User manual

American English for Canada

M400 Corpus HD

CE

Dear Permobil User

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 product. Your power wheelchair is designed to provide the highest possible comfort and safety while meeting both safety and environmental requirements.

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

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1 Important information

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 to 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 using the wheelchair.

Always keep operating instructions within convenient reach when using your product, as the need for important information may arise concerning its use, safety and maintenance.

It is also possible to obtain information concerning our products from our website: .

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

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

For those who are visually impaired, this document can be downloaded at . The PDF reader magnifying tool can be used to achieve the desired text and image size.

1.1 Warranty

Contact your dealer or Permobil Inc. USA for information about the warranty period for this product.

Product Warranty Information sets forth the conditions of the warranty. For further information about applicable warranties, see https://permobilus.com/support/warranties/.

NOTICE

Unapproved replacement of parts

If any part is replaced without approval from Permobil, the wheelchair warranty will become void. Permobil accepts no liability for any loss that occurs as a result of a control system component being opened, adjusted or modified without permission.

1.2 Product approval

This product fulfills the following requirements:

- Electrically powered wheelchairs, scooters and their chargers – Requirements and test methods (EN 12184).
- Wheelchair standard series ISO-7176.
- U.S. Food and Drug Administration's regulation 21 CFR 820.
- Medical Devices Directive (93/42/EEC).

1.2.1 Federal Communications Commission (FCC) statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC caution: Any changes or modifications not expressly approved by the party responsible for compliance would void the user's authority to operate this equipment.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

1.2.2 Radiation Exposure statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance.

To maintain compliance with FCC RF exposure compliance requirements, please follow operation instruction as documented in this guide. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter, except the transmitter built-in with this device.

1.2.3 Industry Canada statement

ConnectMe complies with the license-exempt Radio Standards Specifications (RSSs) of Innovation, Science and Economic Development Canada (ISED). ISED is formerly known as Industry Canada. Operation is subject to the following two conditions:

1. This device may not cause interference; and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

1.2.4 Product approval, ConnectMe

ConnectMe fulfills the requirements of the following standards:		
	EN 14971 EN 60601-1 + A1 EN 300 328 EN 301 489-1 EN 301 489-7 EN 301 489-17 EN 301 489-24 EN 301 489-52	EN 301 511 EN 301 908-1 EN 303 413 EN 62311 ISO 7176-9 ISO 7176-14 ISO 7176-21 TS 134 124
FCC	FCC 47 CFR Part 15 B FCC 47 CFR Part 15 C (15.247) CFR47 §1.1310 §2.109 KDB 447498 D01	See the backside of the device for the specific FCC IDs
ISED (Industry Canada)	RSS-Gen RSS-247 RSS-102	See the backside of the device for the specific IC IDs

1.3 Technical support

In the event of technical problems, contact your dealer or call Permobil Inc. USA on 1-800-736-0925.

Be prepared to provide the wheelchair serial number, located on the chassis, to ensure proper support. See .

1.4 Cyber security

If you discover or suspect that someone unauthorized has tampered with, removed, or replaced a device or data derived from a device, immediately contact Permobil for support.

1.5 Reporting incidents

If an incident occurs, please contact your nearest Permobil representative. This is usually the same person you were in contact with at the time of purchase. To get in touch with your contact, use the link at . Open your country page and the contact page. The page provides the necessary contact information and a document to help you provide us with the information we need to investigate the incident. Provide as much of the information as possible; it will be of great help to us.

1.6 Spare parts and accessories

Spare parts and accessories must be ordered through your dealer.

Only use accessories and spare parts that are authorized by Permobil.

The expected service life of this product is five years.

1.7 Ordering documentation

Should you need another copy of this manual, one may be ordered from Permobil. Ask for the order number specified on the back cover.

1.8 Scrapping and recycling

Contact Permobil for information about scrapping agreements in force

2 Safety instructions

A power wheelchair is a motorized vehicle and therefore special care must be taken when using it.

Please read and follow all instructions and warnings in all manuals supplied with your power wheelchair and its accessories. Incorrect use may both injure the user and damage the wheelchair. In order to reduce these risks, read the User's Manual and all manuals supplied carefully, in particular the safety instructions and their warning texts.

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

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

Your power wheelchair was configured specifically for your needs as prescribed by your healthcare provider. Contact your healthcare provider to have changes in seat position or other adjustments made.

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

Do not undertake your own first test drive without making sure help is available in the immediate vicinity should you need it.

2.1 Descriptions of admonitions

The following admonitions describing warnings, remarks and explanatory texts are used throughout this manual to draw attention to items of significant importance to safety:

DANGER!

Danger admonition

Indicates a dangerous situation which, if not avoided, could result in death as well as serious damage to the product or other property.

WARNING!

Warning admonition

Indicates a hazardous situation which, if not avoided, could result in serious injury or death as well as damage to the product or other property.

CAUTION!

Caution admonition

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury as well as damage to the product or other property.

NOTICE

Notice admonition

Indicates an important but not hazardous situation which, if not avoided, could result in damage to the product or other property.

ⓘ Provides information about the conditions or circumstances under which the information given applies.

2.2 Warnings and precautions

CAUTION!

Operation, driving

If the wheelchair is equipped with lights, Permobil recommends their use whenever you drive near public rights of way. Use extreme caution when driving near unprotected edges, drops or on elevated surfaces. Unintended movement or excessive speed in such areas can lead to personal injury or property damage.

CAUTION!

Operation

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

Reduce your speed when driving on uneven terrain or soft surfaces. Never use your wheelchair on stairs or escalators. Always take the elevator.

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

CAUTION!

Operation, pulling and minor impacts

Do not use the wheelchair to pull any kind of object and never hang excessive weights on the backrest. Doing so could lead to personal injury and property damage, including damage to the wheelchair.

In the event of a collision with a wall, door or other fixed object when operating the wheelchair, always make sure all parts of the wheelchair are undamaged before operating it again. Failure to do so could lead to personal injury.

CAUTION!

Operation, adjust seating system for elevations

Be sure to adjust the position of your seating according to the limitations applicable to the wheelchair concerned before climbing obstacles or driving on uneven surfaces or slopes.

WARNING!

Risk of tipping over

Do not allow the leg rest to hit the ground when climbing obstacles, driving on uneven surfaces or slopes or when a slope levels out. Make sure there is sufficient ground clearance to avoid the risk of tipping over.

CAUTION!

Operation

Do not let children drive the wheelchair without supervision. Do not drive the wheelchair on public streets or roads. Obey all local pedestrian rules and be aware that vehicle drivers may have difficulty seeing you.

Do not operate your wheelchair under the influence of alcohol. Consumption of alcohol may impair your ability to operate your wheelchair safely.

Some physical impairments or the use of prescription and non-prescription medication may limit your ability to operate your wheelchair safely. Be sure to consult with your physician about your physical limitations and medications.

WARNING!

Modifications

Do not modify your wheelchair or any of its components. Your wheelchair has been configured specifically for your needs as prescribed by your healthcare provider. Special skills, training and knowledge are needed to set up, modify and repair the wheelchair.

Initial setup and all modifications and repairs must be performed by a qualified service technician. For warranty service, contact the dealer from whom the wheelchair was purchased.

WARNING!

Do not alter safety parameters

The wheelchair is equipped with certain safety parameters that limit or inhibit wheelchair functions or, under certain conditions, prevent the wheelchair from being driven. Do not alter these safety parameters.

WARNING!

Weight limitations

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

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

CAUTION!

Prior to riding

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

CAUTION!

Operation - slopes

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

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

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

Do not drive up or down slopes with gradients greater than those set forth in the technical specifications section of this User's Manual. There is a risk that the wheelchair will not maneuver safely.

WARNING!

Operation - inclines

Do not drive the wheelchair where the sideways gradient is greater than that set forth in the technical specifications section of this User's Manual. There is a risk of tipping over.

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

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

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

WARNING!

Operation - turning

Turning your wheelchair at high speeds may cause it to topple with personal injury as a result. The risk of tipping over is increased by high turning speeds, sharp turns, uneven surfaces, abrupt changes in direction, and driving from an area of low traction (e.g. lawn) to an area of high traction (e.g. sidewalk).

To avoid tipping over, personal injury and property damage, reduce speed and turn less sharply.

WARNING!

Operation - freewheel mode

In order to prevent the wheelchair from rolling away, make sure it is on a level surface before releasing the brakes.

To avoid personal injury, do not use your wheelchair in freewheel mode without an attendant present. Do not attempt to put the wheelchair in freewheel mode by yourself while sitting in it.

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

CAUTION!

Driving range

The driving range stated in the technical specifications of this manual represents the theoretical driving range when testing the wheelchair according to RESNA WC-2, Section 4. This test is performed under ideal conditions and actual driving ranges will vary depending on battery status, tire selection and driving conditions. Frequent driving on slopes, rough ground or frequently climbing curbs etc., will also reduce the driving range.

CAUTION!

Driving in the dark

Driving in the dark is only permissible if the wheelchair is equipped with functioning lighting at the front and rear, or as per applicable national or local traffic regulations.

WARNING!

Passengers

The wheelchair is not intended to carry passengers, regardless of the age of the passenger. The maximum user weight for your seating system is stated in the technical specifications section of this User's Manual. The stated user weight includes the user and any personal effects. The maximum limit may not be exceeded. The wheelchair's maneuverability and stability can be degraded as a result.

WARNING!

Driving with seat lift, seat tilt, backrest recline

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

WARNING!

Center of balance

The likelihood of the wheelchair's tipping and the point at which the wheelchair will tip forward, back or to the side depends on its center of balance. Note that the following factors affect the wheelchair's center of balance:

- Elevation of the seat.
- Height and angle of the seat.
- Body position or weight distribution.
- Driving on an incline such as a ramp or a hill.
- The use of a backpack or other accessories, depending on the amount of weight added.

If the wheelchair begins to move in an unexpected manner, release the joystick immediately to stop the wheelchair. Except in an emergency, do NOT use the On/Off button to stop the wheelchair, as this will cause the wheelchair to stop abruptly which may cause personal injury.

WARNING!

Fixed seat post

Only authorized service providers may adjust seat height.

WARNING!

Use installed positioning aids

The user must use and securely fasten the positioning belt and any other positioning aids on the wheelchair. Failure to properly use positioning belts and other positioning aids may cause bodily injury. If there is any sign of damage or wear on any positioning belt or aids, immediately contact Permobil for a replacement.

WARNING!

Transfer into and out of the wheelchair

Make sure the power is turned off before getting into or out of the wheelchair and before lifting the control side armrest.

When transferring into or out of the wheelchair, every precaution must be taken to reduce the distance between the wheelchair and the place to which the user is transferring. Too great a distance may cause the user to overexert him or herself, lose balance or fall.

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

Use caution when bending or reaching.

Never use the joystick as a handhold or support.

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

NOTICE

Transporting the wheelchair

The wheelchair may only be transported in vehicles approved for this purpose. The vehicle must be suitably designed, insured and equipped to transport a person in a wheelchair. No matter how securely it is fastened in the vehicle, a wheelchair is not designed to be a car seat and cannot offer the same degree of safety as offered by standard car seats.

Before transportation, check that the wheelchair is properly secured and that both wheel locks are engaged. Secure the wheelchair front and rear to the vehicle at the tie-down points only (marked with yellow stickers). Follow the manufacturer's instructions supplied with the approved fastening straps.

Instead of fastening straps, the wheelchair may be secured with a locking system approved by Permobil for the product concerned.

For alternative vehicle securement options, please consult your dealer.

WARNING!

Wheelchair must be facing forward

The wheelchair is designed to be facing forward when used as a seat in a motor vehicle.

CAUTION!

Damage during transportation

You must inform Permobil as soon as possible after the event if the wheelchair and its accessories have suffered transportation damage, damage during driving or damage from other causes. There is a risk that the wheelchair and its accessories can no longer be used safely and securely. Contact your service provider or Permobil for further information.

DANGER!

User transportation in wheelchair

When the user is seated in the wheelchair during transport, the following requirements must be met:

- The vehicle must be equipped with a locking system approved by Permobil for the product concerned. For alternative vehicle securement options, please consult your dealer.
- The locking system must be dimensioned for the total weight of the wheelchair.
- The user must use a three-point seat belt attached to the vehicle.
- The wheelchair must be crash tested and approved.
- The wheelchair must be fitted with a headrest.
- Alterations or substitutions should not be made to wheelchair securement points, structural parts, frame parts or components without consulting Permobil or the dealer.
- Spill-proof sealed batteries, such as gel or AGM, must be used.
- Make sure that wheelchair components do not accidently press down the seat belt's release button.

If these requirements are not followed, the user can sustain bodily injuries or die.

WARNING!

Positioning belts and aids are not vehicle seatbelts

The wheelchair positioning belt and aids are designed to properly position the user in the wheelchair for safely operating the wheelchair. The wheelchair positioning belts and aids do not provide protection in a traffic accident and do not replace a vehicle mounted seatbelt.

WARNING!

Secure loose objects during transportation

Auxiliary wheelchair equipment, loose or mounted on the wheelchair, must either be secured to the wheelchair or removed from it. Dismantled or movable auxiliary equipment must be properly secured in the vehicle during transit. This is to prevent loose parts or parts that may come loose from causing injury to the occupants during transit.

CAUTION!

Driving in extreme weather conditions

Our wheelchairs are designed to withstand most adverse weather conditions, however to minimize the risk of being caught in difficult situations, you should avoid using the wheelchair outdoors in e.g. severe cold, heavy rain or thick snow.

Also bear in mind that certain surfaces on the wheelchair can get very hot or cold in the event of prolonged exposure to intense sunlight or cold.

WARNING!

Environmental conditions

Protect the wheelchair from exposure to any type of moisture, including rain, snow, mud or spray. Exposure to moisture may cause the chair to short-circuit, catch fire and cause personal injury or property damage. If it has been exposed to moisture, do not operate your wheelchair until it has dried completely.

If any of the shrouds or the joystick boot has cracks or tears, they must be replaced immediately. Failure to do so may allow moisture to enter the electronics and cause personal injury or property damage, including fire.

Be extremely careful when operating your wheelchair during icy or slippery conditions. Such conditions can lower the performance and safety of your wheelchair which could lead to an accident, personal injury and property damage, including damage to the wheelchair.

Exercise extreme caution when using oxygen in close proximity to electrical circuits and other combustible materials. Contact your oxygen supplier for instruction in the use of oxygen.

CAUTION!

Maintenance and service

Only carry out the minor adjustments and maintenance specified in the user manual.

All other service, repairs and maintenance on Permobil products, including control system programming, must be performed by a qualified service technician authorized by Permobil. Incorrect settings may result in unsafe operation of the wheelchair and cause it to become unstable or uncontrollable. Such modifications also void the product's warranty.

CAUTION!

Non-approved aftermarket accessories

Do not use parts or accessories not authorized by Permobil.

