the indicator lamp next to the control key flashes in time with the wheelchair's left-hand direction indicators.

Indicators, right*
This key activates and deactivates the wheelchair's right-hand direction indicators. Press the key to activate the indicators. Press it again to deactivate them. When the indicators are active, the indicator lamp next to the control key flashes in time with the wheelchair's right-hand direction indicators.

* Applies only if the wheelchair is fitted with lights.

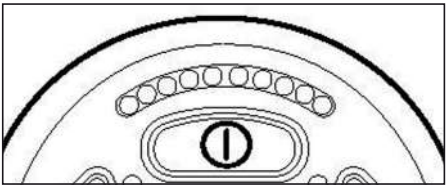
R-Net control panel LED

Battery voltage indicator
Shows the voltage remaining in 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 gage 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 due to discharged batteries.

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



⚠ CAUTION

The battery voltage indicator also functions as a “fault indicator” for the wheelchair’s electronics. See page 96 for further information.

R-Net control panel LED

Max. speed indicator

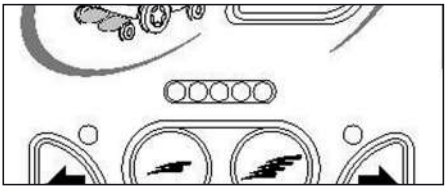
Speed

Indicates the maximum speed set for the wheelchair.

1 - 2 lamps = Low speed
3 - 4 lamps = Average speed
5 lamps = Max. speed

Driving profile

For special applications, the wheelchair can be programmed with more than one driving profile. In this case, the indicator's LEDs will instead display the selected driving profile. There can be up to 5 driving profiles.



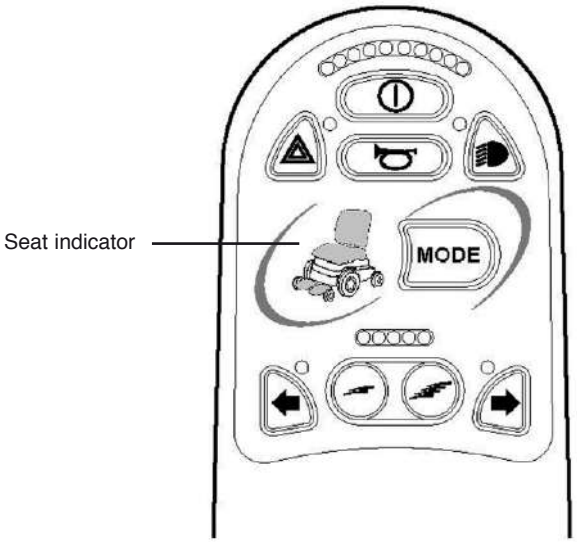
⚠ CAUTION

The indicator for max. speed/driving profile also functions as a "fault indicator" for the wheelchair's electronics. See page 96 for further information.

R-Net control panel LED

Seat indicator

On certain seats the electrical functions for seat lift, seat angle, backrest angle and legrest angle are controlled with the control panel joystick. In this case the active seat function is indicated on the control panel seat indicator.



R-Net control panel

Locking/unlocking the wheelchair
The control system can be locked in two different ways. Either by using a key sequence on the keypad or with a physical key. The method used depends on how the system has been programmed.

Locking with the keypad:

- Press and hold down the on/off key while the control system is active.
- After 1 second, the control system emits a beep. Release the on/off key.
- Move the joystick forwards until the control system emits a beep.
- Move the joystick back until the control system emits a beep.
- Release the joystick. You will hear a long beep.
- The wheelchair is now locked.

Control panels with display will now show the following screen:

Unlocking:

- Press the on/off key if the control system is switched off. On control panels without display the LEDs on the speed indicator will “wander” backwards and forwards).
- Move the joystick forwards until the control system emits a beep.
- Move the joystick back until the control system emits a beep.
- Release the joystick. You will hear a long beep.
- The wheelchair is now unlocked.

R-Net control panel

Locking with a key

- Press the on/off key if the control system is switched off.
- Insert and remove the key from the charging contact on the control panel.
- The wheelchair is now locked.

Control panels with display will now show the following screen:

Unlocking:

- Press the on/off key if the control system is switched off. On control panels without display the LEDs on the speed indicator will “wander” backwards and forwards).
- Insert and remove the key from the charging contact.
- The wheelchair is now unlocked.

MX seat

MX is an ergonomically formed seat that is simply adjusted according to the user's needs. The seat is built up of modules, and the seat frame constitutes the core element, which can then be supplemented with a range of seats, back supports, arm rests, leg rests and accessories such as a headrest for instance.

The seat is equipped with an electric seat lift and an electric function to lower the seat to the floor. There are both manual and electric seat functions.

Overview

1. Back rest
2. Arm rest
3. Seat part panel
4. Leg rest
5. Foot plate
6. Control

Electrical seat functions

The functions may vary depending on the equipment fitted on your wheelchair.

The electrical seat functions are driven by an electrical adjustment system which is steplessly controlled from the wheelchair control panel or what is called the seat control panel, normally placed adjoining the maneuvering panel.

MX seat functions

- seat lift
- seat tilt
- seat-to-floor function
- combined seat lift/seat-to-floor function

Manual seat functions

The functions vary depending on the equipment fitted on your wheelchair.

The seat can be adjusted manually by adjusting a number of locking screws and locking handles.

MX seat functions

- leg rest
- foot plate
- control panel
- arm rest

Other adjustments

It is possible to adjust the positioning belt and other accessories (e.g. head rest) manually.

Electric Seat Lift

The electrically controlled seat lift permits steplessly variable raising or lowering of the seat in order to adjust the height to tables, benches etc.

Whenever the seat lift is raised above its lowest position, the maximum speed of the wheelchair will be reduced.

⚠ WARNING

Raising the seat lift will raise the center of gravity and thus entail a higher risk of tipping. For this reason use the seat lift only on level ground.

Electric seat lift

Electric Seat Tilt

The electrically controlled seat tilt function permits steplessly variable adjustment of the seat angle.

If the seat slopes more steeply than 15° the wheelchair's max. speed will be reduced.

⚠ WARNING

Always drive at low speed and never move the seat/back angle so far back that the wheelchair cannot be controlled safely when moving over sloping, uneven ground or when negotiating obstructions.

Electric seat tilt adjustment

Seat-to-floor function

With the help of this function the user can when required lower the seat to the floor, and climb out of the chair. A support wheel at the back edge of the foot plate makes the leg support glide forwards and stretch out as the seat is lowered to the floor.

When the seat has reached floor level, it is not possible to drive the chair forward or backwards. If the wheelchair is fitted with the widest seat (400mm.), it will not go all the way down to the floor.

⚠ WARNING

There will always be a risk of crushing when the electric functions are in action.

Crush protection

To reduce the risk of crushing when the seat is lowered to the floor, crush protection is built in along the sides of the seat. The crush protection works by stopping the seat and reversing for 1.5 seconds, and then stopping again if anything gets in the way.

The built-in crush protection along the sides of the seat reduces the risk of damaging anything when the seat-to-floor function is used.

The seat at floor level.

Combined seat lift/seat-to-floor function

The seat lift function can be combined with the seat-to-floor function.

