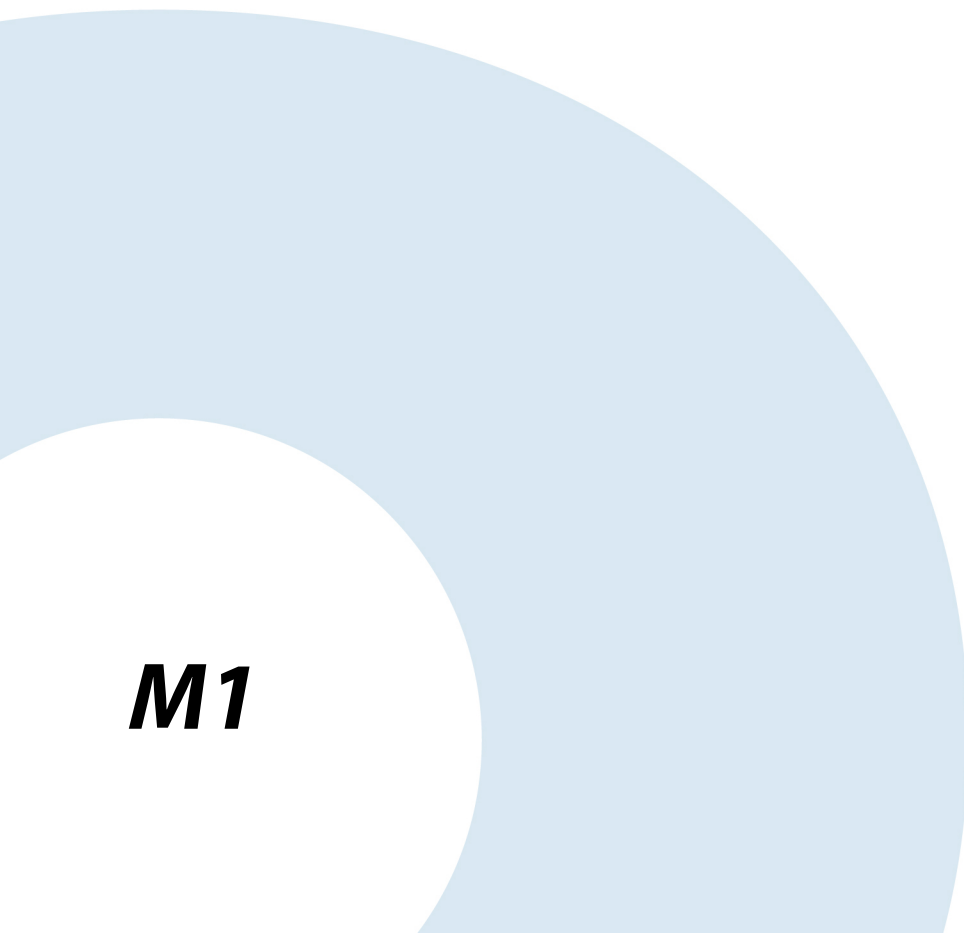


User manual

American English



M1

sold and serviced by:

Summerland Scooters and Rehab
The Plaza
Alstonville NSW 2477

phone: 02 6628 3915
www.summerlandscooters.com.au

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: www.permobil.com.

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 www.permobil.com. 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 requirements according to:

- ANSI/AAMI ES60601-1
- AS/NZS 60335.2.29
- AS/NZS CISPR 14.1
- CAN/CSA-C22.2 No. 60601-1
- EN60601-1
- IEC 60335-2-29
- ISO 7176-21
- ISO 7176-25

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 5.10 *Serial number labels*, Page 259.

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 www.permobil.com. 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.

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 Preparation checklist

In order to make sure that nothing happened to your Permobil product while it was being shipped to you, check the following items before you start using it:

- that all products ordered are included in the delivery, including operating instructions and any additional documentation. If you suspect that something is missing, contact your supplier or Permobil as soon as possible.
- that no shipping damage or other damage has occurred to the product or its accessories. If you discover something that is damaged or appears to be incorrect in some other way, contact your supplier or Permobil for more information as soon as possible before you continue the checks.

We recommend that you charge your wheelchair's batteries before you begin using it.

Always make sure that tires are inflated properly before driving.

If you feel the wheelchair is behaving in an unexpected manner, or if you suspect something is wrong, stop the test drive as soon as possible, switch off the wheelchair and get in touch with your service contact or Permobil for more information.