The use of non-approved aftermarket accessories and parts may cause changes in the wheelchair that make it unstable or uncontrollable.

The product warranty may be voided if unauthorized parts or accessories are used.

CAUTION!

Non-approved electrical or electronic devices

Connecting non-approved electrical or electronic devices to the wheelchair's electrical system may cause damage to the wheelchair and make it uncontrollable or erratic. Such use may also void the warranty.

CAUTION!

Risk of getting caught in pinch points

The wheelchair is heavy and contains many moving parts, which means there is an ever-present risk of getting caught in pinch points.

WARNING!

Charging batteries

Charge batteries in a well-ventilated room, not in a wardrobe or closet. Batteries must not be charged in a bathroom or wet room. Only use chargers with a max 10 A charging current (average value). The charging current RMS value must not exceed 12 A. When the charger is connected, the wheelchair cannot, and may not, be driven.

WARNING!

Replacing batteries and circuit breakers

Always turn the main circuit breaker to the Off position when replacing batteries or circuit breakers.

Exercise caution when using metallic objects during work with batteries. A short-circuit can easily cause an explosion. Always use protective gloves and goggles.

WARNING!

Safety circuits

The products are equipped with safety circuits. Inhibit circuits prevent the wheelchair from being driven under certain conditions. Speed reduction circuits limit the wheelchair's maximum speed under certain conditions. Limit switch circuits limit the wheelchair's functions under certain conditions. Overload protection circuits switch the wheelchair off in case of an overload. If any of these circuits stops working, stop using the wheelchair immediately and consult an authorized Permobil distributor.

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

CAUTION!

Recycling batteries

Used batteries must be disposed of responsibly in accordance with local recycling regulations.

WARNING!

Inflating tires

Regularly check that the wheelchair's tires have the correct pressure. Incorrect tire pressure may cause stability and maneuverability to deteriorate.

NOTICE

Changing tires

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

NOTICE

Storage

Always turn off the wheelchair and its accessories when it is not in use. Always store the wheelchair so that access for unauthorized individuals is prevented.

Never store the wheelchair in a room where there is a risk of condensation (mist or moisture on surfaces) e.g. in pool areas, laundry rooms or similar.

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

WARNING!

Damage and/or malfunctions

If you feel the wheelchair is not behaving as it should in any regard or if you suspect that something is wrong, stop driving as soon as possible, switch off the wheelchair and contact your service provider or Permobil for further information. Refer to page 5.

WARNING!

Flame resistance

Fabric components have been tested for flammability. Padded parts meet the requirements of EN 1021–1, EN 1021–2 and ISO 7176–16. Plastic parts meet the requirements of UL94.

CAUTION!

EMC requirements

The electronics in a power wheelchair can be affected by external electromagnetic fields (e. g. from cell phones). Similarly, the electronics in the wheelchair itself also emit electromagnetic fields that may affect the immediate surroundings (e.g. certain alarm systems in businesses).

The Electromagnetic Compatibility (EMC) limit values with respect to power wheelchairs are set forth in the international standard for powered wheelchairs, ISO 7176–21.

Our power wheelchairs comply with these limit values.

WARNING!

Discontinue use following a serious accident

Stop using your wheelchair if it has been subject to flooding, fire, dropping, crushing or any impact event including a vehicular accident. Extraordinary events like these can lead to significant damage that is impossible to detect upon inspection.

Damage caused by these types of incidents exceeds the limits covered by the manufacturer's warranty.

For further information, contact Permobil to get in contact with a technical service supervisor.

3 Getting to know your wheelchair

3.1 Overview

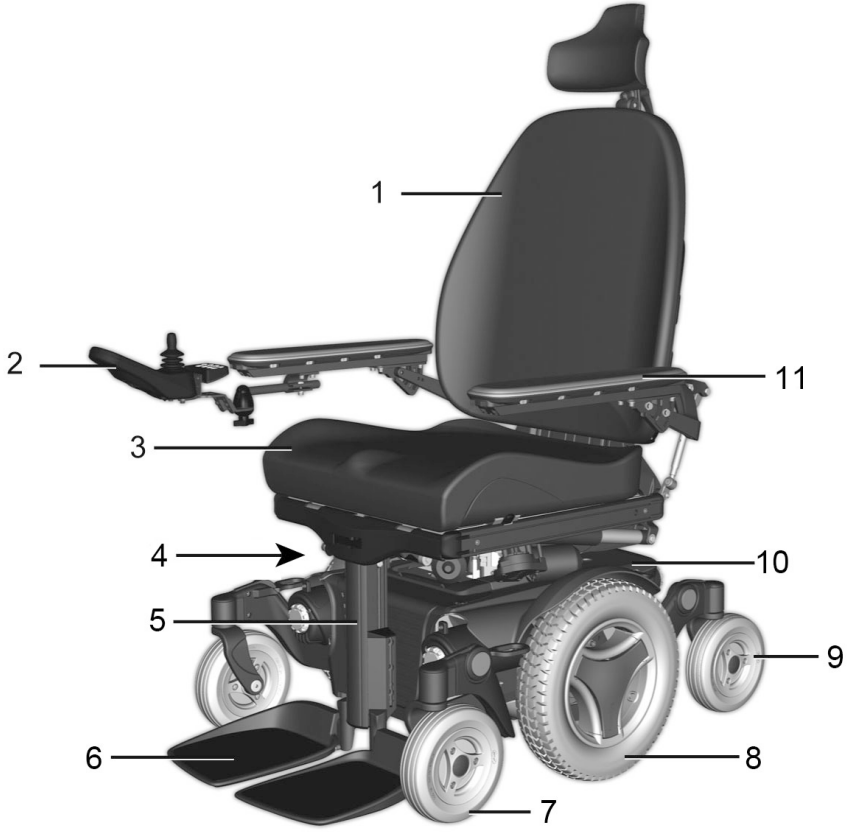


Figure 1. M400 Corpus HD Overview

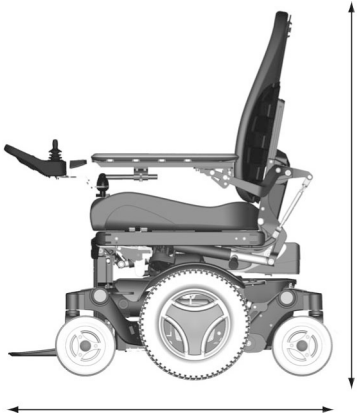
1. Back rest
2. Control panel
3. Seat
4. Serial number label
5. Leg rest
6. Foot plates
7. Front caster wheels
8. Drive wheels
9. Rear caster wheels
10. Chassis
11. Arm rest

The Permobil M400 Corpus HD is an electric mid-wheel drive wheelchair for outdoor and indoor driving. It is intended for people with physical disabilities.

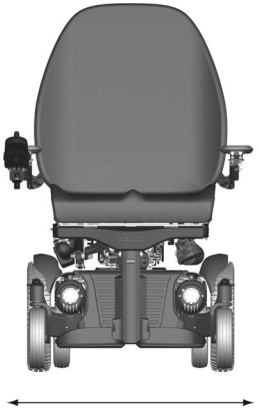
The wheelchair consists of a chassis and a seat. The chassis contains the wheelchair's electronics, power supply and drive functions. The seat consists of a seat frame, seat plate/back rest, arm rest/leg rest, seat lift/fixed seat tube and any accessories/options such as a head rest, calf rest, chest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

3.2 Technical specifications

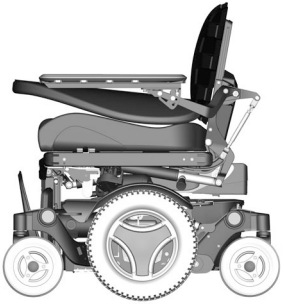
Product name (P)	M400 Corpus HD
Wheelchair class (W)	B



Length 1190 mm (47 inches)
Height 1190 mm (47 inches)



Width 760–860 mm (30–34 inches)



Smallest transportation size
Length 860 mm (34 inches)
Width 760–860 mm (30–34 inches)
Height 915 mm (36 inches)

3.2.1 Dimensions and weight

Length (P)	1190 mm (47 inches)
Width (P)	760–860 mm (30–34 inches)
Height (P)	1190 mm (47 inches)
Weight, including batteries (P)	205 kg (450 lb.)

3.2.2 Performance

Range	30 km (17.8 Miles)
Min. turning radius	560 mm (20 inches)
Reversing width	1180 mm (46.5 inches)
Ability to Negotiate Obstacles (approach distance 50 cm)	60 mm (2.4 inches)
Min. ground clearance	74 mm (2.9 inches)
Hill-climbing ability	7.5°
Safe slope	7.5°
Static stability downhill	13°
Static stability uphill	15°
Static stability sideways	15°
Max. Speed forward	6 km/h, 8 km/h (5.1 mph)
Max. User weight	204 kg (450 lb.)

3.2.3 Wheels

Drive wheel tire dimensions	300 x 8
Caster tire dimensions	200 x 50
Recommended tire pressure	200–250 kPa (29–36 psi)

3.2.4 Electronics

Rnet drive electronics type	CJSM-sw/ PM120

3.2.5 Batteries

Recommended battery type	24 cells, gel
Battery capacity	2x74Ah
Nominal voltage	12V
Charging time	8 hours

3.2.6 Control force

Joystick	1,5 N
Keys	2 N

3.2.7 Circuit breakers

Main fuse	63 A

3.3 Stickers

Take a good look at all the stickers on the wheelchair and get acquainted with their meaning. The stickers contain important information for safe and proper use.

WARNING!

Accident risk – Always replace missing stickers

Never remove a sticker from the wheelchair. If a sticker becomes difficult to read or falls off, order a replacement sticker from Permobil.

3.3.1 Read the instructions

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

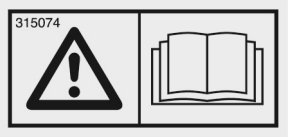


Figure 2. Read the instructions

3.3.2 Circuit Breaker/Battery Isolator

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

Description of the Circuit Breakers function is found on page 189.

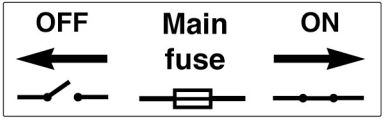


Figure 3. Circuit Breaker/Battery Isolator

3.3.3 Wheel Locks

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

Description of the wheel locks function is found on page page 139.

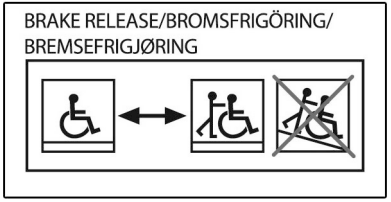


Figure 4. Wheel Locks

3.3.4 Tie-down point

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

Description of transport of the wheelchair is found on page 157

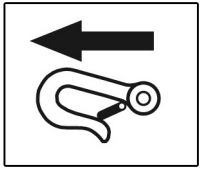


Figure 5. Tie-down point

3.3.5 Use as seat in motor vehicle prohibited

The sticker indicates that the wheelchair is not approved for use in motor vehicles. General advise regarding transport is found on page 157

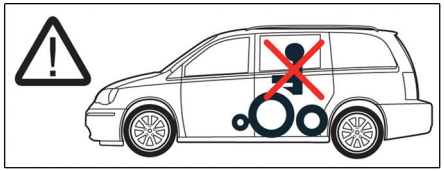


Figure 6. Use as seat in motor vehicle prohibited

3.3.6 Crush hazard

The sticker indicates a crush hazard.

Figure 7. Crush hazard.

3.3.7 Battery Connections and Fuses

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

Read more about changing batteries in 4.3 *Batteries*, Page 152

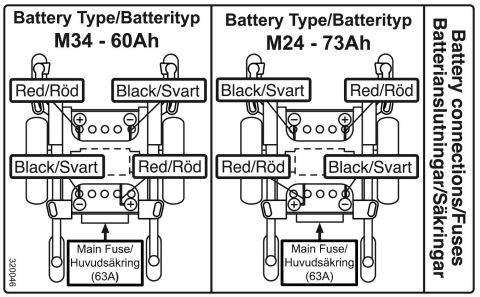


Figure 8. Battery Connections and Fuses

3.3.8 Serial number label

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

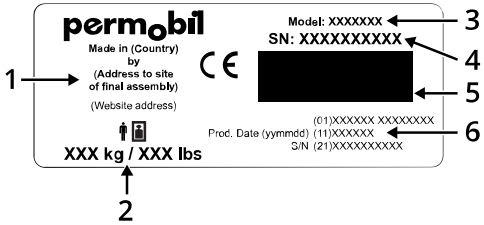


Figure 9. Serial number label.

3.4 Design and function

3.4.1 Seat

3.4.1.1 Power seat functions

WARNING!

Risk of pinching while using seat functions

There is a risk of pinch-point accidents when using the power seat functions. Make absolutely sure that nothing gets stuck between moving parts. Failure to do so may lead to personal injury.

The power seat functions are driven by an electric actuator which is steplessly controlled from the wheelchair control panel. Available functions may vary depending on how the seat is equipped.

Functions

- Seat Lift
- Leg rest angle
- Seat Tilt
- Backrest angle

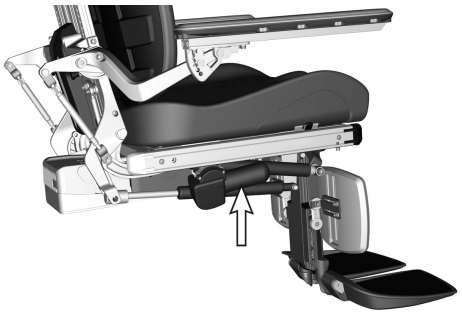


Figure 10. Electric actuator

Power seat lift

WARNING!

Tipping risk – driving with seat functions in use

When operating the seat functions, the center of gravity is also shifted, increasing the risk of tipping over. Only use the seat functions on a level floor.

Always drive in the lowest speed and never tilt the seat or back so far that the wheelchair cannot be maneuvered safely.

Permobil M400 Corpus HD can be fitted with an electrically controlled seat lift that allows the seat to be raised steplessly up to 8 inches in order to adjust its height to tables, benches, etc.

Figure 11. Power Seat Lift

Power seat tilt

WARNING!

Tipping risk – driving with seat functions in use

When operating the seat functions, the center of gravity is also shifted, increasing the risk of tipping over. Only use the seat functions on a level floor.

Always drive in the lowest speed and never tilt the seat or back so far that the wheelchair cannot be maneuvered safely.

The electrically controlled seat tilt makes it possible to set the suitable seat angle within the operating range.

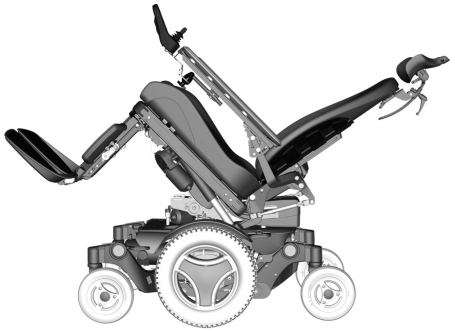


Figure 12. Power Seat Tilt

Power backrest angle

The back angle can be adjusted (via the Recline Control), allowing the consumer to set a recline angle as needed within the operating range.