In the normal position the seat is positioned as far back as possible with the seat lift in it´s lowest position.

When the seat reaches floor level, it is not possible to drive the chair forward or backwards. If the wheelchair is fitted with the widest seat (16”), it will not go all the way down to the floor.

Whenever the seat lift is raised above its lowest position, the maximum speed of the wheelchair will be reduced.

⚠ WARNING

There will always be a risk of crushing when the electric functions are in action.

Raised seat.

The seat at floor level.

ICS Control panel

The electric functions of the seat can be controlled from the wheelchair control panel, to provide further details. On seats equipped with the ICS control system, the electric functions can also be controlled with the help of the ICS control panel.

The seat's electrical functions are controlled from the control panel. The control system may take the form of conventional push buttons or may have levers for those users who find these easier to maneuver. The levers are moved forward to operate the front button and back to operate the rear button. The functions of the control panel are described in the following as fitted with levers. The functions are the same, however, whatever the design of the control system.

⚠ WARNING

The number of available functions will vary depending on how your wheelchair and seat are equipped.

The standard design control panel.

Control panel with memory function.

Symbols on the ICS Control panel

The symbols on the control panel show which seat functions are available, which are limited, and which will cause a reduction in speed or prevent the wheelchair from running altogether.

The symbols may be unlighted, flashing or fully lit up.

Unlighted symbol
The symbol for a function is unlighted. This means that the function is not currently available.

Lighted symbol
A symbol that is steadily lighted up provides information related to the driving speed.

- A steady green light means everything is OK, and the wheelchair can be driven at maximum speed.
- A steady yellow light means that the wheelchair's maximum speed is limited because of the current position of the seat function.
- A steady red light means that the wheelchair cannot be driven because of the current position of the seat function.

Flashing symbol
A flashing symbol provides information relating to the adjustment device.

- A flashing green symbol means a special function, the memory function for example.
- A flashing yellow symbol means that for reasons of safety the function is blocked in one direction. The control device for that function will only work in the "safe" direction.
- A flashing red symbol means that a fault has been detected in the adjustment device concerned, and in consequence that seat function may not work. Contact service.

Symbols on the ICS Control panel

Seat lift
The seat can be raised by pressing the upper part of the button and lowered by pressing the lower part.

seat tilt
The seat can be angled backwards by pressing the lower part of the button and forwards by pressing the upper part.

Seat-to-floor function
The seat is lowered to the floor when the lever is pushed forwards, and is raised again when the lever is pulled back.

Combined Seat lift and Seat-to-floor function
The seat is lowered to the floor when the lever is pushed forwards, and is raised again at the same time as the seat lift when the lever is pulled back.

Symbols on the ICS Control panel

Memory function
The control panel has a built-in memory with three storage locations. Each location can store all the electric settings of the seat.

Save setting
Adjust the seat to the position you want to save.

- Activate the memory function by holding down the memory button(8) for 2 seconds, see the picture. The symbol will flash in green when the memory function is activated.
- Hold down the button for the memory function you want (5, 6 or 7) for three seconds to store the setting of the seat, see the picture.
- The symbol opposite the current memory function will light up in red and the control panel will give a short acoustic signal when the setting has been saved.
- Return to the standard functions on the control panel by pressing the memory button(8), see the picture.

Recall the setting
- Activate the memory function by holding down the memory button(8) for 2 seconds, see the picture. The symbol will flash in green when the memory function is activated.
- Hold down the button for the memory function you want (1, 2 or 3) for three seconds, and the seat will be moved to the position stored earlier, see the picture. For reasons of safety, the button must be held down until the seat is fully adjusted in the required position.
- When the seat has reached the saved position, the seat adjustment device will stop, the symbol beside the storage location will light up in green, and the control panel will give a short acoustic signal.
- Return to the standard functions on the control panel by pressing the memory button(8), see the picture.

The control panel memory function.

Settings

Leg rest

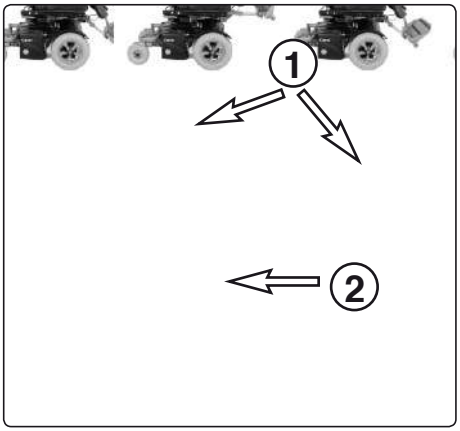
Underneath the seat there are two locking knobs, which locks the position of the leg rest, and a adjustment knob, which is used when adjusting the angle of the leg rest, see the pictures below.

Leg rest position

1. Loosen the locking knobs (1).
2. Adjust the position of the leg rest forwards or backwards to the desired position.
3. Tighten the locking knobs (1).

Leg rest angle

Adjust the angle of the leg rest to the desired angle by turning the knob (2) clockwise or counterclockwise.



Leg rest adjustment.

Adjusting the position and angle of the leg rest.

Leg rest length

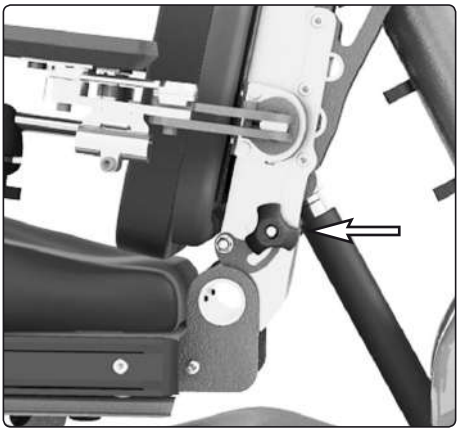
If needed, the Leg rest length can be adjusted. Adjusting the Leg rest length must be carried out by a competent servicing engineer or person with sufficient knowledge to give a competent result. Detailed information is found in the service manual.

Settings

Back rest recline

The Back rest recline can be manually adjusted. The setting is fixed with two knobs on the back of the Back rest.

1. Loosen the knobs on the left and right hand side of the seat. See fig.
2. Adjust the Back rest recline and fix the setting by tightening the knobs. See fig.

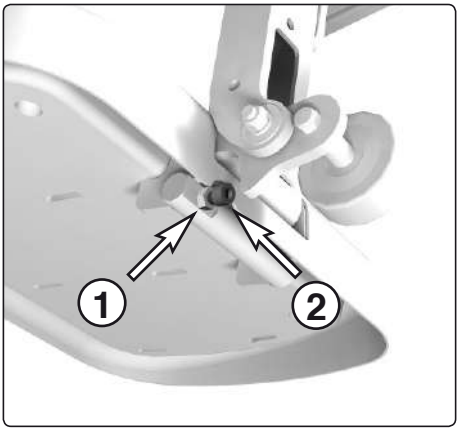


The Back rest recline is fixed with a knob on the left and right hand side of the seat.

Foot plate angle

The footplate angle can be regulated by the stop screw placed under the foot plate.

1. Release the locking nut (1) at the back of the foot plate.
2. Adjust the foot plate angle by screwing the stop screw (2) in or out.
3. Lock the stopscrew with the locking nut (1).