2.2 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.

2.3 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!****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.

**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.

**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.

**WARNING!****Driving with seat tilt and backrest recline**

Make absolutely sure that nothing gets stuck between the chassis and the seat when seat tilt is operated. Operating 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!****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!****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:

- 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.

**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 accidentally 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 harmonized standards for the EU in the Medical Devices Directive, No. 93/42/EEC.

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

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3.1 Overview

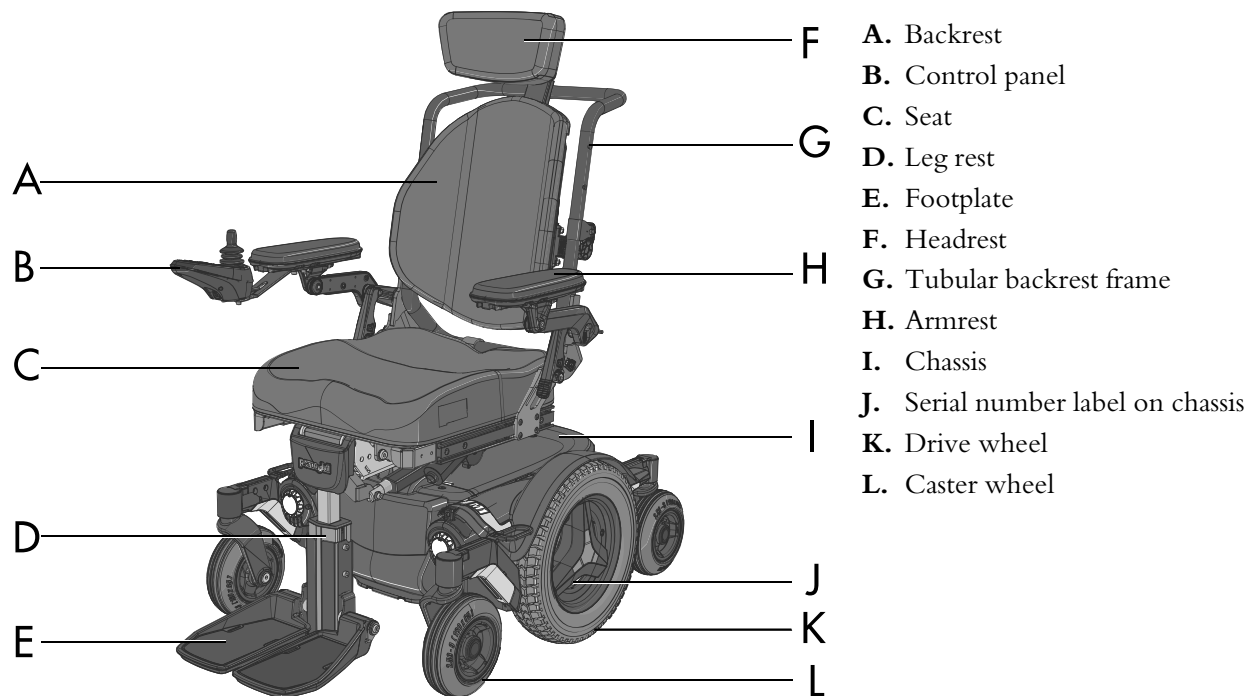


Figure 1. M1 overview.

The M1 is a mid-wheel-drive power wheelchair for indoor use. It is intended for people with physical disabilities. The M1 can be used outdoors with restrictions (see page 186), as it is not an all-terrain wheelchair.

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, backrest, armrest, leg rest and available accessories such as a headrest etc.