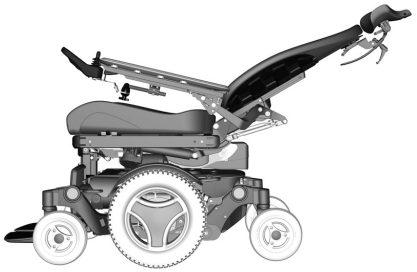


Figure 13. Power Backrest

Power leg rest angle

The legrests can be elevated to a desired angle within the operating range.

Figure 14. Power Legrest

3.4.1.2 Manual seat functions

The seat can be adjusted manually by adjusting manual locking tubes with quick-acting locks in a number of fixed positions. Available functions may vary depending on how the seat is equipped.

Functions

- Leg rest Angle
- Backrest recline

Figure 15. Manual clamp Tube for the Backrest Recline

Leg rest angle

WARNING!

Risk of pinching while adjusting leg rest angle

Do not put weight on the leg rest while adjusting the angle. There is a risk of pinch-point accidents.

The angle of the leg rest is adjusted via an adjustable locking tube with a quick-acting lock in a number of fixed positions.

1. Pull out the quick-acting lock's spring-action handle so that the locking tube moves freely and the leg rest can be angled.
2. Adjust the leg rest angle to the required angle and then lock the locking tube securely by releasing the handle so that it engages in the intended hole in the locking tube.
3. After adjustment, check that the leg rest is locked in position.

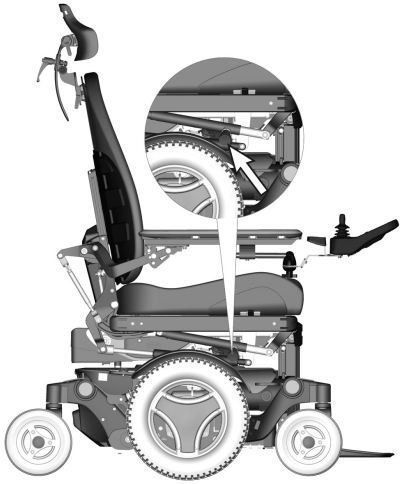


Figure 16. Legrest Angle

Backrest angle

WARNING!

Risk of pinching while adjusting backrest angle

Do not put weight on the backrest while adjusting the angle. There is a risk of pinch-point accidents.

The angle of the back rest is adjusted via an adjustable locking tube with a quick-acting lock in a number of fixed position.

1. Pull out the quick-acting lock's spring-action handle so that the locking tube moves freely and the back rest can be angled.
2. Adjust the back rest angle to the required angle and then lock the locking tube securely by releasing the handle so that it engages in the intended hole in the locking tube.
3. After adjustment, check that the back rest is locked in position.

3.4.1.3 Other Adjustment Options

The control panel, arm rest, foot plates and other accessories such as calf rest, thigh support, trunk support, head rest, etc. have manual adjustment and setting options.

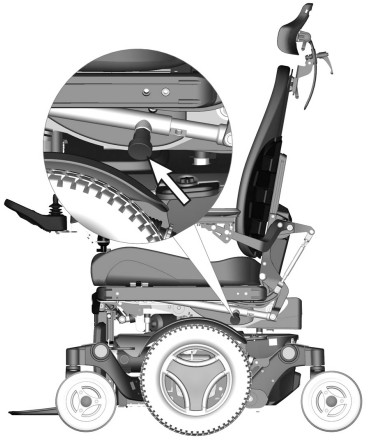


Figure 17. Backrest Recline

3.4.2 Chassis

3.4.2.1 Drive unit

The Permobil M400 Corpus HD is equipped with a drive unit for each drive wheel. The drive unit consists of an electric motor with a drive gear and magnetic wheel lock.

3.4.2.2 Shock absorbers

The wheelchair is equipped with two shock absorbers.

Adjustment

Adjustment of the shock absorbers should be performed by personnel who are well-acquainted with the design and functionality of the wheelchair. When adjustment is needed, contact your nearest Authorized Permobil Service Center.

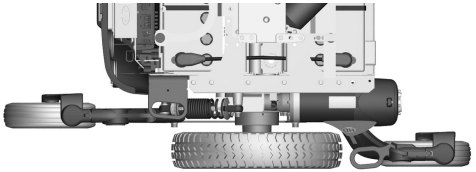


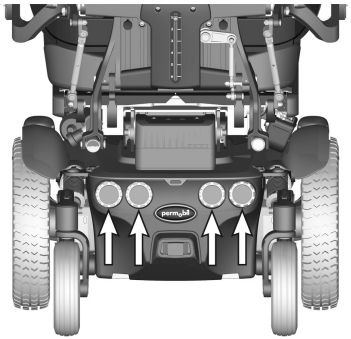
Figure 18. Drive unit and shock absorber

3.4.2.3 Wheels

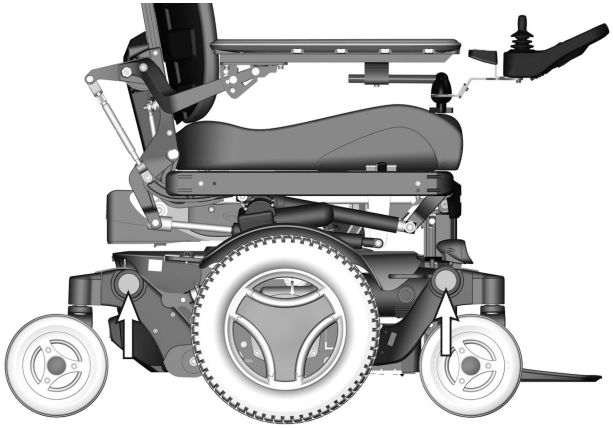
The wheelchair's drive wheels are available with pneumatic tires or flat-free (foam filled) tires. The casters are available with solid polyurethane tires .

3.4.2.4 Lights and reflectors

Front Lights



Rear Lights



Side Reflectors

The wheelchair is equipped with reflectors on the front, rear and sides. Front/rear lights and turn indicators are optional.

3.4.2.5 Batteries

WARNING!

Handling batteries - avoid short-circuit

Exercise caution when using metallic objects during work with batteries. A short-circuit can easily cause an explosion. Always use safety gloves and goggles.

Remember that the batteries are heavy and must be handled with great caution.

CAUTION!

Recycling batteries

Used batteries must be disposed of responsibly in accordance with local recycling regulations.

The wheelchair's batteries are located under the covers of the chassis. Both of the batteries are easily accessible for maintenance and replacement.

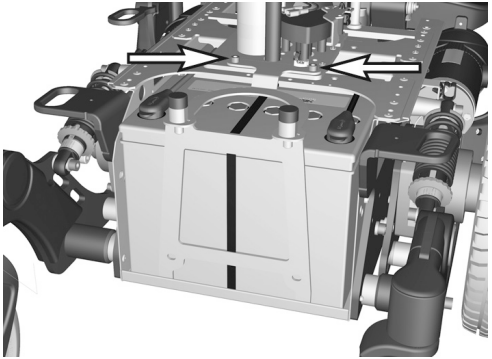


Figure 19. Rear Battery and seat support

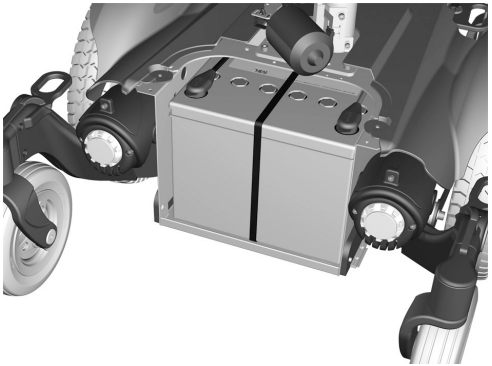


Figure 20. Front Battery

3.4.2.6 Main circuit breaker

The M400 Corpus HD is equipped with an automatic Circuit Breaker, which can be reset after being triggered. It also functions as a battery isolator and is controlled (ON/OFF) via the lever located inside the hole at the bottom of the rear battery cover. The lever (switch) can be activated without removing the cover.

Figure 21. Main fuse

3.4.2.7 Charger socket

CAUTION!

Switch off main circuit breaker

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

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 charger socket is located on the control panel.

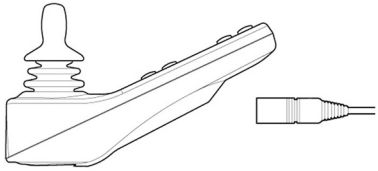


Figure 22. Charger socket

3.5 Control panel

3.5.1 R-net Control Panel With LCD Monochrome Display

3.5.1.1 General

The Control Panel consists of a joystick, function buttons and a Display. At the back of the panel you also find the Charger Socket and two Jack Sockets.

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

Figure 23. Control Panel

3.5.1.2 Charger Socket

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.

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.).

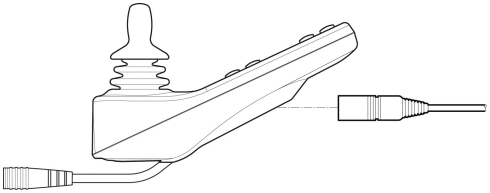


Figure 24. Charger Socket

3.5.1.3 Function Buttons

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

On/Off Button

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

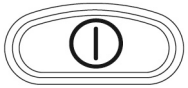


Figure 25. On/Off Button

Horn Button

The horn will sound while this button is depressed.

Figure 26. Horn Button

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.

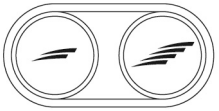


Figure 27. Speed buttons, Decrease/Increase

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.

Figure 28. Mode Button

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.

Figure 29. Profile Button

Hazard Warning Button and LED

ⓘ Only active if the wheelchair is provided with lights

This button activates/inactivates 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 inactivate them. When activated the indicator LED will flash in sync with the wheelchair's indicators.

Figure 30. Hazard Button and LED

Lights Button and LED

ⓘ Only active if the wheelchair is provided with lights

This button activates and de-activates 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.

Figure 31. Lights Button and LED

Left Indicator Button and LED

ⓘ Only active if the wheelchair is provided with lights

This button activates and de-activates 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.

Figure 32. Left Indicator and LED

Right Indicator Button and LED)*

ⓘ Only active if the wheelchair is provided with lights

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.

Figure 33. Right Indicator and LED

3.5.1.4 Jack Sockets

The External On/Off Switch Jack (1) allows the user to turn the control system on and off using an external device, such as a buddy button.

The External Profile Switch Jack (2) allows the user to select Profiles using an external device, such as a buddy button. To change the Profile whilst driving simply press the button.

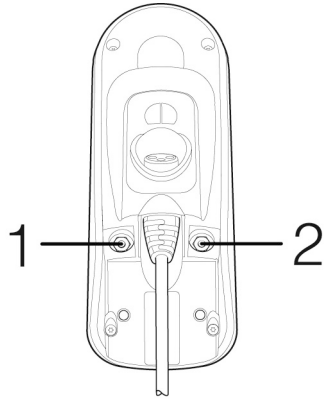


Figure 34. Jack Sockets

3.5.1.5 Display

The status of the control system can be understood by observing 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.

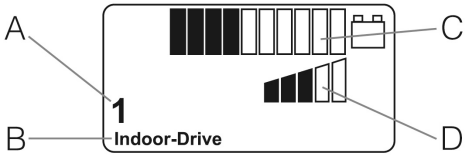


Figure 35. Drive Screen

1. Current Profile
2. Profile Name
3. Battery Indicator
4. Speed Indicator

3.5.1.6 Locking/Unlocking the Control System

The Control System can be locked in one of two ways. Either using a button sequence on the keypad or with a physical Key. How the Control system is locked depends on how your system is programmed.

Figure 36. The Lock Symbol is displayed when the wheelchair is locked

Keypad Locking

To lock the wheelchair using the keypad:

- While the control system is switched on, depress and hold the On/Off button.
- After 1 second the control system will beep. Now release the On/Off button.
- Deflect the joystick forwards until the control system beeps.
- Deflect the joystick in reverse until the control system beeps.
- Release the joystick, there will be a long beep.
- The wheelchair is now locked.

To unlock the wheelchair:

- If the control system has switched off, press the On/Off button.
- Deflect the joystick forwards until the control system beeps.
- Deflect the joystick in reverse until the control system beeps.
- Release the joystick, there will be a long beep.
- The wheelchair is now unlocked.

Key Locking

To lock the wheelchair with a key lock:

- Insert and remove a PGDT supplied key into the Charger Socket on the Joystick Module.
- The wheelchair is now locked.

To unlock the wheelchair:

- Insert and remove a PGDT supplied key into the Charger Socket.
- The wheelchair is now unlocked.

Figure 37. The Lock Symbol is displayed when the wheelchair is locked

3.5.1.7 Seat Functions

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.

Maneuvering the seat

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.

1. Press the ”Mode” button one or more times until an icon for seat function appears in the control panel display. See figure 39.
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.

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 fig. 38.

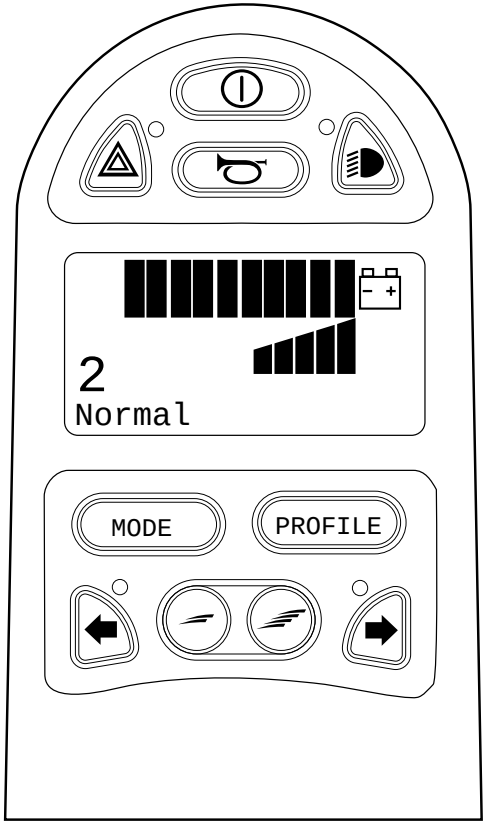


Figure 38. Standard display image with speed indicator

Figure 39 shows 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.

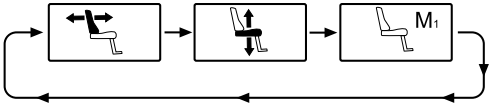


Figure 39. Move the joystick to the left or right to select a function. The icon for the function selected appears in the display

Memory

The control system on some seats have 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.

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 fig. 40.
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.