Adjustment of the foot plate angle

Arm rest

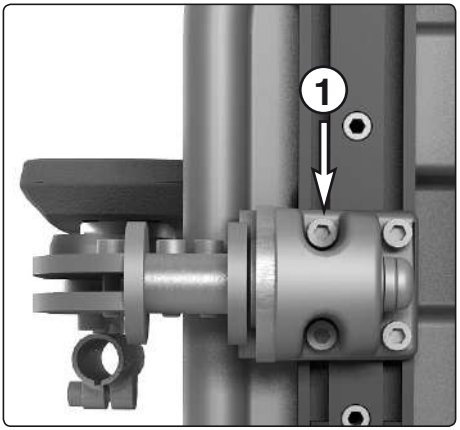
Both arm rests on the MX seat can be adjusted in a number of ways. Besides stepless adjustment of the height and angle of the arm rests, they can be adjusted forwards and backwards.

⚠ WARNING

Do not subject the arm rests to load when adjusting them. Risk of crushing.

Armrest height

1. Release the four locking screws (1) which attach each arm rest to the seat back.
2. Adjust the arm rest to the desired height.
3. Tighten the locking screws.



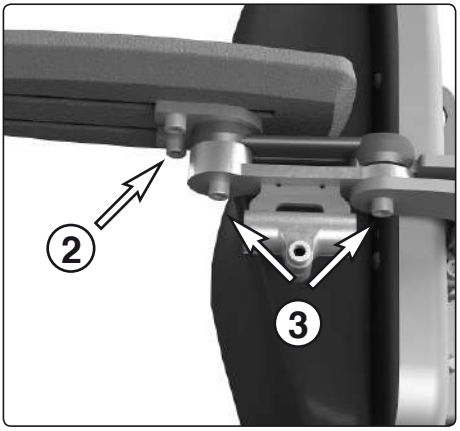
Locking screws for adjusting the arm rest height.

Arm rest forwards/backwards

1. Release the two locking screws (2) on the underside of each arm rest.
2. Slide the arm rest forwards or backwards to the desired position.
3. Tighten the locking screws.

Arm rest angle

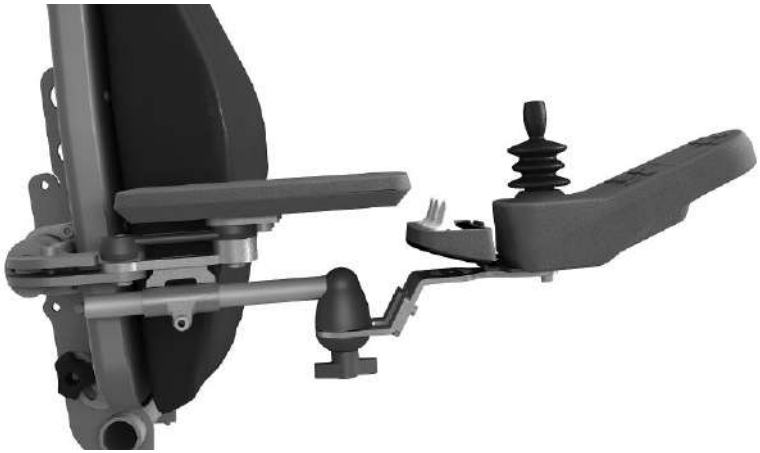
1. Release the two locking screws (3) on the anchoring arms of each arm rest.
2. Adjust the arm rest to the desired angle.
3. Tighten the locking screws.



Locking screws for adjusting the arm rest angle and forwards/backwards adjustment.

Control panel, rotatable panel holder

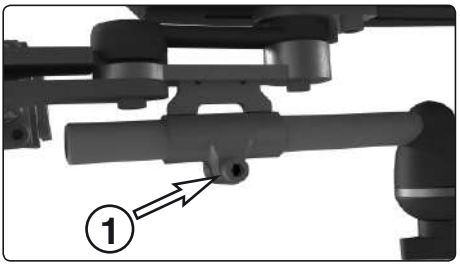
To find the optimum driving position, the location of the control panel can be adjusted lengthwise. It is also possible to adjust the angle of the panel sideways, which facilitates getting in and out.



Control panel

Length adjustment

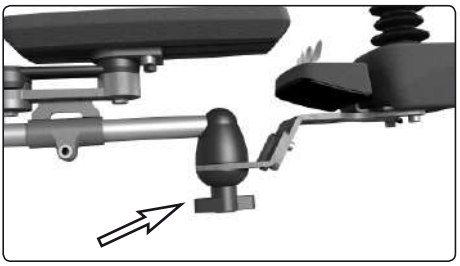
1. Loosen the locking handle (1) on the jointed arm of the panel.
2. Adjust the panel to the desired position.
3. Tighten the locking screw (1).



Length adjustment screw.

Angle adjustment, friction joint

Use the handle on the friction joint to adjust how easily or stiffly the panel is to move for sideways adjustment.



Friction joint knob

Operation

General

The Permobil K450 is designed for use both indoors and outdoors. When you drive indoors, you must be careful, for example, in narrow passages, when going through doors and entrances and when using lifts, ramps, etc.

You should also consider the risk of crushing when you use the electric seat lift and seat tilt functions, above all if the wheelchair has been driven under tables, benches, etc. Outdoors you should remember to drive very slowly down steep slopes and to be very careful when driving on uneven surfaces, up slopes, on side slopes and over obstacles. Always observe a good safety distance when driving near edges and precipices.

We recommend that you do repeated test drives in an environment in which you feel safe so that you are very familiar with how the wheelchair and its accessories behave in different situations before you start to use the wheelchair on public roads and in other public locations.

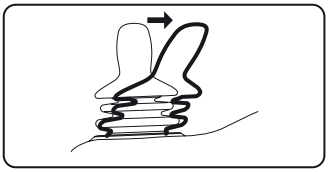
General - Driving

Check that the control panel is correctly fitted and 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. Check and make sure the brake release control fits correctly with the chassis i chassis (brakes not released).

1. Switch on the power by pressing the start key on the control panel.
2. Select a suitable driving profile with the PROFILE key (if the system is programmed for more than one driving profile). See page 30.
3. Move the joystick carefully forwards to drive forwards or backwards to reverse.
4. The speed setting is adjusted using the keys for higher and lower speed. The wheelchair's electronics allow it to run very slowly over edges. You can drive up to the edge and then carefully drive over it.

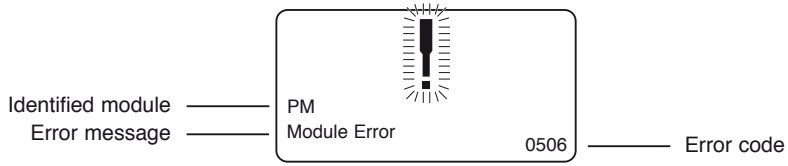
Joystick Error

If the joystick was moved away from the central position before, during and immediately after the time at which the control system was switched on, the screen for a shifted joystick is displayed for 5 seconds. If the joystick is not released during this time, a joystick error is registered and the wheelchair cannot be driven. To be able to drive the wheelchair again, ensure that the joystick is in the central position. Then switch the wheelchair off and on again.