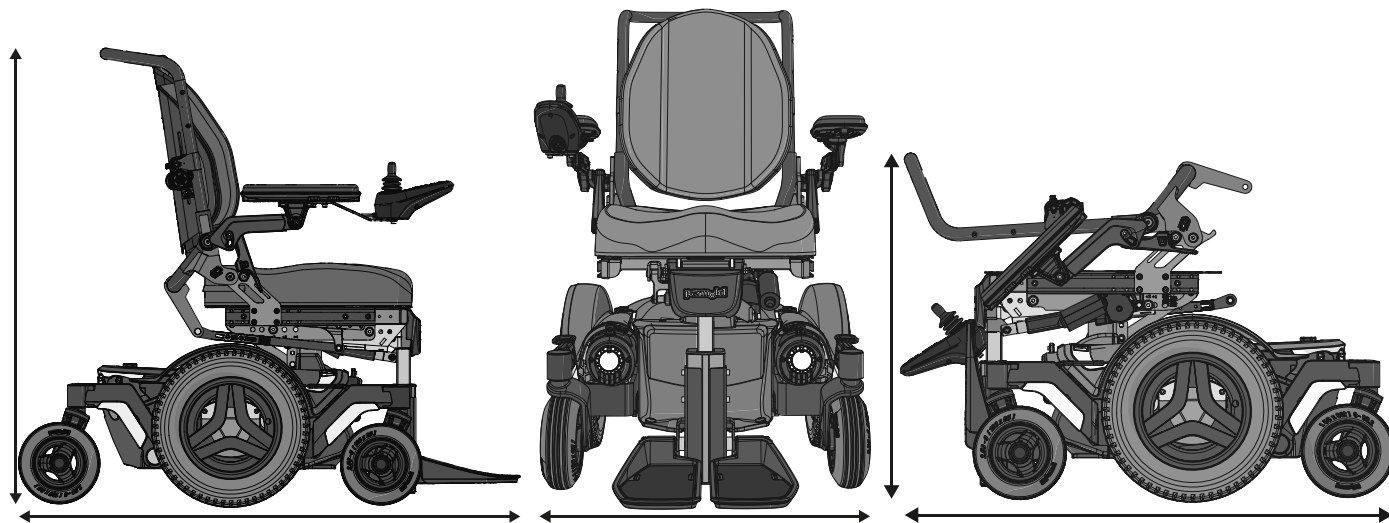
3.2 Technical specifications

Product name (P)

M1

Wheelchair class (W)

B



Base length 39"-42.9"
Base height 38.6"-45.3"

Base width 24.2"-31.5"

Smallest transportation size

i The smallest transportation size is only valid for seats with quick sprint release for backrest frame.

Base length 35.4"-37.4"

Base width 24.2"-31.5"

Base height 24.4"-26.4"

3.2.1 Dimensions and weight

Base length	39"-42.9"
Base width	24.2"-31.5"
Base height	38.6"-45.3"
Weight, including batteries	317.5 lbs
Minimum transportation length	35.4"-37.4"
Minimum transportation height	24.4"-26.4"
Minimum transportation width	24.2"-31.5"
Seat plane angle	0°-50°
Effective seat depth	14"-22" (in 1" increments)
Effective seat width	14"-22" (in 2" increments)
Seat surface height at front edge (with fixed seat tube)	16"/17"/18" (one-time adjustment)
Maximum backrest angle	85°-110° (manual backrest)
Backrest height	16"-22" (in 1" increments)

Backrest width	14"-22" (in 2" increments)
Footrest to seat distance	8"-17" (power) / 7"-17" (manual)
Leg rest to seat surface angle	80°-135° (power) / 80°-130° (manual)
Armrest to seat distance	7"-13.9"
Distance between armrests (2" armrest)	17.1"-25"
Distance between armrests (3" armrest)	15.2"-23"
Front location of armrest structure	0"-23.2"
Horizontal displacement of axle	3.4"

3.2.2 Operating and storage conditions

Operating condition	- 68°F to + 122°F
Storage condition	Dry room, Minimum temperature + 41°F / Charge monthly

3.2.3 Performance

Range	15.8 mi
Maximum speed forward	5 mph
Minimum braking distance from maximum speed	4.3 foot
Hill-climbing ability	18°
Safe slope	7.5°
Static stability forward	18°
Static stability rearward	18°
Static stability downhill	10°

Static stability uphill	10.5°
Static stability sideways	15.5°
Ability to negotiate obstacles (approach distance 0")	1.9"
Ability to negotiate obstacles (approach distance 20")	2.4"
Minimum ground clearance with user weight	3"
Maximum user weight	300 lbs
Required width of angled corridor	33"
Required doorway entry depth	45"
Required corridor width for side opening exiting the corridor	32"
Required corridor width for side opening entering the corridor	28"
Minimum turning diameter	Ø 47" / Radius 0.9"
Pivot width	43"
Reversing width	43"

3.2.4 Wheels

Drive wheel tire dimensions	3,00"x8" Pneumatic / solid
Recommended tire pressure	29–36 psi
Caster tire dimensions	180x65 mm Solid

3.2.5 Electronics

R-net drive electronics type	R-net 90 A
VR2 drive electronics type	VR2 PM90 (Advanced) or VR2 PM70 (Advanced and basic)

3.2.6 Batteries

Standard or recommended battery type	Group 34 Gel
Battery capacity	2x60 Ah
Charging time	8–12 hours
Weight (2 x 60 Ah)	2x42 lbs
Cut-off voltage	17 v (during 40 s)

3.2.7 Control force

Joystick	1.5 N
Keys	2 N

3.2.8 Circuit breakers

Main circuit breaker	63 A
----------------------	------

3.2.9 Car lock (DAHL)

Permitted user weight	300 lbs
-----------------------	---------

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 must be read and understood before use or adjustment.