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

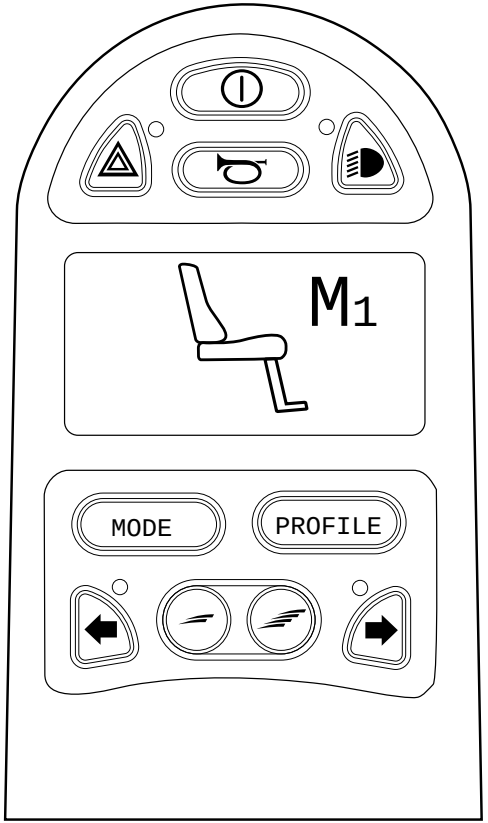


Figure 40. Memory function activated

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 fig. 38.

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 fig. 41.
4. Move the joystick backwards to activate the "save" function. An arrow will appear next to the memory symbol "M" - see fig. 42.
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.

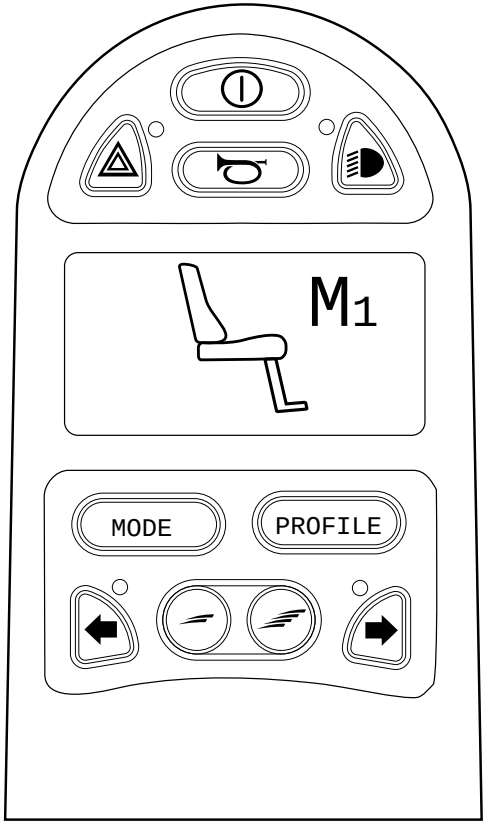


Figure 41. Memory function activated

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 fig. 38.

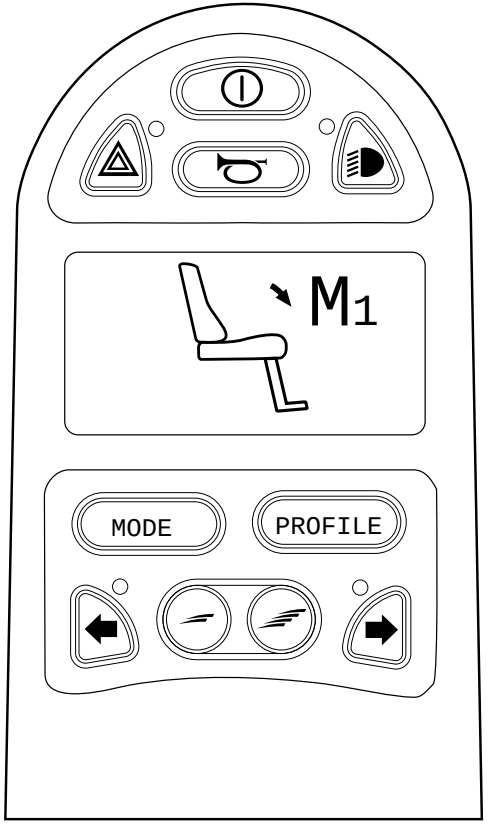


Figure 42. Save function activated

3.5.2 R-net Control Panel With LCD Color Display

3.5.2.1 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 an extra Seat Control Panel in addition to the control panel.

Figure 43. Control Panel

3.5.2.2 Charger Socket

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.

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.).

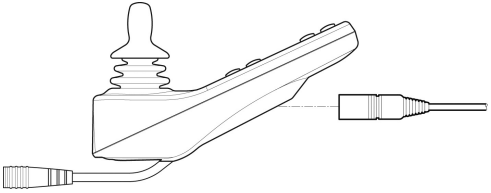


Figure 44. Charger Socket

3.5.2.3 Function Buttons

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

On/Off Button

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

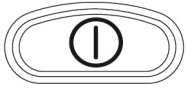


Figure 45. On/Off Button

Horn Button

The horn will sound while this button is depressed.

Figure 46. Horn Button

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.

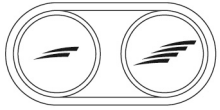


Figure 47. Speed buttons, Decrease/Increase

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.

Figure 48. Mode Button

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.

Figure 49. Profile Button

Hazard Warning Button and LED

ⓘ Only active if the wheelchair is provided with lights

This button activates/inactivates 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 inactivate them. When activated the indicator LED will flash in sync with the wheelchair's indicators.

Figure 50. Hazard Button and LED

Lights Button and LED

ⓘ Only active if the wheelchair is provided with lights

This button activates and de-activates 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.

Figure 51. Lights Button and LED

Left Indicator Button and LED

ⓘ Only active if the wheelchair is provided with lights

This button activates and de-activates 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.

Figure 52. Left Indicator and LED

Right Indicator Button and LED)*

ⓘ Only active if the wheelchair is provided with lights

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.

Figure 53. Right Indicator and LED

3.5.2.4 Jack Sockets

The External On/Off Switch Jack (1) allows the user to turn the control system on and off using an external device, such as a buddy button.

The External Profile Switch Jack (2) allows the user to select Profiles using an external device, such as a buddy button. To change the Profile whilst driving simply press the button.

3.5.2.5 Display

The status of the control system can be understood by observing the display. The control system is on when the display is backlit.

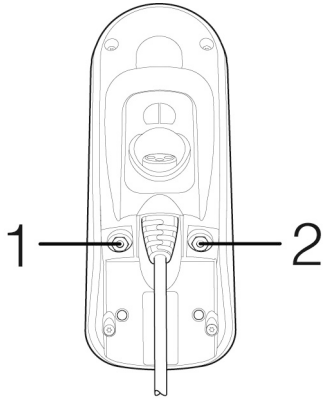


Figure 54. Jack Sockets

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.

A. Clock

B. Speedometer

C. Profile name

D. Current profile

E. Battery indicator

F. Max. Speed indicator

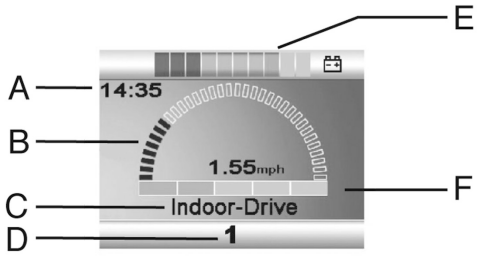


Figure 55.

Battery Indicator

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

Figure 56. Battery Indicator

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.

Speed Indicator

This displays the current speed setting.

Figure 57. Speed Indicator

The speed setting is adjusted using the Speed Buttons.

Current Profile

The Profile Number describes which 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.

Figure 58. Current Profile

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.

Figure 59. In Focus

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.

Figure 60. Speed Limit

Restart

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

Figure 61. Restart

Control System Temperature

This symbol means that a safety feature has been triggered. This safety feature reduces the power to the motors, and automatically resets when the control system has cooled down. When this symbol occurs, drive slowly or stop the wheelchair. If the control system temperature continues to increase it can reach a level where the control system must cool down, at which point it will not be possible to drive any further.

Figure 62. Control System Temperature.

Motor Temperature

This symbol means that a safety feature has been triggered. This safety feature reduces the power to the motors, and automatically resets after a certain period of time. When the system is reset, the symbol disappears. When this symbol occurs, drive slowly or stop the wheelchair. Permobil recommends that you drive slowly for a short period after the symbol has disappeared, to prevent unnecessary strain on the wheelchair. If the symbol occurs multiple times and the wheelchair is not driven in any of the conditions mentioned in 4.2.4 *Driving restrictions*, Page 144, there might be something wrong with the wheelchair. Contact your service technician.

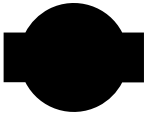


Figure 63. Motor Temperature

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 to show the sands falling.

Figure 64. Timer

E-Stop

If the control system is programmed for latched drive or actuator 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.

Figure 65. E-Stop

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.

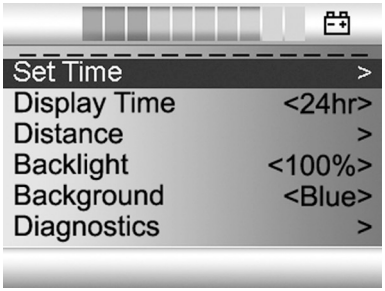


Figure 66. Installation menu

Setting the time

(Setting the time (Set Time): Shows the total distance travelled by the control system.

Displaying the time (Display Time)

(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.

Distance measurement (Distance)

(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):*
- **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.

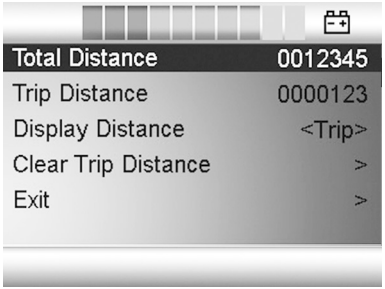


Figure 67. Distance measurement

3.5.2.6 Locking/Unlocking the Control System

The Control System can be locked in one of two ways. Either using a button sequence on the keypad or with a physical Key. How the Control system is locked depends on how your system is programmed.

Figure 68. The Lock Symbol is displayed when the wheelchair is locked

Keypad Locking

To lock the wheelchair using the keypad:

- While the control system is switched on, depress and hold the On/Off button.
- After 1 second the control system will beep. Now release the On/Off button.
- Deflect the joystick forwards until the control system beeps.
- Deflect the joystick in reverse until the control system beeps.
- Release the joystick, there will be a long beep.
- The wheelchair is now locked.

To unlock the wheelchair:

- If the control system has switched off, press the On/Off button.
- Deflect the joystick forwards until the control system beeps.
- Deflect the joystick in reverse until the control system beeps.
- Release the joystick, there will be a long beep.
- The wheelchair is now unlocked.

Key Locking

To lock the wheelchair with a key lock:

- Insert and remove a PGDT supplied key into the Charger Socket on the Joystick Module.
- The wheelchair is now locked.

To unlock the wheelchair:

- Insert and remove a PGDT supplied key into the Charger Socket.
- The wheelchair is now unlocked.

Figure 69. The Lock Symbol is displayed when the wheelchair is locked

3.5.2.7 Seat functions

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.

Maneuvering the seat

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.

1. Press the ”Mode” button one or more times until an icon for seat function appears in the control panel display.
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.

Figure 39 shows 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.

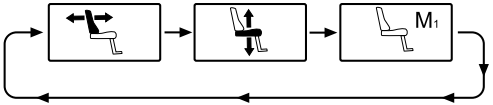


Figure 70. Move the joystick to the left or right to select a function. The icon for the function selected appears in the display

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.

Figure 71. Standard display image with speed indicator

Memory

Retrieving position from memory

The control system on some seats have 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.

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.
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.

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

Figure 72. Memory function activated

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.

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.
4. Move the joystick backwards to activate the "save" function. An arrow will appear next to the memory symbol "M".
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.

Figure 73. Memory function activated

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.

Figure 74. Save function activated

3.5.3 R-net LED Joystick Module

3.5.3.1 General

The Control Panel consists of a joystick and function buttons. At the front of the panel is the Charger Socket.

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

Figure 75. Control Panel

3.5.3.2 Charger Socket

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.

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.

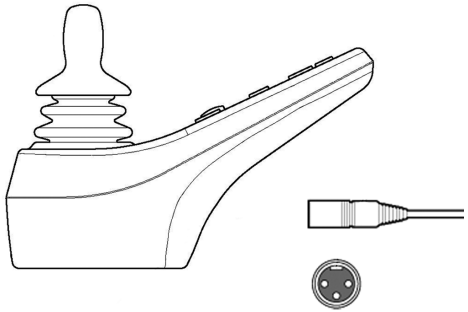


Figure 76. Charger Socket

3.5.3.3 Function Buttons

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

On/Off Button

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

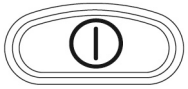


Figure 77. On/Off Button

Horn Button

The horn will sound while this button is depressed.

Figure 78. Horn Button

Maximum Speed/Choice of Profile Button and LED

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

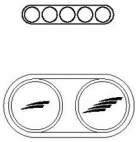


Figure 79. Maximum Speed/Choice of Profile Button and LED.

Mode Button

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

Figure 80. Mode Button

Hazard Warning Button and LED

ⓘ Only active if the wheelchair is provided with lights

This button activates/inactivates 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 inactivate them. When activated the indicator LED will flash in sync with the wheelchair's indicators.

Figure 81. Hazard Button and LED

Lights Button and LED

ⓘ Only active if the wheelchair is provided with lights

This button activates and de-activates 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.

Figure 82. Lights Button and LED

Left Indicator Button and LED

ⓘ Only active if the wheelchair is provided with lights

This button activates and de-activates 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.

Figure 83. Left Indicator and LED

Right Indicator Button and LED)*

ⓘ Only active if the wheelchair is provided with lights

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.

Figure 84. Right Indicator and LED

3.5.3.4 Battery Voltage Indicator

CAUTION!

The battery voltage indicator also functions as a "fault indicator" for the wheelchair's electronics.

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.

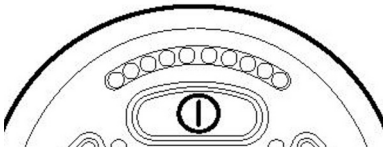


Figure 85. Battery Voltage Indicator

3.5.3.5 Maximum Speed Indicator

CAUTION!

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

Speed

Indicates the maximum speed set for the wheelchair.

1 - 2 lamps = Low speed

3 - 4 lamps = Average speed

5 lamps = Max. speed

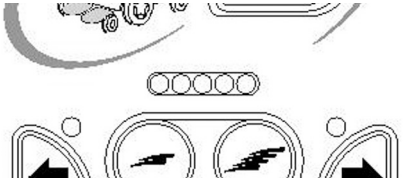


Figure 86. Maximum Speed Indicator

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.