Screen: Shifted joystick

If the wheelchair still cannot be driven after the restart and a “Diagnostics screen” is displayed (see example below), R-net has detected an error in the wheelchair’s electronics that needs to be remedied. You should contact your service contact as soon as possible.



Screen: Diagnostics screen on monochrome display

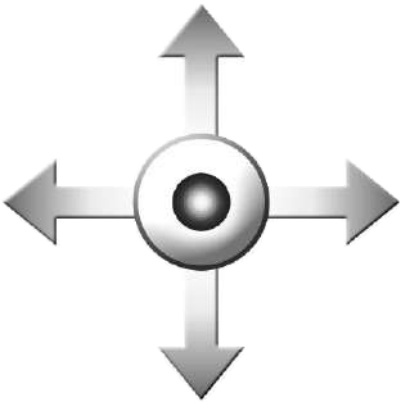
Driving technique

The control panel's electronics "interpret" the movements of the joystick and move the wheelchair as intended. For normal driving, the user needs to employ no complex techniques, which is an advantage if the user is inexperienced. A good way of starting is quite simply to move the joystick in the direction you want to go.

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

DRIVING FORWARDS

TURNING LEFT



TURNING RIGHT

DRIVING BACKWARDS

⚠ CAUTION

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

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

⚠ WARNING

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.

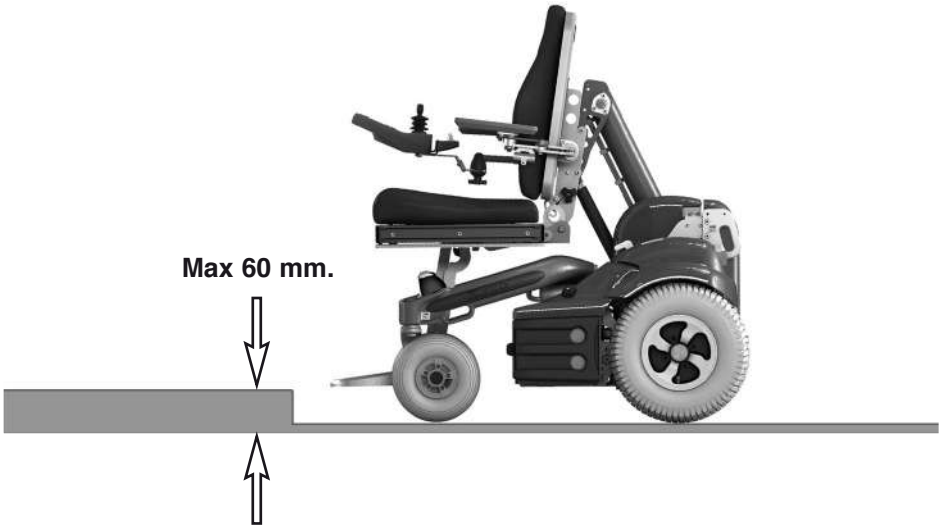
If the wheelchair moves in a way that you do not want, **RELEASE THE JOYSTICK!**
This always makes the wheelchair interrupt the current movement.

Driving rules

Driving over obstacles

Do not drive the wheelchair over obstacles higher than 60 mm. If you drive over higher edges, there is a higher risk of tipping and of damage to the wheelchair.

You should always drive over obstacles with great caution.



⚠ CAUTION

Do not drive the wheelchair over obstacles higher than 60 mm. You should always drive over obstacles with great caution.

⚠ WARNING

Raising the seat lift raises the center of gravity and increases the risk of tipping. For this reason use the seat lift only on a level surface.

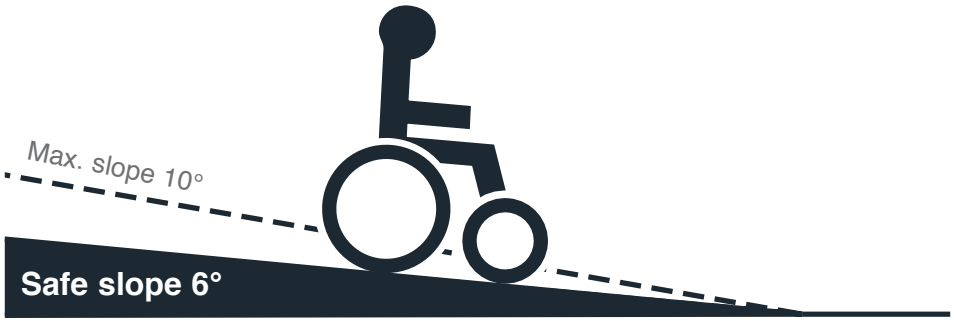
Driving rules

Driving downhill

You should always drive downhill at low speed and with great caution.

Avoid braking suddenly and sudden evasive maneuvers 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 10 degrees.
Dynamic stability according to ISO 7176-2 = 6°.

⚠ WARNING

Raising the seat lift raises the center of gravity and increases the risk of tipping. For this reason use the seat lift only on a level surface.

Driving rules

Driving uphill

You should always drive uphill with great caution.

Avoid sudden evasive maneuvers 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 10 degrees.
Dynamic stability according to ISO 7176-2 = 6°.

⚠ WARNING

Raising the seat lift raises the center of gravity and increases the risk of tipping. For this reason use the seat lift only on a level surface.

Driving rules

Driving on side slopes

You should always drive on side slopes with great caution.

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

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

⚠ WARNING

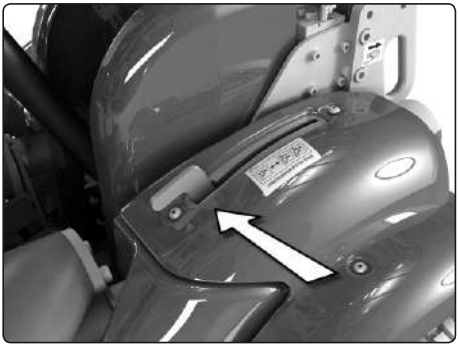
Do not drive the wheelchair on side slopes steeper than 6 degrees. There is a risk of tipping.

⚠ WARNING

Raising the seat lift raises the center of gravity and increases the risk of tipping. For this reason use the seat lift only on a level surface.

Handling the manual 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 control is located in the left side of the chassis.



Brake release control.

⚠ 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 activated/deactivated.

To prevent the wheelchair from rolling off, 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.

Releasing the brakes

⚠ CAUTION

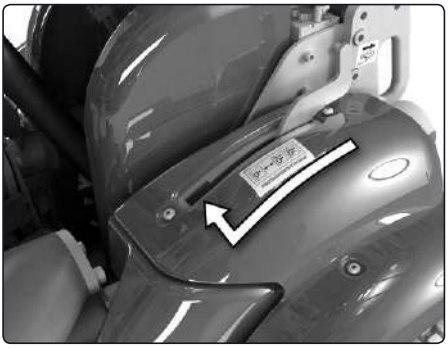
When the brake release is activated, the wheelchair cannot be driven.

Releasing the brakes

1. Switch off the wheelchair with the On/Off key on the control panel.
2. Press the release control out from the chassis and, at the same time, pull it backwards. See the picture. The chair can now be moved manually.

Resetting released brakes

Pull the release control forwards, and then press it in towards the chassis.



Resetting released brakes

Seat functions R-Net LCD

(Not applicable to all seat models)

On some seats the electrical functions can be controlled with the help of the control panel joystick. Some models are equipped with three memory locations. Each memory location can store the position of the seat's adjustment device. This means that it is easy to retrieve a seat position saved earlier.

Seat function activated.

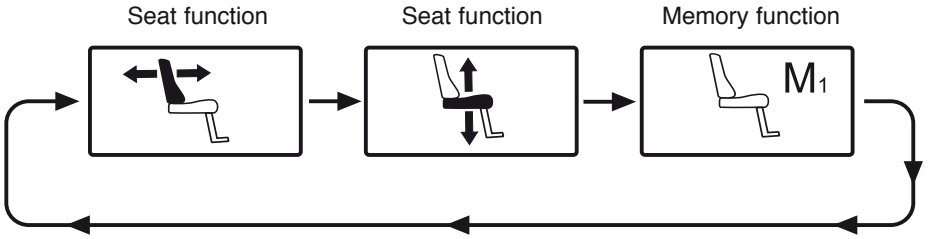
Maneuvering the seat

1. Press the "Mode" button one or more times until an icon for seat function appears in the control panel display - see illustration.
2. Move the joystick to the left or right to select a seat function. The icon for the seat function selected appears in the display.
3. Move the joystick forwards or backwards to activate the function.

Below is an example of the icons that may be shown in the display. Which icons are shown varies depending on the seat model and available functions.

⚠ CAUTION

If the symbol "M" appears together with the seat icon, this means that a memory function has been activated. Move the joystick to the left or right to choose a seat function instead.



Move the joystick to the left or right to select a function.
The icon for the function selected appears in the display.

Seat functions R-Net LCD

(Not applicable to all seat models)

Return to drive mode

Press the “Mode” button one or more times until a standard display image with speed indicator appears in the control panel display - see illustration.

Standard display image with speed indicator.

Seat functions R-Net LCD

(Not applicable to all seat models)

The control system on some seats has three memory locations for seat positions. Each memory location can store the position of the seat's adjustment device. This means that it is easy to retrieve a seat position saved earlier.

Memory function activated.

Retrieving position from memory

1. Press the "Mode" button one or more times until a seat icon appears in the control panel display.
2. Move the joystick to the left or right to select a memory location (M1, M2 or M3). A seat icon and memory symbol "M" for the memory location selected are shown in the control panel display - see illustration.
3. Move and hold the joystick forwards. The seat adjusts to the position stored earlier. For reasons of safety, the joystick must be held forwards until the seat is fully adjusted to the required position. Once the seat has adjusted to the saved position, it stops moving.

⚠ CAUTION

Movement of the seat can be stopped at any time by releasing the joystick.

Return to drive mode

Press the "Mode" button one or more times until a standard display image with speed indicator appears in the control panel display - see illustration.

Standard display image with speed indicator.

Seat functions R-Net LCD

(Not applicable to all seat models)

Saving position to memory

1. Set the seat's electrical functions to the desired mode.
2. If not activated, activate the seat/ memory function by pressing the "Mode" button one or more times until a seat icon appears in the control panel display.
3. Move the joystick to the left or right to select a memory location (M1, M2 or M3). A seat icon and memory symbol "M" for the memory location selected are shown in the control panel display - see illustration.

Memory function activated.

4. Move the joystick backwards to activate the "save" function. An arrow will appear next to the memory symbol "M" - see illustration.
5. Save the current position by moving the joystick forwards and holding it in that position until the arrow next to the memory symbol "M" disappears.

Return to drive mode

Press the "Mode" button one or more times until a standard display image with speed indicator appears in the control panel display - see illustration on previous page.

Save function activated.

Seat functions R-Net LED

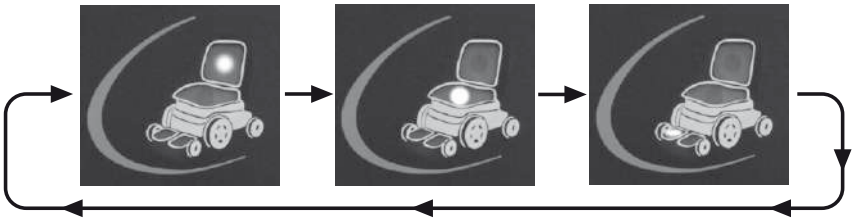
(Not applicable to all seat models)

On certain seats the electrical functions for seat lift, seat angle, backrest angle and legrest angle are controlled with the control panel joystick. Other seat functions require a separate seat control panel.

Seat indicator

Maneuvering the seat

1. Press the “Mode” button one or more times until the LED for a seat function lights up.
2. Move the joystick to the left or right to select a seat function. The LED for the selected seat function will light up.
3. Move the joystick forwards or backwards to activate the function.



Move the joystick to the left or right to select a function. The LED for the selected function will light up.

Seat functions R-Net LED

(Not applicable to all seat models)

Return to drive mode

Press the “Mode” button one or more times until a standard display image with speed indicator appears in the control panel display - see illustration.

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 also 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, the batteries should not be discharged completely. 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. It may also result in parts becoming overheated, which may entail a greater risk of fire.

Be careful if 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 10 A (average)

(the effective value of the charging current must not exceed 12 A).

The batteries must be charged in a well-ventilated room, not in a closet. The batteries must not be charged in a bathroom or wetroom.

If you want to interrupt the charging process, the mains voltage should be switched off before the charging contact is disconnected from the wheelchair's charging socket. This is to avoid sparking and unnecessarily high wear on the charging contact.

The charger's charging cable must not be extended.

The charger may get hot and must not be covered. The charger must be placed so that it has free space on all sides.

The charging contact must be replaced 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 contacts must be replaced by qualified personnel.

Charging batteries

Charging

Ensure that the wheelchair is switched off with the On/Off key on the control panel and then connect the charging plug to the control panel's or the chassis charging socket. The battery voltage indicator on the wheelchair's control panel lights up and shows the charging status during charging.

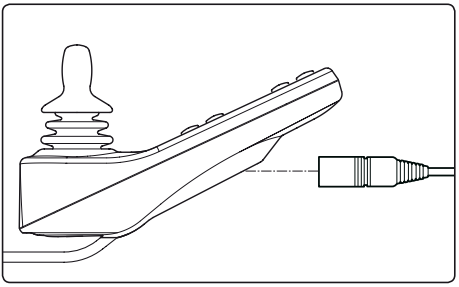
⚠ CAUTION

CAREFULLY READ THE INSTRUCTIONS SUPPLIED WITH DIFFERENT CHARGERS BEFORE STARTING TO CHARGE THE WHEELCHAIR.

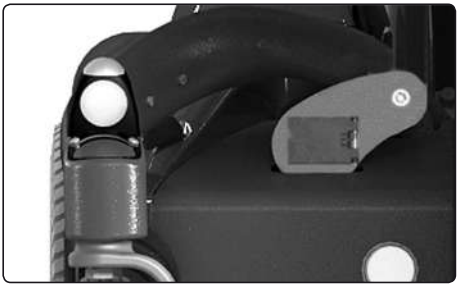
⚠ CAUTION

Switch off the wheelchair with the On/Off key on the control panel before charging.