3.5.3.6 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.

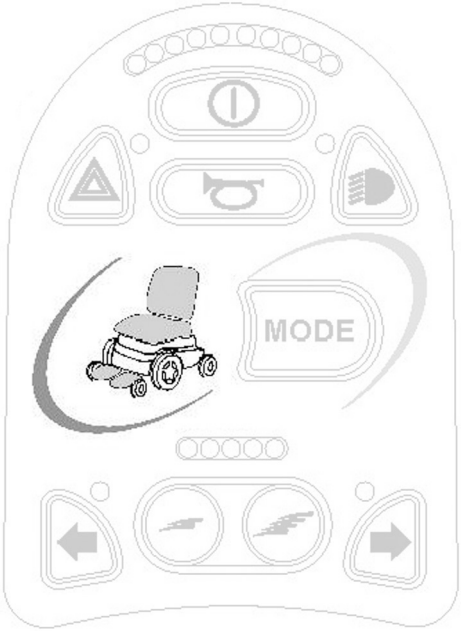


Figure 87. Seat Indicator

3.5.4 ICS Control Panel

3.5.4.1 General

CAUTION!

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

The seat's electrical functions may be controlled from the Drive System Control Panel. On seats equipped with the control system ICS the electrical functions may also be controlled from the ICS Control Panel.

The seat's electrical functions are controlled from the Control Panel. The control system may be in the form of conventional push buttons or may have levers for those users who find these easier to maneuver. The lever is moved forward to operate the front button and back to operate the rear button. The functions of the button box are here described for fitting with conventional push buttons, but the functions are the same whatever the design of the control system.

Each switch location can have two functions, and the symbol for the active function is illuminated. Functions are changed using the shift function.

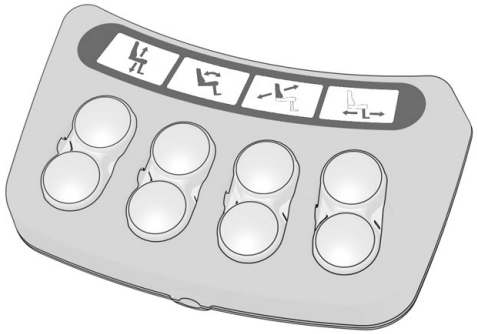


Figure 88. Control Panel

Feedback

The control panel provides feedback related to the available Seat Functions, active Seat Functions Inhibits, active Drive Speed Limits and active Drive Inhibits through its LEDs.

There are three states that the LED above the switch can have:

Off

The function icon is ”extinguished” or ”OFF”. This signifies that the function is not currently active. The selection of the Left/Right seat functions is toggled with the ”Shift Switch”

Solid

A SOLID LED communicates ”Drive Speed” related information to the user

Solid green LED signifies that the chair can drive at full speed.

Solid yellow LED signifies that the drive speed is limited due to the position of this actuator.

Solid red LED signifies that the drive is inhibited due to the position of this actuator.

Flashing

A FLASHING LED communicates ”Actuator” related information to the user.

Flashing green LED signifies a special or extended feature.

Flashing yellow LED signifies that the Seat Function is inhibited in one direction, due to a safety limit. The switches below the icon will only move the seat function in the ”safe” direction.

Flashing red LED signifies that there has been an error detected with the actuator. Depending on the error, the switches below may not operate the seat function. Note the circumstances when this indication occurs as this information may help your service provider. Contact your service provider for additional assistance, as service may be needed.

3.5.4.2 Functions

Seat Lift

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

Figure 89. Seat Lift

Backrest angle

The backrest can be moved backwards by pressing the lower part of the button and brought back by pressing the upper part.

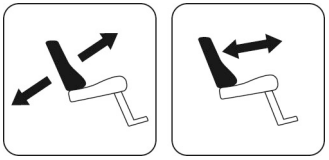


Figure 90. Backrest angle

Seat Tilt

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

Figure 91. Seat Tilt

Leg Rest Angle

The leg rest can be moved out by pressing the upper part of the button and brought back by pressing the lower part.

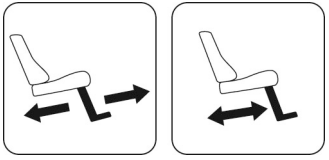


Figure 92. Leg Rest

Anterior Tilt

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

Figure 93. Anterior Tilt

Power Footplates

The footplates can be raised by pressing the lower part of the button and lowered by pressing the upper part.

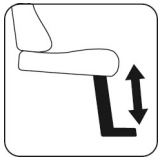


Figure 94. Power Footplates

RA Footplate

The footplate can be lowered at the same time as the seat lift is raised by pressing the upper part of the button. Pressing the lower part of the button will raise the footplate and at the same time lower the seat lift. This function can help the user getting in to and out of the wheelchair.

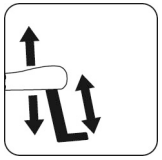


Figure 95. RA Footplate

Shift

Change the control button functions by pressing the **shift** button. Change the function back again by pressing the **shift** button. The symbol for the active function will illuminate.

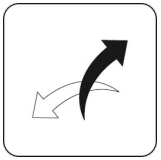


Figure 96. Shift

Memory Function

ICS Control Panels equipped with Memory can store and recall up to three seat positions. A seat function (e.g. power tilt, power recline, power legs, etc.) can only remember a saved memory position if it has an actuator with position feedback installed.

Figure 97. Memory function

Recalling Memory

1. Enter the memory mode by pressing and holding the memory button (8) for two seconds. While in the memory mode, the memory LED flashes green.
2. Press and hold the desired "recall" button (1, 2 or 3) to move the seating system to the desired memory position. Releasing the "Recall" button stops actuator movement, as a safety feature. Actuator movement stops, the LED above the memory position lights green and the control panel emits a tone, when the "stored" position is reached.
3. Return to standard seat function operating mode by pressing the memory button (8).

Figure 98. Memory Function

Storing Memory

Before storing a seating position in memory, position the seating system in the position that is desired to be stored.

1. Enter the memory mode by pressing and holding the memory button (8) for two seconds. While in the memory mode, the LED flashes green.
2. Press and hold button (4) until the LED immediately to the left of the Memory LED lights green. You have now "enabled" storing and are ready to store a memory seat position.
3. Press and hold the desired "store" button (5, 6 or 7) for three seconds to memorize the current seat position in a memory location. The LED above the memory position will light red and the control panel will emit a tone when the memory has been successfully stored.
4. Return to standard seat function operating mode by pressing the memory button (8).

Figure 99. Memory Function

3.5.5 Omni2

Your wheelchair can be equipped with an Omni2. An Omni2 is a device that makes it possible to operate the wheelchair with something other than a standard joystick. For more information, please see the manual on the website of Curtiss-Wright: http://support.pgdt.com/omni2-manual.pdf.

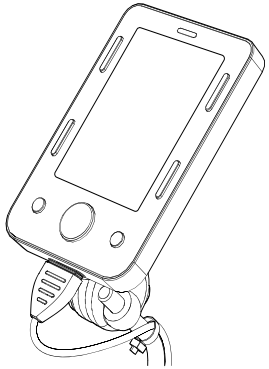


Figure 100. Omni2 display module.

3.6 Accessories

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

4 Preparing for use

4.1 Settings and adjustments

4.1.1 Headrest

ⓘ Accessory

This headrest has expanded adjustment options to give the user optimal comfort. The headrest can also be removed and remounted while preserving the same setting.

Figure 101. Headrest overview

4.1.1.1 Removing headrest

1. Undo the handle (C) on the rear of the backrest.
2. Remove the headrest by lifting it straight up.

4.1.1.2 Mounting headrest

Mount in the reverse order

4.1.1.3 Adjusting headrest height and depth

1. Undo the handle (A) on the rear of the backrest.
2. Adjust the height/depth of the headrest as required.
3. Tighten the handle (A).

4.1.1.4 Adjusting headrest angle

1. Undo the handle (B) on the rear of the headrest.
2. Adjust the angle of the headrest as required.
3. Tighten the handle (B).

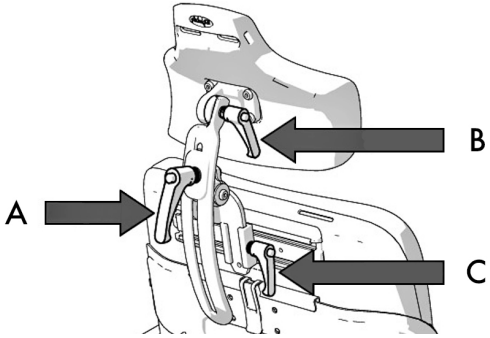


Figure 102. Adjusting headrest

NOTICE

Risk of damaging mechanism

Do not put weight on the headrest while adjusting it.

4.1.2 Armrest

WARNING!

Risk of injury while adjusting armrests

Do not subject the armrests to load while adjusting.

4.1.2.1 Armrest height

WARNING!

Risk of injury while adjusting armrests

Do not subject the armrests to load while adjusting.

The following tools are necessary for this task:

- Allen key 5 mm

The height of the armrest can be adjusted to provide the user with optimal comfort. The scale on the back of the backrest shows the current height setting for the arm rests.

The height of the arm rest can be adjusted for optimal comfort.

The scale on the back of the backrest shows the current height setting for the arm rests.

1. Undo the four screws (A) and release the the two quick locks (B) on the rear of the back rest that secure the height of the arm rest.
2. Adjust to the required position using the adjustment screw on the rear of the back rest. The scale on the centre of the back rest shows the current height setting of the arm rest.
3. Secure the height of the arm rest by engaging the two quick locks (B) and tightening the four screws (A) on the rear of the back rest.

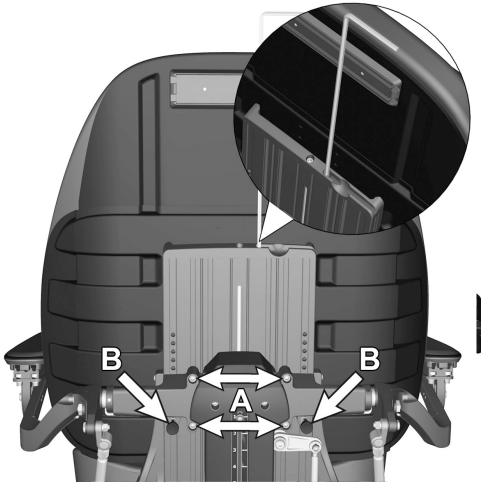


Figure 103. Adjusting the arm rest height

4.1.2.2 Armrest angle

WARNING!

Risk of injury while adjusting armrests

Do not subject the armrests to load while adjusting.

The angle of the armrest can be easily adjusted to provide the user with optimal comfort.

1. Loosen the check-nut on the adjustmentbar.
2. Adjust the armrest angle by turning the adjustment bars.
3. Fix into desired position by tightening the check-nut.

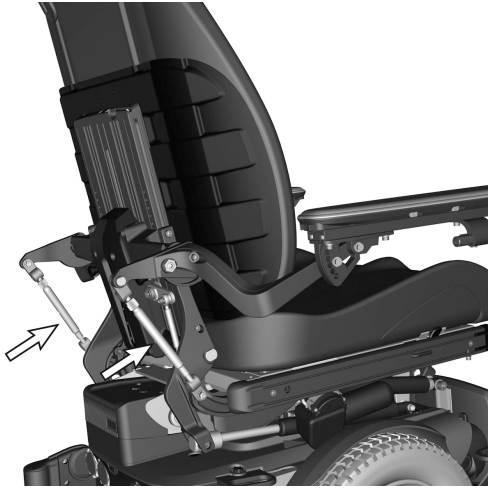


Figure 104. Adjusting the arm rest angle

4.1.2.3 Armrest height and angle

NOTICE

Armrest flexible position

This type of adjustment should only be made for special needs. It may have negative effects on the movement of the armrest when raising or lowering the backrest

The arm rest height/angle is normally adjusted as described on pages page 122–page 124. However, for special needs, the arm rests can be adjusted individually for users who want a left and right arm rest at different heights and/or angles. This adjustment can only be made for special needs. It may have negative effects on the movement of the arm rest when raising/lowering the back rest.

1. Adjust the arm rest height by turning the adjustment bars (C).
2. The angle of the arm rest is secured using a screw (B). Move the screw from a fixed position (A) to a flexible position (B).
3. Adjust the arm rest to the required angle and secure by tightening the screw (B).

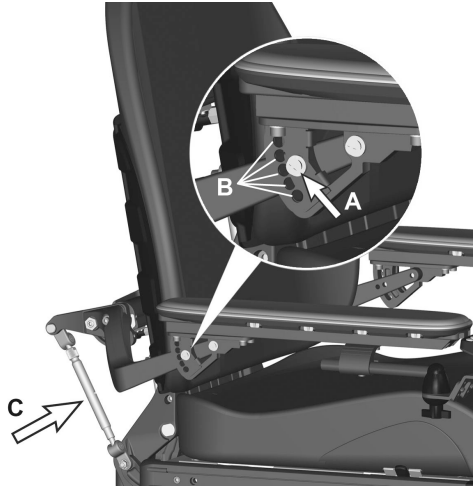


Figure 105. Individual adjustment of the arm rest height/angle

4.1.3 Leg rest

WARNING!

Risk of injury while working on the leg rest

Do not place any weight on the leg rest while working on it.

4.1.3.1 Leg rest length

WARNING!

Risk of injury – adjust floor-to-footplate clearance

After adjustment, and with the seat lift in its lowest position, make sure there is sufficient clearance, at least 25 mm (1 inch), between the ground and the footplate at all times when moving the leg rest in or out. Perform this test with the user sitting in the wheelchair with his or her feet on the footplates.

4.1.4 Footplates

WARNING!

Risk of injury while adjusting footplates

Do not place any weight or load on the footplates while adjusting the footplates.

4.1.4.1 Footplate height

WARNING!

Risk of injury – adjust floor-to-footplate clearance

After adjustment, and with the seat lift in its lowest position, make sure there is sufficient clearance, at least 25 mm (1 inch), between the ground and the footplate at all times when moving the leg rest in or out. Perform this test with the user sitting in the wheelchair with his or her feet on the footplates.

The height of the footplates can be adjusted individually and steplessly. They are secured using the two locking screws.

1. Undo the footplates locking screws. See Figure 106.
2. Adjust the footplates to the required height and secure by tightening the locking screws.
3. Check, following adjustment, that the footplates are fully secured.

Figure 106. The height of the footplates is secured using the outer locking screws

4.1.4.2 Footplate angle

The angle of the footplates is adjusted using stop screws under each foot plate.

1. Tilt up the footplates/plate.
2. Undo the lock nut.
3. Set to the required angle by screwing the screw in or out.
4. Lock the stop screw in the required position using the lock nut.

Figure 107. The angle of the foot plates can be adjusted using a screw locked with a lock nut

4.1.5 Panel holder

The control panel holder can be mounted on the left or right armrest.