Ensure that the charging contact has been fully inserted in the charging socket.
The wheelchair cannot be driven when the charger is connected.



Charging socket



Charging socket

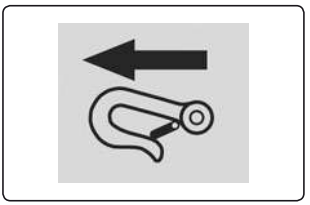
Transport

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

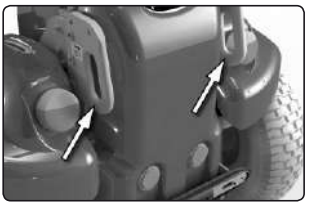
Check that the wheelchair is properly secured and the brakes are not released. The wheelchair can be locked in position with loading straps from the transport eyes at the front and rear, marked with yellow stickers.

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.

Front transport eyes



Sticker for transport eyes



Rear transport eyes

⚠ 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 accessorie.
- 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.

General advice for air transport

When transporting your wheelchair by air, you should primarily pay attention to the following three things:

1. Batteries
Gel batteries: In most cases, they do not need to be removed from the wheelchair.

The cables attached to the battery must be disconnected and the cable terminals insulated.

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

2. The wheelchair's dimensions and weight
How much the wheelchair weighs and how large it is are important, depending on the type of airplane in which the wheelchair is to be transported. The smaller the airplane is, the smaller the wheelchair may be/weigh and vice versa. Always check with the airline what rules apply.

⚠ CAUTION

Some airlines may refuse to accept acid batteries on board.

General advice for air transport

3. Preventing damage

When transported by air, the wheelchair will be put with other goods in a confined space. Therefore, it is important to take preventive action to minimize transport damage to the wheelchair.

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

⚠ CAUTION

To ensure that the wheelchair can be transported safely and no nasty surprises crop up at the last minute, you should always contact the airline before you travel.

Accessories

General

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

Positioning belt

There is a screw hole on both sides of the seat frame for mounting the positioning belt. The positioning belt should be mounted in the upper groove of the rail.

⚠ WARNING

Permobil's fixing belt is only designed to hold the user in place and not as a protection in the case of a collision or accident. Check the condition of the belts regularly in case any they have been damaged or become worn.

Snap Lock for the Belt.

Mounting of positioning belt

Attach the snap lock of the belt on the side that suits the user best.

1. Screw the locking screw tight (1) in the upper groove in each side rail.
2. Check that the belt buckle locks properly in the snap lock.

Fitted Belt.

Fitted Belt.

Maintenance and repairs

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.

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

TOOL	AREA OF USE
Two Screw drivers	General maintenance
Allen keys	General maintenance/seat adjustment
10-11, 12-13 mm spanners	General maintenance/replacing batteries
Box spanner 17 mm.	Adjusting the suspension
Emergency operation cable	Emergency operation of seat functions

⚠ CAUTION

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

⚠ CAUTION

The power supply to the control panel must always be switched off when batteries and fuses are replaced.

⚠ 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 damaging them.
- 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 if using metal objects when working with batteries. A short-circuit can easily cause an explosion. Always use safety gloves and safety goggles.

Care and maintenance

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.

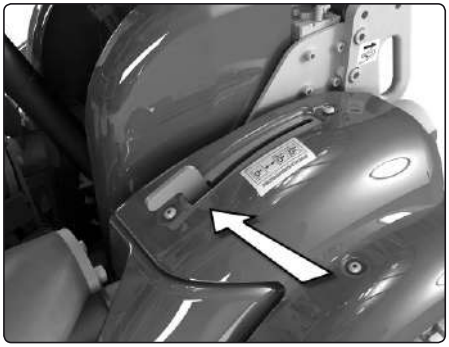
⚠ WARNING

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

Always contact Service if any defects are discovered in the wheelchair. Using a defective wheelchair may cause injury to the user and damage the wheelchair.

Regular inspections
Check regularly:

- The condition of the positioning belt in case it has become worn or been damaged.
- The condition of the fixing belts in case they have become worn or been damaged.
- That the lock nuts on the link heads are screwed tight.
- That the adjustment device is firmly attached in its fixtures.
- That moveable parts such as the arm rests and foot plates are firmly and properly attached, and that all knobs are tightened.
- The brake release and the function of the brake release lever (about once a month). When the brakes are released, it should not be possible to drive the wheelchair.



Care and maintenance

Air pressure

Check at regular intervals that the wheelchair's tires have the correct tire pressure. The incorrect tire pressure may result in lower stability and maneuverability. Too low tire pressure also results in abnormal wear and shorter range. Therefore, check regularly that the tire pressure is maintained at 250 kPa. (2.5 bar). in the front tires and at 120-200 kPa. (1,2-2.0 bar). in the rear tires.

Pumping tires with air

1. Unscrew and remove the plastic cap on the valve on the tire.
2. Connect the compressed air nozzle to the valve and adjust the tire pressure to the specified level.

Filling valve, front tire

Filling valve, rear tire

⚠ WARNING

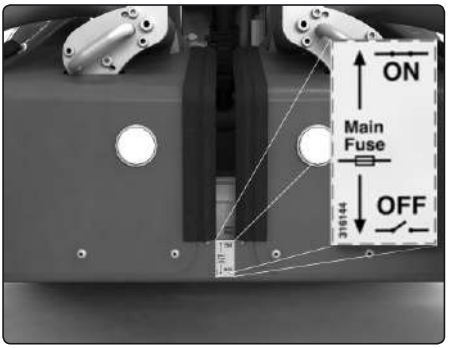
The recommended tire pressure for front tires is 250 kPa (2.5 bar). The recommended tire pressure for rear tires is 120-200 kPa (1.2-2.0 bar). Overfilling entails a risk of explosion.

The incorrect tire pressure may result in lower stability and maneuverability. So check regularly that the tires have the correct pressure.

Battery replacement

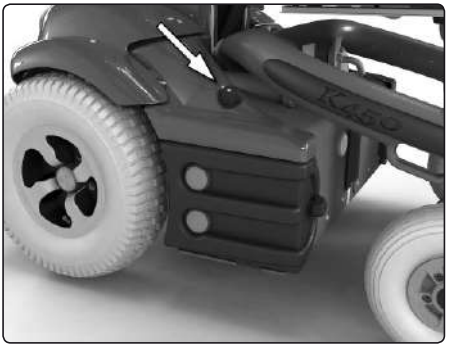
⚠ WARNING

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



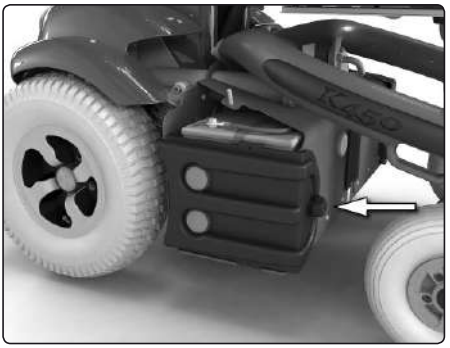
The main fuse between the front wheels.

1. Place the wheelchair on a level surface.
2. Switch off the main power switch on the control panel.
3. Set the main fuse in the Off position.



Locking handle for the upper cover.

4. Detach the knob for the upper cover on the side of the chassis (see the picture). Lift off the cover.
5. Loosen the knob for the lower cover on the side of the chassis (see the picture). Lift off the cover.
6. Lift/pull the battery out of the chassis using the battery belt (see the picture).

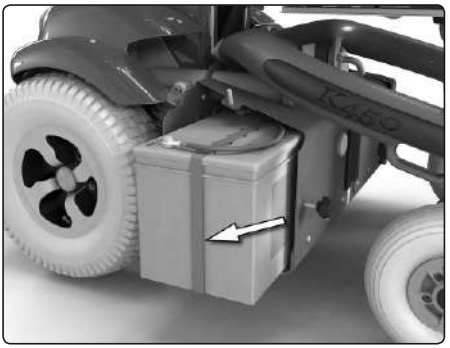


Locking handle for the lower cover.

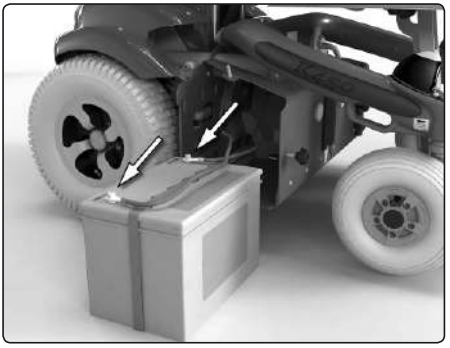
Battery replacement

7. Remove the battery connectors. See the picture. See also the sticker on the inside of the battery cover.
8. Connect the battery connections on the new battery, see the picture. See also the sticker on the inside of the lower battery cover.
9. Lift up the new battery and slide it in with the help of the battery belt.
10. Replace the upper cover, and attach it with the handle.
11. Lift up the new battery and slide it in with the help of the battery belt.
12. Set the main fuse in the ON position.

Repeat the procedure with the second battery on the other side of the wheelchair.



Battery belt.



The battery connectors.

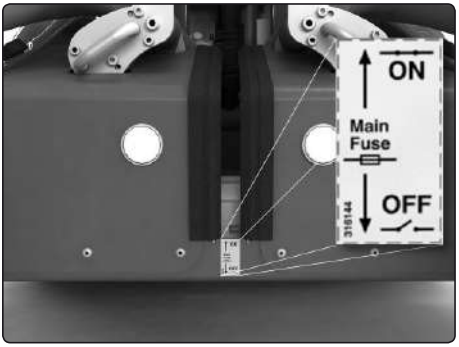
Resetting the main fuse/battery isolator

⚠ 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.



The main fuse is accessible between the front wheels from the front of the chassis.

⚠ CAUTION

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

Technical specifications

The specifications given on the following pages apply only to the Permobil K450 chassis with an MX seat.

DATA

General

Name	Permobil K450

Dimensions and weight

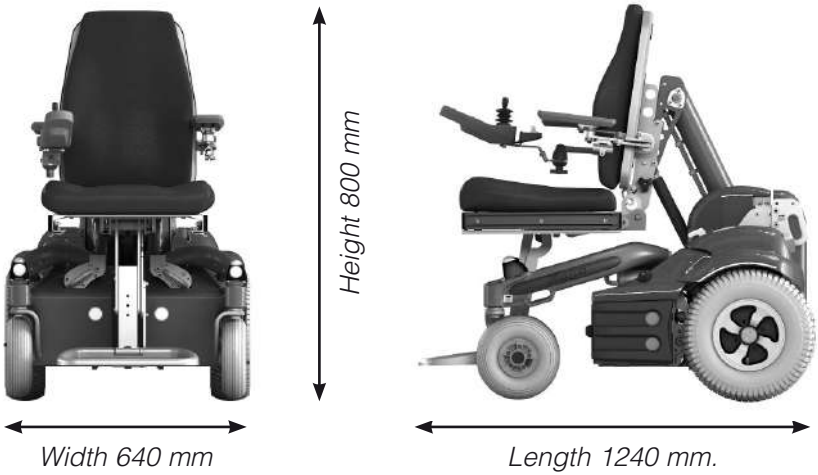
Length	1240 mm.
Width	640 mm.
Height	800 mm.
Minimum transport dimensions, lxwxh	1110x640x605 mm.
Weight, incl. batteries and MX seat	141 kg
Max. battery size	260x167x178 mm.
Seat width (MX seat)	250/300/350/400 mm.
Maximum user weight (MX seat)	60 Kg.

Wheels

Front tire dimensions	210x65
Rear tire dimensions	13”x5.00”x6”
Rec. tire pressure front	250 kPa (2.5 bar)
Rec. tire pressure rear	120-200 kPa (1.2-2.0 bar)

Performance

Range	25-30 km
Min. turning radius	1060 mm
Min. turning area	1305mm
Max. height of obstacles	60 mm
Min. clearance under the wheelchair	64 mm
Hill Climbing Capability	10 degrees
Safe slope	6 degrees
Sideways slope capability	6 degrees
Static stability downhill	18 degrees
Static stability uphill	18 degrees
Static stability side tilt	16 degrees
Max speed, forwards	8,5 km/h



ELECTRICAL SYSTEM

Electronics PM120

Control panel..... JSM-L-SV

Batteries

Recommended battery type..... Group 34, Gel
Battery capacity ..... 60 Ah
Charging time ..... 8 hours

Fuses

Main fuse .....63 A

Control force

Joystick.....1.5 Nm
Keys.....2.0 Nm

R-net diagnostics

When an error or a fault occurs in the wheelchair's electronics, information on it is displayed in the control panel's display. This information can then be used to diagnose where the error/fault occurred and its cause.

Troubleshooting and repairs must always be performed by competent personnel with good knowledge of the wheelchair's electronics. More information on troubleshooting and remedies can be found in the Service Manual for this wheelchair model.

Diagnostic screens

Current diagnostic screen

When the control system's integrated protection circuits have been triggered so that the control system can no longer operate the wheelchair, a diagnostic screen is displayed in the control panel's display.

This indicates a system fault, i.e. R-net has detected a problem somewhere in the wheelchair's electrical system.

NB! *If the fault is in a module that is not currently being used, it may still be possible to drive the wheelchair, but the diagnostic screen is displayed occasionally.*

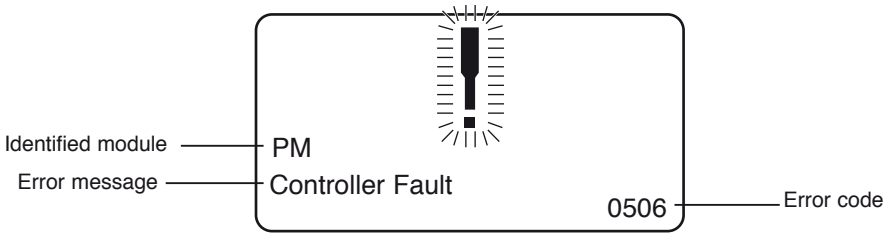
Switch off the wheelchair and leave it off for a few minutes. Then restart the wheelchair. If the fault persists, you must switch off the wheelchair and contact your service contact. Write down the information displayed in plain text in the control panel's display and pass it on to your service contact.

Do not use the wheelchair until the problem has been remedied or you have received other instructions from your service contact.