4.1.5.1 Rotational panel holder

The location of the control panel is adjustable lengthwise for the optimal driving position. It is also possible to adjust the angle of the panel sideways to facilitate getting in and out of the wheelchair.

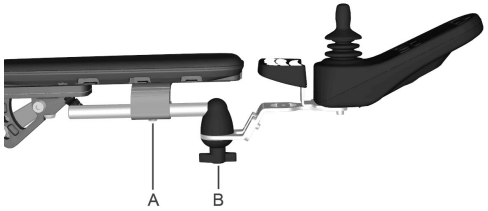


Figure 108. Rotational panel holder overview

Length adjustment

1. Undo the screw (A) on the panel joint and adjust the panel to the required position.
2. Tighten the screw.

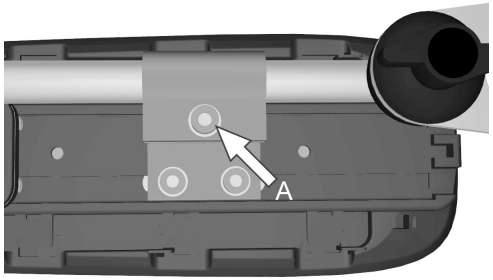


Figure 109. Screw for adjusting the panel holder length

Angle adjustment with friction joint

Using the knob (B) on the friction joint, it is possible to adjust how easily the panel can be pushed out to the side.

Control panel sliding angle adjustment

1. Remove one of the screws. Choose the side that is desired to be sliding.

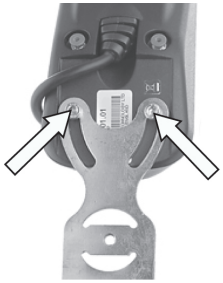


Figure 110. Only remove one of the screws.

2. Angle the panel.

3. Refit the screw. Tighten the screw to the preferred friction.

Figure 111. The slide tracks.

4.1.5.2 Parallel panel holder

- Allen key, 4 mm
- Allen key, 5 mm

Length adjustment

1. Undo the screw(s) on the underside enough to slide the panel holder.

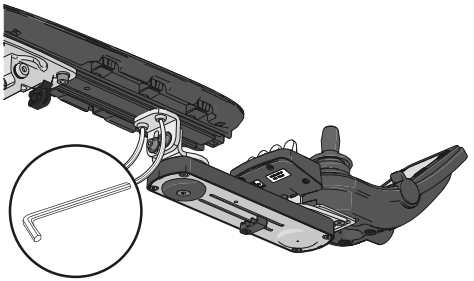


Figure 112. The position of the screws on the parallel panel holder.

2. Adjust the panel to the preferred position. Leave at least a gap of 10 mm (0.4 inches) between the armrest and the panel.

3. Tighten the screw. Tightening torque 9.8 N m (7.2 lb. ft.).

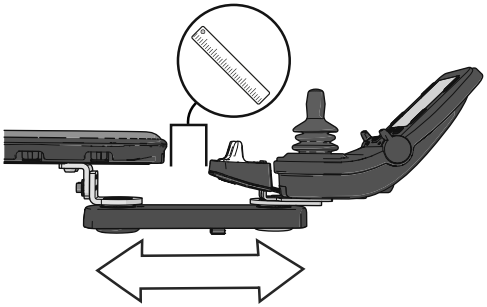


Figure 113. Adjusting the position on the parallel panel holder.

Adjusting the friction joint

1. Undo the screw to make the friction joint more loose.

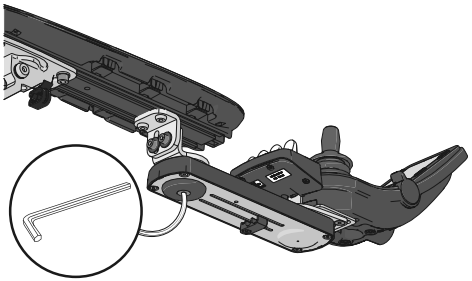


Figure 114. The screw's position on the parallel panel holder.

2. Slide the panel to the preferred position.

3. Tighten the screw to keep it in position.

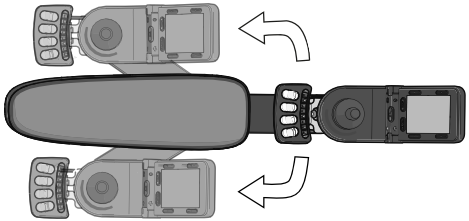


Figure 115. Slide the panel and the panel holder to preferred side of the armrest.

4.1.6 Positioning belt

ⓘ Accessory

There is an accessory rail on each side of the seat frame intended for attaching a positioning belt. etc. The positioning belt should be fitted in the rail's upper groove.

1. Screw the belt in place, with the snap lock on the side which best suits the user and the other part with the buckle on the opposite side.

Figure 116. Attaching the positioning belt

2. Check that the belt buckle locks properly in the snap lock.

Figure 117. Belt buckle locked properly in the snap lock.

WARNING!

Use installed positioning aids

The user must use and securely fasten the positioning belt and any other positioning aids on the wheelchair. Failure to properly use positioning belts and other positioning aids may cause bodily injury. If there is any sign of damage or wear on any positioning belt or aids, immediately contact Permobil for a replacement.

WARNING!

Positioning belts and aids are not vehicle seatbelts

The wheelchair positioning belt and aids are designed to properly position the user in the wheelchair for safely operating the wheelchair. The wheelchair positioning belts and aids do not provide protection in a traffic accident and do not replace a vehicle mounted seatbelt.

4.2 Handling and driving

The wheelchair is designed for use both indoors and out. When driving indoors, take care in e.g. narrow passages, when passing through doors and entrances and when using lifts, ramps, etc.

Also bear in mind the crush hazard when using the power seat lift and seat angle functions, especially if the wheelchair has been driven under tables, benches, etc. When driving outdoors, remember to drive very slowly down steep slopes and to take great care when driving on uneven surfaces, up slopes, on side slopes and over obstacles. Always observe a good safety distance when driving near edges and drops.

We recommend users make repeated test drives in environments where they feel safe to familiarize themselves with how the wheelchair and its accessories behave in different situations before starting to use the wheelchair on public roads and in other public spaces.

4.2.1 General - driving

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

1. Switch on the power.
2. Select a suitable driving profile with the Profile button (if the system is programmed for more than one driving profile).
3. Move the joystick carefully forward to drive forward or backward to back up.
4. Adjust the speed setting with the higher and lower speed buttons. The wheelchair's electronics allow very slow driving over obstacles. Drive up to the obstacle, then carefully drive over it.

WARNING!

Risk of injury - place your feet correctly

Always make sure your feet are correctly and securely positioned on the footplates before you operate the wheelchair. Use foot straps if necessary. Failure to do so increases the risk of personal injury.

4.2.2 Manual Release of the Magnetic Wheel Locks

The wheelchair is fitted with a manual brake release on each drive wheel that can be released to make it possible to move the wheelchair manually. The brake release levers are located at the front of the wheelchair.

4.2.2.1 Release of wheel locks

1. Shut off the wheelchair using the start button on the control panel.
2. Move the levers outwards to release the brakes. The chair can know be moved manually.

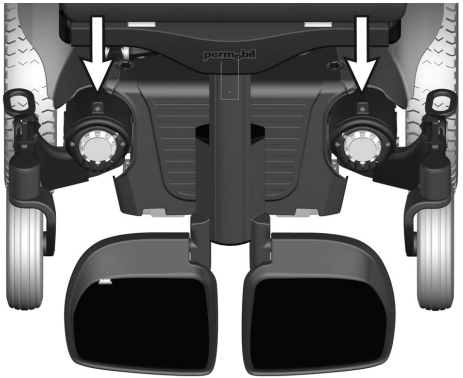


Figure 118. Location of the release levers

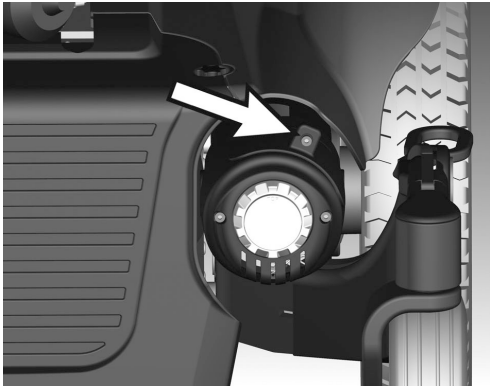


Figure 119. Wheel lock released

4.2.2.2 Engage the wheel locks

Move the lever inward so it assumes in its inner most position. Always check that the release levers goes right to its most inner position.

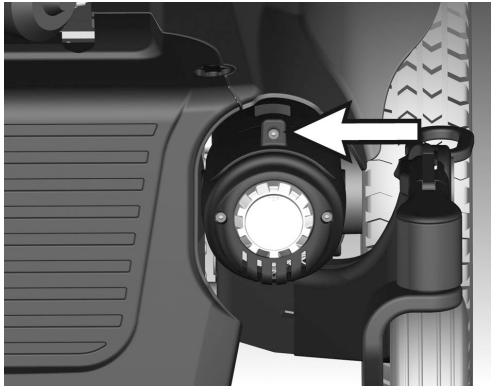


Figure 120. Wheel lock engaged

WARNING!

Wheel locks

Do not release or engage the wheel locks unless power to the wheelchair is off.

To prevent the wheelchair rolling away, make sure it is on a level surface before releasing the wheel locks.

Be aware that the wheelchair has no brakes when the wheel locks are in free-wheel position.

Make sure that the person pushing the wheelchair has full control when the wheel locks are released.

Always engage the wheel locks after the wheelchair has been pushed manually.

WARNING!

Malfunctioning wheel locks

When the wheel locks are released, the wheelchair cannot be driven. If it can be driven, contact an authorized Permobil service center as soon as possible.

4.2.3 Driving technique

The control panel electronics interpret joystick movements and move the wheelchair accordingly. No complex user techniques are required for normal driving, which is an advantage if the user is inexperienced. A good way to get started is simply to move the joystick in the direction you want to go. The wheelchair will then move in the direction in which the joystick is pointing.

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

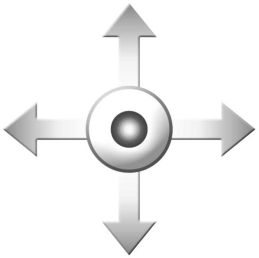


Figure 121. Joystick maneuvering.

CAUTION!

First test drive

Do not take the first test drive alone. 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.

CAUTION!

Driving - surface conditions

Never drive at full speed in narrow or confined spaces or on sloping or inclined surfaces. Use extra caution when driving the wheelchair on surfaces that have ridges that could cause the chair to steer in a different direction.

WARNING!

Release the joystick at the first sign of unexpected behavior!

Do not 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 stop whatever it is doing.

4.2.4 Driving restrictions

WARNING!

Risk of tipping over

Do not allow the leg rest to hit the ground when climbing obstacles, driving on uneven surfaces or slopes or when a slope levels out. Make sure there is sufficient ground clearance to avoid the risk of tipping over.

The wheelchair consumes much power when you drive up a hill, climb over obstacles, or drive on rough terrain (for example sand). Permobil recommends that you, as far as possible, avoid to drive for a long period of time in these types of conditions.

4.2.4.1 Driving restrictions related to different surfaces

Do not drive at high speed, avoid sudden stops and starts; avoid sudden evasive maneuvers or sharp turns and use extreme caution in any of the following situations:

- when near edges and drops or on elevated surfaces,
- when on soft or uneven surfaces; such as grass, gravel, sand, ice, snow,
- when driving from an area of high traction (e.g. sidewalk) to an area of low traction (e.g. grass),
- when turning the wheelchair,
- when in narrow or confined spaces, and
- when driving on surfaces that have ridges that could cause the wheelchair to move in a different direction.

These restrictions also apply to subsequent sections.

4.2.4.2 Driving over obstacles

You may drive over obstacles up to 60 mm (2.4 inches). If a car lock is installed on the wheelchair, it affects the ground clearance.

Use extreme caution when negotiating obstacles of this type. Always approach the obstacle at a right angle. If you drive over higher obstacles, there is a greater risk of tipping and of damage to the wheelchair.

Figure 122. Driving over obstacles.

WARNING!

Driving - high obstacles

Do not drive the wheelchair over obstacles higher than 60 mm (2.4 inches). Always exercise great caution when driving over obstacles.

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

4.2.4.3 Driving on side slopes

Always exercise great caution when driving over side slopes.

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

Figure 123. Driving on side slopes.

WARNING!

Risk of tipping on uneven surfaces

Take great care when driving on side slopes with an uneven surface (e.g. grass, gravel, sand and snow).

WARNING!

Risk of tipping on steep slopes

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

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

4.2.4.4 Driving downhill

Always drive downhill at low speed and with great caution.

Note that the distance required to stop will increase when driving downhill.

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

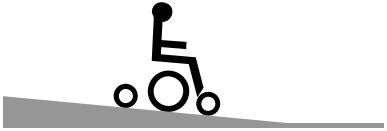


Figure 124. Driving downhill.

WARNING!

Risk of tipping on uneven surfaces

Take great care when driving on side slopes with an uneven surface (e.g. grass, gravel, sand and snow).

WARNING!

Risk of tipping when driving downhill

Do not drive downhill on gradients greater than 10°.

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

WARNING!

Increased stopping distances

The distance required to stop the wheelchair will increase when driving downhill.

4.2.4.5 Driving uphill

Always drive uphill with great care.

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

Figure 125. Driving uphill.

WARNING!

Risk of tipping on uneven surfaces

Take great care when driving on side slopes with an uneven surface (e.g. grass, gravel, sand and snow).

WARNING!

Risk of tipping when driving uphill

Do not drive uphill on gradients greater than 10°.

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

4.2.5 Joystick error

4.2.5.1 Joystick error at startup

Do not move the joystick before, during or immediately after the control system is switched on. If the joystick is moved from the central position, a joystick error may be generated.

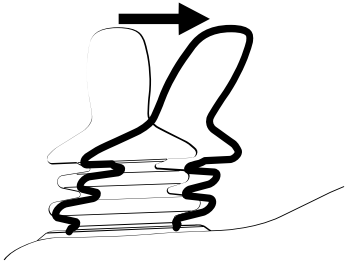


Figure 126. Joystick moved from the central position.

4.2.5.2 Joystick error LCD panel

While the control system checks if an error has occurred, the screen image for a shifted joystick will be displayed for 5 seconds.

If the control system detects an error in the wheelchair electronics, a diagnostics screen will appear. To enable the wheelchair to be driven again, make sure the joystick is in the central position. Then switch the wheelchair off and on again. If this does not work and the diagnostic screen still appears, contact your service provider.

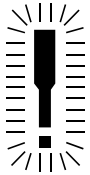


Figure 127. The LCD diagnostics screen.