⚠ WARNING

Diagnostics should only be performed by persons with sound knowledge of the wheelchair's electronic control system. Incorrect or poorly performed repair works may make it dangerous to use the wheelchair. Permobil accepts no liability for any personal injury or damage to the wheelchair and its surroundings that may occur on account of incorrect or poorly performed repair work.

Example of a screen showing a system fault



Identified module
This indicates the control system module that detected the problem.

PM= Power module
JSM= Joystick module

Error message
The error message provides a brief description of the error type.

Error code
The four-digit code indicates which protection circuit has been triggered.

Repair of defective units

Apart from specific OEM-approved spare parts (contact Permobil for further information on these), there are no replaceable parts in the R-net control system. Consequently, defective units must be sent to Permobil or a Permobil-approved repairer for repair.

⚠ CAUTION

If any part is replaced without Permobil's approval, the wheelchair's warranty lapses. Permobil accepts no liability for any loss that occurs as a a result of a component of the R-net control system being opened, adjusted or modified without permission.

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
The wheelchair cannot be started.	Batteries discharged.	Charge the batteries.
	The cable connection to the control panel has come loose.	Reconnect the cable
	Main fuse switched to OFF position after, for example, battery replacement.	Reset the main fuse. See page 98.
	Main fuse triggered.	See page 98.
The 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. See page 56.
The wheelchair "switches itself off" after a certain period of inactivity (20-30 min.).	The electronics' energy-saving mode has been activated.	Switch the wheelchair on again using the start key on the control panel.
The wheelchair stops while being driven.	The cable connection to the control panel has come loose.	Reconnect the cable
	Main fuse triggered.	See page 98
The wheelchair can only be driven at reduced speed. Applies to electrically controlled seat lift and seat tilt.	Seat lift or seat tilt raised too high.	Lower the seat lift or seat angle. see pages 40-41.
The wheelchair cannot be charged.	Main fuse switched to OFF position after, for example, battery replacement.	Reset the main fuse, see page 98.

Emergency operation of seat functions

If any of the electric seat functions cannot be operated in the normal way because of a fault other than discharged batteries or a faulty adjustment device, the function can be operated manually using the emergency operation cable supplied.

Connecting the emergency operation cable

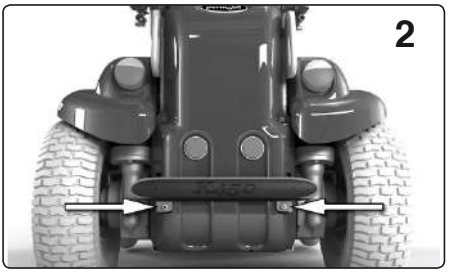
⚠ WARNING

Emergency operation must only be used in emergencies, and then with great care. When the seat is operated in the emergency mode, all safety functions in the control system are bypassed. There is a risk of crushing and a risk of damage to the wheelchair.

Never drive the wheelchair while using the emergency operation cable at the same time.

Connecting the emergency operation cable to the charging socket.

1. Connect one end of the emergency operation cable to the loading socket of the control panel (picture 1).
2. Remove two Allen screws at the back of the wheelchair as shown in picture 2. Lift off the bumper.

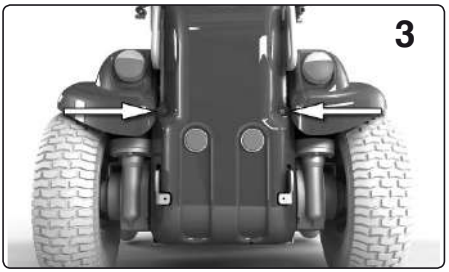


The Allen screws that attach the bumper.

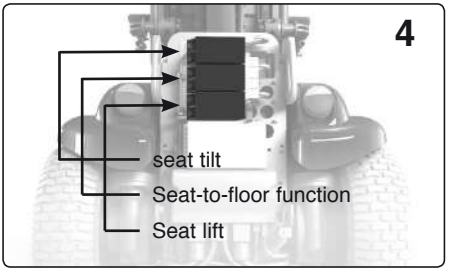
3. Remove two Allen screws, as shown in Picture 3. Lift off the back cover.

4. The seat control modules are now visible. There may be two or three modules, depending on whether seat tilt is included as an extra option. The individual functions are placed as shown in picture 4.

5. A cable from each function is connected to a control module. Remove the cable connected to the module that you want to maneuver. Picture 5 shows how the cable from the adjustment device for the seat-to-floor function has been removed from the control module.



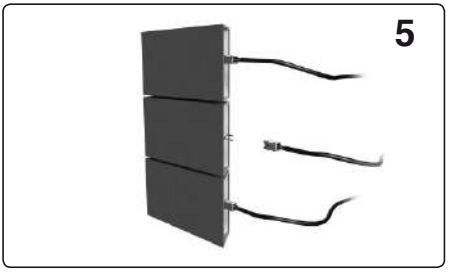
The Allen screws that attach the back cover.



Control modules behind the back cover, and their respective functions.

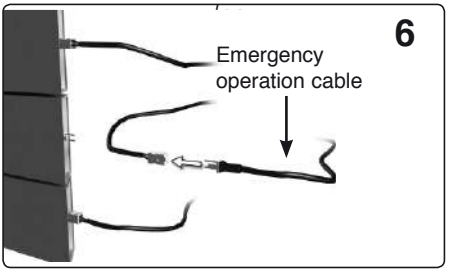
⚠ CAUTION

Take care when connecting the emergency operation cable with the control module cable, so that the pin of the male connector flushes with the groove in the female connector, to avoid any risk of damaging the cable contacts.



Cables connected to control mod-

6. Connect the free end of the emergency operation cable with the cable from the adjustment device of the function you want to maneuver, see picture 6.



Connecting the emergency operation cable and the cable from the adjustment device.

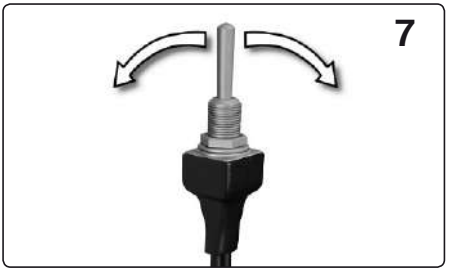
⚠ WARNING

Emergency operation must only be used in emergencies, and then with great care. When the seat is operated in the emergency mode, all safety functions in the control system are bypassed. There is a risk of crushing and a risk of damage to the wheelchair.

Never drive the wheelchair and use the emergency operation cable at the same time.

7 Use the control lever on the emergency operation cable to operate the function you chose to connect to one of the holes, see picture 7.

8. If required, change to a new function by first disconnecting the emergency operation cable and then reconnecting it as shown before to the appropriate control module. Then repeat steps 5-7.



Maneuvering with the control lever of the emergency operation cable

Disconnecting the emergency operation cable

1. Disconnect the end of the emergency operation cable from the connection to the adjustment device cable.

2. Disconnect the other end of the emergency operation cable from the connection to the charging socket on the control panel.

3. Connect all adjustment device cables to their respective control modules.

4. Replace the back cover of the wheelchair with two Allen screws.

5. Replace the bumper with two Allen screws.

UK

Permobil K450

permobil

Order. no.: 205230-UK-0