4.2.5.3 Joystick error LED panel

While the control system checks if an error has occurred, the LEDs on the battery voltage indicator will wander backward and forward.

If the control system detects an error in the wheelchair electronics, the battery voltage indicator LEDs will flash rapidly. To enable the wheelchair to be driven again, make sure the joystick is in the central position. Then switch the wheelchair off and on again. If this does not work and the LEDs still flash rapidly, contact your service provider.

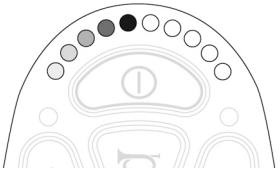


Figure 128. The LEDs on the battery voltage indicator.

4.3 Batteries

How frequently you need to charge the wheelchair's batteries will depend on a number of factors including how you use the wheelchair, the temperature and the age of the batteries. All batteries gradually lose capacity as they age.

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

NOTICE

Discharged batteries

Should the batteries be drained completely, charge them again as soon as possible since completely drained batteries may reduce battery service life.

To achieve the best service life, never let batteries discharge completely. Always charge the batteries immediately after they have been discharged.

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

4.3.1 Charging the batteries

If the wheelchair is switched on during charging process, the battery voltage indicator bars on the wheelchair control panel will climb to show that the battery is being charged.

If the power on the wheelchair is turned On during the charging process, it must be switched off again and the charger disconnected before the wheelchair can be driven. Use the On/Off button on the control panel.

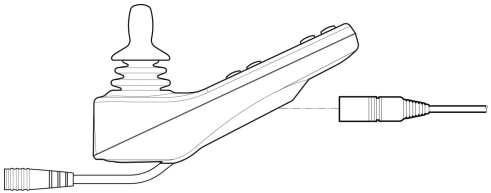


Figure 129. Charger socket.

NOTICE

Battery charger - see supplied manual

For a description and battery charger instructions, refer to the manual supplied.

WARNING!

Risk of fire or explosion - charging conditions

Use only the charger supplied with your wheelchair or a charger recommended by Permobil. The use of 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.

Only use chargers with a max 10 A charging current (average value). 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 wet room.

WARNING!

Risk of fire or explosion - do not short-circuit

Exercise caution when using metallic objects during work with batteries. A short-circuit can easily cause an explosion. Always use safety gloves and goggles.

WARNING!

Risk for overheating, sparks or short-circuit

To interrupt the charging process, turn off the power supply at the switch on the charger before removing the charging jack from the wheelchair's charger socket. This is to avoid sparking and unnecessarily high wear on the charging contact.

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 jack must be replaced if it is damaged or gets hot during charging. Both the jack on the charger cable and the wheelchair's charger socket must be replaced if one part is damaged or worn. The contacts must be replaced by qualified personnel.

NOTICE

Procedures when charging the batteries

The charging cable may not be extended.

Carefully read the instructions supplied with the charger before starting to charge the wheelchair.

The main circuit breaker must be set to On to charge the batteries.

Make sure the charger connector is fully inserted in the wheelchair's charger socket.

The wheelchair cannot be driven when the charger is connected. If it is possible to drive the wheelchair during charging, contact Permobil or your dealer.

4.4 Transporting the wheelchair

4.4.1 Vehicle transportation

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

Check that the wheelchair is properly secured and that the wheel locks are engaged. When transporting it in a vehicle, the wheelchair must be secured in position by attaching straps to the tie-down eyes at the front and rear, marked with yellow stickers.

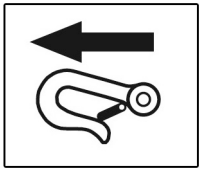


Figure 130. Sticker showing the location of the tie-down eyes.

Secure the wheelchair according to the instructions from the manufacturer of the approved vehicle restraint system. Always make sure that the tie-down points in the transporting vehicle are well-anchored.

ⓘ To make transportation of the wheelchair easier, the backrest can be removed or folded down in a few simple moves; see 4.4.2 *Removing the backrest*, Page 165
If necessary, the headrest also can be removed; see 4.1.1 *Headrest*, Page 120

Figure 131. The wheelchair has four tie-down points. The wheelchair and tie-down position in this picture is generic.

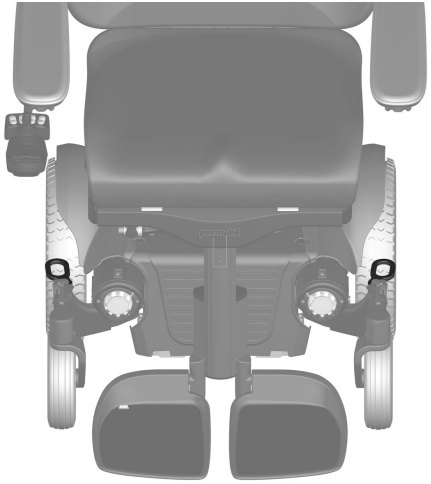


Figure 132. Front tie-down eyes.

DANGER!

User transportation in wheelchair

When the user is seated in the wheelchair during transport, the following requirements must be met:

- The vehicle must be equipped with a locking system approved by Permobil for the product concerned. For alternative vehicle securement options, please consult your dealer.
- The locking system must be dimensioned for the total weight of the wheelchair.
- The user must use a three-point seat belt attached to the vehicle.
- The wheelchair must be crash tested and approved.
- The wheelchair must be fitted with a headrest.
- Alterations or substitutions should not be made to wheelchair securement points, structural parts, frame parts or components without consulting Permobil or the dealer.
- Spill-proof sealed batteries, such as gel or AGM, must be used.
- Make sure that wheelchair components do not accidently press down the seat belt's release button.

If these requirements are not followed, the user can sustain bodily injuries or die.

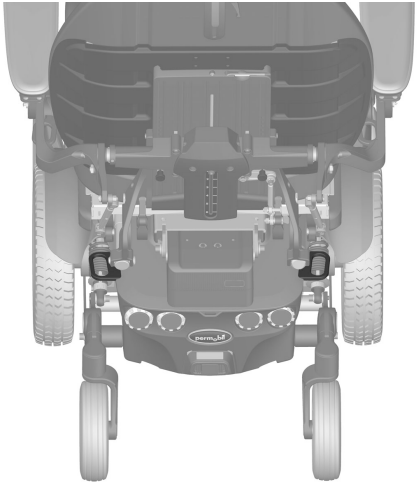


Figure 133. Rear tie-down eyes.

Permobil recommends that the wheelchair user is transferred to a vehicle seat and that he or she uses a factory-installed three-point seatbelt.

WARNING!

Remove installed trays

To reduce the risk of injury to the user and other vehicle occupants, wheelchair-installed trays that are not specifically designed for crash safety should:

1. be removed and secured separately in the vehicle, or
2. be secured to the wheelchair but positioned away from the user with energy-absorbing padding placed between the tray and the user.

DANGER!

Risk of injury – correct seatbelt positioning

The correct position for the vehicle's three-point seatbelt is on the inside of the wheelchair armrest. The three-point seatbelt should fit snug to the user's body without anything in the way. Failure to correctly position the three-point seatbelt may cause injury and/or death, if the vehicle is in an accident.

WARNING!

Requirements for vehicles used for transportation

The wheelchair may only be transported in vehicles approved for this purpose. Make sure the vehicle is suitably designed and equipped to transport a person in a wheelchair and that the tie-down points on the transporting vehicle are well-anchored.

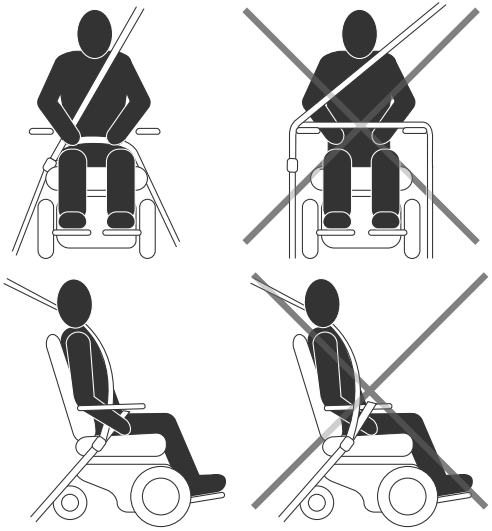


Figure 134. The illustrations on the left show correct positioning of the seatbelt positioning.

CAUTION!

Damage during transportation

You must inform Permobil as soon as possible after the event if the wheelchair and its accessories have suffered transportation damage, damage during driving or damage from other causes. There is a risk that the wheelchair and its accessories can no longer be used safely and securely. Contact your service provider or Permobil for further information.

WARNING!

Positioning belts and aids are not vehicle seatbelts

The wheelchair positioning belt and aids are designed to properly position the user in the wheelchair for safely operating the wheelchair. The wheelchair positioning belts and aids do not provide protection in a traffic accident and do not replace a vehicle mounted seatbelt.

WARNING!

Use installed positioning aids

The user must use and securely fasten the positioning belt and any other positioning aids on the wheelchair. Failure to properly use positioning belts and other positioning aids may cause bodily injury. If there is any sign of damage or wear on any positioning belt or aids, immediately contact Permobil for a replacement.

WARNING!

Secure loose objects during transportation

Auxiliary wheelchair equipment, loose or mounted on the wheelchair, must either be secured to the wheelchair or removed from it. Dismantled or movable auxiliary equipment must be properly secured in the vehicle during transit. This is to prevent loose parts or parts that may come loose from causing injury to the occupants during transit.

WARNING!

Securing the wheelchair in vehicles

The wheelchair may only be secured in position using approved fastening straps or a locking system. The locking system must be approved for the Permobil product concerned.

Secure the wheelchair by attaching approved fastening straps to the eyes at the front and rear, marked with yellow stickers. Do not attach the fastening straps to any other part of the wheelchair. Secure the fastening straps to the vehicle according to instructions for the restraint system in the vehicle.

Always make sure that the tie-down points in the transporting vehicle are well-anchored.

Check that the brake release on the wheelchair is set to locked position.

4.4.2 Removing the backrest

To make transportation of the wheelchair easier, the back can be removed in a few simple moves.

1. Remove the back rest cushion. It is fixed in place by means of Velcro on the rear of the cushion.
2. Remove the upper section of the back rest by carefully pulling it straight up.

If necessary, the head rest can also be removed, see
4.1.1 *Headrest*, Page 120

Figure 135. The upper section of the back rest is secured with a locking mechanism

4.4.3 Air transportation

NOTICE

Preparations for air transportation

Airlines have different rules regarding wheelchair transportation. Please contact your specific airline for more information and to make sure the wheelchair can be transported safely.

4.4.3.1 Batteries

Gel batteries: in most cases, gel batteries do not have to be removed from the wheelchair.

The main circuit breaker must always be in the Off position.

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

4.4.3.2 The wheelchair's dimensions and weight

The wheelchair's weight and dimensions are important, depending on the size and type of airplane in which the wheelchair is to be transported. Always check with the airline what rules apply.

4.4.3.3 Preventing damage to wheelchair

Since the wheelchair will be put with other goods in a confined space during air the flight, it is important to take preventive measures to minimize transportation damage to the wheelchair.

Cover the control panel with soft, shock-absorbing material (foam plastic or similar) and turn the control panel in towards the backrest. Protect other protruding objects in a similar manner. Where possible, adjust parts to the folded position. Tape any loose cables to the seat or covers.

5 Maintenance and repairs

For the wheelchair to work well, it is important that it be used correctly and regularly maintained. A well maintained wheelchair lasts longer and has a lower risk of defects.

CAUTION!

Maintenance by a qualified service technician

Only qualified service technicians should perform the maintenance and repair specified in this manual. Read all instructions carefully before proceeding. If any questions arise, contact Permobil for assistance.

NOTICE

When replacing batteries or circuit breakers, switch off main circuit breaker

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

NOTICE

Additional tools may be required

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

5.1 Frequency of maintenance and inspection

Permobil recommends compliance with the following maintenance and inspection schedule. Contact your authorized dealer for all service-related needs or questions.

Maintenance and inspection schedule	Daily	Weekly	Monthly	Yearly
Check battery level indicator and charge if necessary.	X			
Check that the joystick panel and other control panels are not damaged.	X			
Make sure all removable parts are securely fastened.	X			
Check positioning belts for wear and make sure buckles work.	X			
Check tires and inflate as necessary.		X		
If the wheelchair is equipped with lights and turn signals, make sure they are operational and clean.		X		
Clean the wheelchair and upholstery.			X	
Check upholstery, seating, headrest, arm pads and calf pads for wear.			X	

Maintenance and inspection schedule	Daily	Weekly	Monthly	Yearly
Check that the brake release and the brake release lever work properly.			X	
Complete inspection, safety check and service performed by an authorized wheelchair dealer.				X

5.2 Tool bag

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

TOOL	AREA OF USE
Allen keys	General maintenance/seat adjustment
11, 13 mm spanners	General maintenance/replacing batteries
Seat lift crank	Manually raising the seat lift
Security key	Locking/unlocking the wheelchair

5.3 Cleaning

Regular care and maintenance will prevent unnecessary wear and damage to your Permobil product.

ⓘ Use only the following cleaning methods.

ⓘ In the case of severe soiling of the upholstery or damage to the surface finish, contact Permobil for information.

CAUTION!

Switch off the wheelchair before cleaning

Always switch off the power supply to the wheelchair before cleaning.

5.3.1 Metal surfaces

Due to the high quality powder coating, optimum corrosion protection is guaranteed. Ideally, use a soft cloth or sponge, hot water and a mild detergent for normal cleaning. Wipe down carefully with a cloth and water, and dry off.

Remove scuff marks from semi-matte 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.

5.3.2 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.

5.3.3 Upholstery, cloth and 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 or soapy water residues with a clean, dry cloth. Repeat this procedure to remove stubborn dirt or stains. Ink spots can sometimes be removed by washing with soap and water followed by isopropyl alcohol.

Do not use any cleaning method that is not listed above; other methods may attack and degrade the vinyl and may void the wheelchair's warranty.

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

5.4 Battery replacement

WARNING!

Use safety gloves and safety goggles

Always use safety gloves and safety goggles when working with batteries. Exercise caution when using metallic tools or other objects while working with batteries. Batteries are heavy and charged devices and must be handled with great caution. Failure to follow any of these warnings could cause a short circuit, explosion, property damage and/or bodily harm.

CAUTION!

Recycling batteries

Used batteries must be disposed of responsibly in accordance with local recycling regulations.

1. Place the wheelchair on a level surface.
2. Run/fold out the leg rest and raise the seat lift.
3. Turn off the main power switch on the control panel.
4. Put the circuit breaker in the "OFF" position. See 3.4.2.6 *Main circuit breaker*, Page 64

5. Remove the four knobs holding the chassis covers. Remove the front chassis cover by pulling/lifting it upwards/forwards.
6. Remove the upper chassis cover by pulling it upwards/backwards.
7. Remove the rear chassis cover by lifting it upwards/backwards.

Figure 136. Knobs holding the front cover

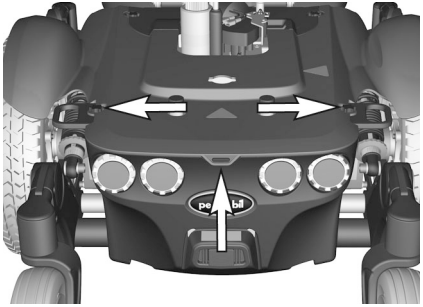


Figure 137. The rear cover is fitted togather with the upper chassis cover

8. Remove the electronics by gently pulling/spreading the locking handles to disengage the locking tabs on the left and right hand side of the chassis.

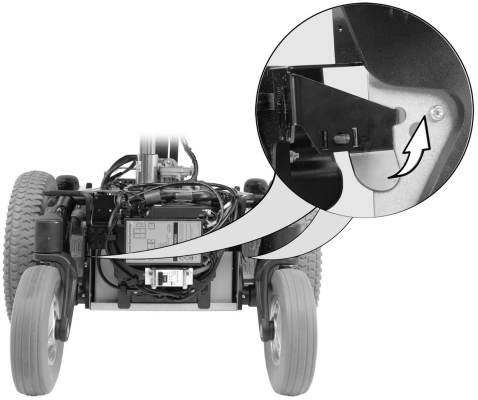


Figure 138. Remove the electronics by gently pulling the locking handles on the left and right side of the chassis outwards and disengaging the tabs

9. Remove the rear seat support, it is fitted with two screws.

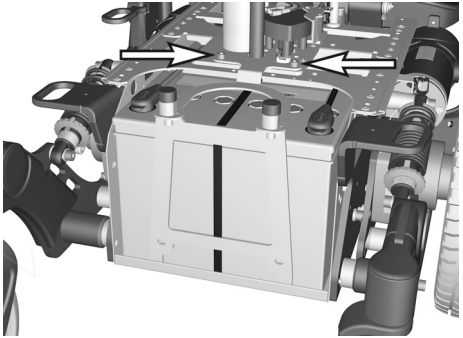


Figure 139. Rear battery terminals. The seat support is mounted with to screws

10. Loosen the battery terminals. Also see the sticker on the inside of the chassis front cover.

11. Lift/pull the batteries out using the battery straps.

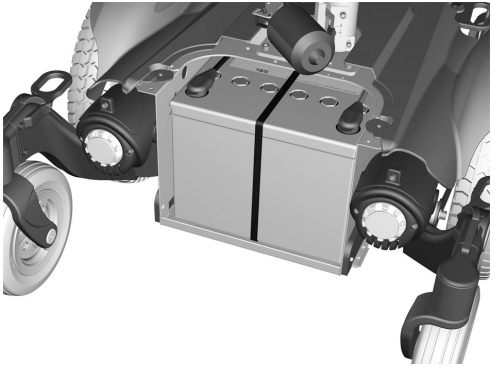


Figure 140. Front battery terminals

12. Lift/push the new batteries in to the chassis using the battery straps.
13. Connect the battery terminals on the new batteries. Also see the sticker on the inside of the chassis front cover.
14. Remount the electronics.
15. Remount the seat support with the two screws.
16. Remount the chassis covers.

5.5 Batteries storage

- The wheelchair must not be stored in areas subject to condensation (steam or moisture on surfaces), e.g. utility rooms or similar.
- If the wheelchair is equipped with acid batteries, the acid level must be regularly checked. If the wheelchair is equipped with gel or AGM batteries, the liquid level does not need to be checked.
- Battery service life depends on regular charging and avoiding complete discharge of the batteries.

5.5.1 Short-term storage

For short-term battery storage, the room must be at least 5°C (41.0° F). If the temperature is lower than this, the batteries may not charge fully and may be more vulnerable to corrosion.

5.5.2 Long-term storage

For long-term battery storage the room may be unheated, but to guard against battery corrosion, make sure the room is a few degrees warmer than its surroundings, as this will keep the room drier.

Switch off the main circuit breaker to avoid complete discharge of the batteries.

The batteries must be fully charged before storage. Batteries in storage require charging every 6 months.

5.6 Drive wheels

Filling tires with air

ⓘ Read all warnings contained in this section before filling the tires. Failure to do so may result in injury to the user and damage to the wheelchair and other property and also void any warranty applicable to the wheelchair.

CAUTION!

Risk of injury if tire pressure is incorrect

Before operating the wheelchair for the first time and regularly thereafter, check that the tire pressure meets the specifications in this manual. Check the tire pressure when the wheelchair experiences a significant change in temperature or altitude. Incorrect tire pressure may cause the wheelchair to be less stable, less maneuverable and cause damage to the wheelchair and/or bodily injury.

NOTICE

Risk of damage if tires are overfilled

Do not overfill the tires. Overfilling may result in damage to the wheel assembly.

NOTICE

Risk of reduced performance when tire pressure is insufficient

Insufficient tire pressure may result in abnormal wear and a shorter driving range.

CAUTION!

Maintenance by a qualified service technician

Only qualified service technicians should perform the maintenance and repair specified in this manual. Read all instructions carefully before proceeding. If any questions arise, contact Permobil for assistance.

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 200–250 kPa (29–36 psi).

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 correct level.

Figure 141. Filling valve

5.6.1 Changing inner tube

ⓘ Applies only if your wheelchair is fitted with pneumatic rear tires.

1. Switch off the main power switch on the control panel
2. Chock up the wheelchair so that the wheel turns freely and let out the air.
3. Remove the wheel, it´s fitted with four screws.
4. Release the air.
5. remove the six screws holding the rim together.
6. Take the rim apart.
7. Replace the inner tube (2) in the tire (3) and fit together with the two rim halves (1&4). Tighten the six screws using a dynamometric wrench. **Tightening torque: 24 N m (18 lb. ft.)**.
8. Fill the tire to recommended tire pressure, 200 kpa (2 bar).
9. Fit the wheel on to the wheelchair. Tighten the four screws using a dynamometric wrench. **Tightening torque: 24 N m (18 lb. ft.)**.

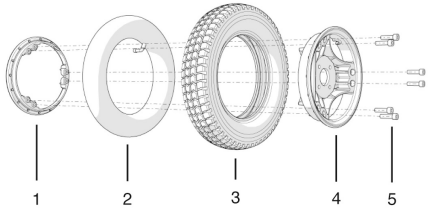


Figure 142. Changing inner tube

5.7 Casters

Filling tires with air

ⓘ Applies only if your wheelchair is fitted with pneumatic tires.

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 200–250 kPa (29–36 psi).

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 correct level.

Figure 143. Filling valve

5.7.1 Inner tube replacement

WARNING!

The recommended tire pressure for front and rear tires is 200–250 kPa (29–36 psi). 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.

ⓘ Applies only if your wheelchair is fitted with pneumatic rear tires.

1. Chock up the wheelchair so that the wheel turns freely and let out the air.
2. Take the wheel rim apart by unscrewing the three Allen screws that hold it together.
3. Replace the inner tube.
4. Put the wheel rim together with the tire. Check that the inner tube is not caught between the halves of the wheel rim. Fill the tire with air.

5.8 Resetting the main circuit breaker and battery isolator

NOTICE

Investigate tripped main circuit breaker

A tripped main circuit breaker often indicates a major electrical fault. The cause of a tripped main circuit breaker must be carefully investigated and determined before resetting the circuit breaker.

NOTICE

Before using the main circuit breaker

Always switch off the power to the control panel before switching off the main power with the main circuit breaker.

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.

Figure 144. Resetting the main fuse

5.9 Brake release

Every month, check that the brake release and the brake release lever(s) are working properly.

When the brakes are released, it must not be possible to drive the wheelchair. If it can be driven, contact an authorized Permobil service center as soon as possible.

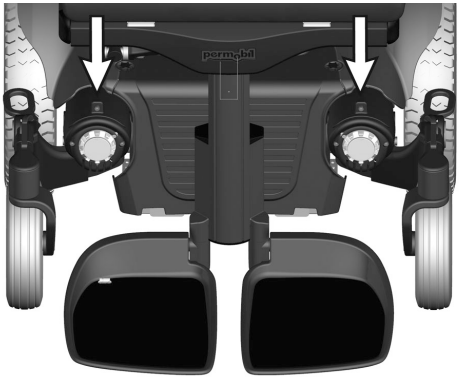


Figure 145. Brake release lever.

5.10 Positioning belt

ⓘ Accessory

Check the condition of positioning belts regularly in case any damage or wear has occurred. If signs of damage or wear appear, replace the positioning belt immediately through your Permobil dealer.

6 Troubleshooting

6.1 Troubleshooting guide

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

Event	Possible cause	Remedy
The wheelchair does not start.	Batteries discharged.	Charge the batteries.
	The cable connection to the control panel has come loose.	Insert the cable in the control panel.
	Main circuit breaker switched to off position after e.g. battery replacement.	Reset the main circuit breaker. See page 189.
	Main circuit breaker tripped.	See page 189.
The wheelchair cannot be driven.	Battery charger connected.	Stop charging. Disconnect the charging cable from the wheelchair charger socket.
	Brake release activated.	Reset the brake release.
	Wheelchair locked.	Unlock the wheelchair.
The wheelchair switches itself off after a certain period of inactivity (1 – 30 min).	The electronics' energy saving mode has been activated.	Switch the wheelchair on again using the start button on the control panel.

Event	Possible cause	Remedy
The wheelchair stops while being driven.	The cable connection to the control panel has come loose.	Insert the cable in the control panel.
	Main circuit breaker tripped.	See page 189.
The wheelchair can only be driven at reduced speed.	Seat lift or seat angle raised too high. Applies only to power seat lift and seat angle.	Lower the seat lift or seat angle.
The wheelchair cannot be charged.	Main circuit breaker switched to off position after e.g. battery replacement.	See page 189.
	The charging circuit breaker has tripped.	Wait five minutes, the circuit breaker will automatically reset.

6.2 Diagnostics R-net LCD control panel

6.2.1 General

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

Troubleshooting and repairs must always be performed by qualified personnel with good knowledge of the wheelchair's electronics.

6.2.2 Diagnostic screens

6.2.2.1 Current diagnostic screen

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

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

NOTICE

The diagnostic screen displays error occasionally

If the fault is in a module not currently in use, it may still be possible to drive the wheelchair, but the diagnostic screen will display occasionally.

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

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

WARNING!

Performing diagnostics

Diagnostics may only be performed by personnel with knowledge of the wheelchair's electronic control system. Incorrect or poorly performed repair works may make the wheelchair dangerous. Permobil accepts no liability for any personal injury or damage to the wheelchair and its surroundings that occur due to incorrect or poorly performed repairs.

NOTICE

Unapproved replacement of parts

If any part is replaced without approval from Permobil, the wheelchair warranty will become void. Permobil accepts no liability for any loss that occurs as a result of a control system component being opened, adjusted or modified without permission.

6.2.3 Example of a screen showing a system fault

6.2.3.1 Identified module

The system fault indicator is displayed on the screen when the control system module has detected a problem. The codes below indicate where the problem is located.

PM = Power module

JSM = Joystick module

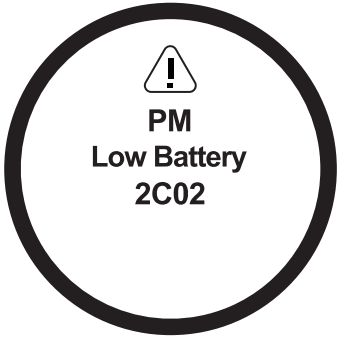


Figure 146. Screen showing system fault indication.

6.2.3.2 Error message

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

6.2.3.3 Error code

The four-digit code indicates which protection circuit has tripped.

6.3 Diagnostics R-net LED control panel

6.3.1 Battery voltage indicator

Each time the wheelchair is started, parts of its electronics are checked. When a fault occurs in these parts, it is displayed on the control panel battery voltage indicator and the indicator for speed or driving profile in the form of one or more flashing LEDs.

Troubleshooting and repairs must always be performed by qualified personnel with good knowledge of the wheelchair‘s electronics.

NOTICE

Error signals

Error messages are not displayed on the indicators while the wheelchair is being driven. They appear when it is next started.

6.3.2 Steady

Everything is in order. The number of LEDs that light up depends on the charge remaining in the batteries. If the batteries are fully charged, all the LEDs light up.

6.3.3 Slowly flashing red LEDs, 1–2 LEDs

The batteries must be charged immediately.

6.3.4 Rapidly flashing, 1–10 LEDs

A fault has been detected in the wheelchair‘s electronics and the wheelchair may not be driven.

1. Switch off the wheelchair.
2. Check that all visible cables and the cable to the control panel are connected correctly.
3. Switch the wheelchair on again. If the fault persists, count the number of flashing LEDs and check for a possible cause and remedy in the following table.
4. Do not use the wheelchair until the problem has been remedied or you have received other information from your service provider.

WARNING!

Performing diagnostics

Diagnostics may only be performed by personnel with knowledge of the wheelchair's electronic control system. Incorrect or poorly performed repair works may make the wheelchair dangerous. Permobil accepts no liability for any personal injury or damage to the wheelchair and its surroundings that occur due to incorrect or poorly performed repairs.

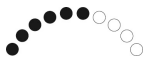
NOTICE

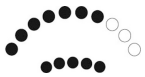
Unapproved replacement of parts

If any part is replaced without approval from Permobil, the wheelchair warranty will become void. Permobil accepts no liability for any loss that occurs as a result of a control system component being opened, adjusted or modified without permission.

6.3.5 Example of error messages and remedies

Event	Indication	Remedy
1 LED Low battery voltage		Check the condition of the batteries. Check the contact between the battery and the control unit.
2 LEDs Failure in left drive motor		Check the connection of the left drive motor.
3 LEDs Short circuit in left drive motor		Check the left drive motor's contacts and cables.

Event	Indication	Remedy
4 LEDs Failure in right drive motor		Check the connection of the right drive motor.
5 LEDs Short circuit in right drive motor		Check the right drive motor's contacts and cables.
6 LEDs Battery charger connected		Disconnect the battery charger.
7 LEDs Joystick error		Check that the joystick has not been moved when starting the wheelchair.
8 LEDs Control system error		Check the connectors between the drive unit and the power module.
9 LEDs Failure in brake circuit		Check the contacts to the magnetic brakes.
10 LEDs High battery voltage		Check the battery and the connectors between the battery and the power module.

Event	Indication	Remedy
7+5 LEDs Communication error		A communication error has been detected. Check that the cable to the control panel is not damaged and is correctly inserted.
Actuator indicator Actuator error		An actuator error has been detected. Contact authorized service for help.

6.4 Repairing defective units

Apart from specific OEM-approved spare parts, there are no replaceable parts in the R-net control system. Contact Permobil for further information on OEM-approved spare parts. Defective units must be sent for repair to Permobil or an authorized Permobil service center.

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