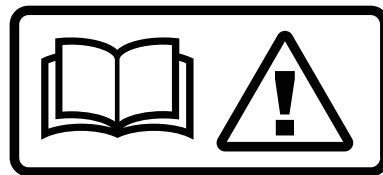


Figure 2. Read the instructions.

3.3.2 Main circuit breaker also battery isolator

The sticker shows the power supply, Off or On.

A description of main circuit breaker function is found on page 258.



Figure 3. Main circuit breaker also battery isolator.

3.3.3 Wheel locks

The sticker shows the wheel lock release lever positions in released and activated states.

A description of wheel lock function is found on page 259.



Figure 4. Wheel locks.

3.3.4 Tie-down point

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

A description of wheelchair transportation is found on page 199.



Figure 5. Tie-down point.

3.3.5 Crush hazard

The sticker indicates a crush hazard.



Figure 6. Crush hazard.

3.3.6 Warning

The sticker indicates that special attention is required.

Exercise extreme caution where this warning symbol appears.

Failure to observe warnings may lead to personal injury, including damage to the wheelchair and other property.



Figure 7. Warning, special attention is required.

3.3.7 Battery connections and main circuit breaker

The sticker shows the polarity for products equipped with 60 Ah battery capacity.

The positive battery cable (+) is shown in red on the sticker.

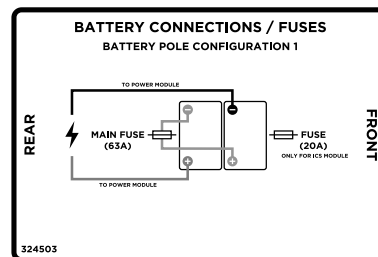


Figure 8. Battery terminals, main circuit breaker and fuse apply to products equipped with 60 Ah batteries.

3.4 Design and function

3.4.1 Seat

3.4.1.1 Power seat tilt

i Applies to wheelchairs equipped with power seat tilt.

The power seat tilt control allows the preferred seat angle to be set within the operating range.

**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.



Figure 9. Power seat tilt.

3.4.1.2 Backrest

Manual backrest angle

The angle of the backrest can be manually adjusted. See page 152 for instructions.

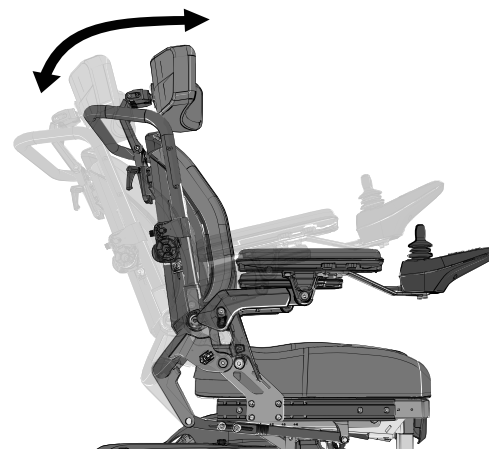


Figure 10. Backrest angle, manually adjusted.

3.4.1.3 Leg rest

Power leg rest angle

The leg rests can be raised to the preferred angle within the operating range.

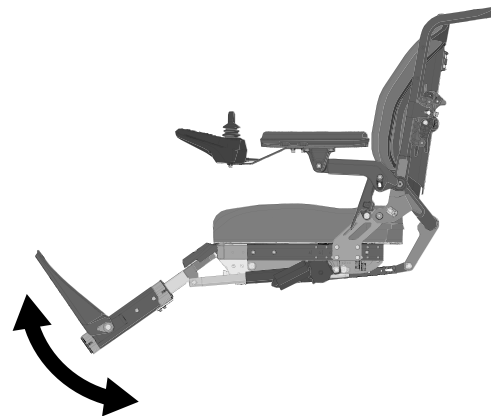


Figure 11. Power leg rests.

Manual leg rest angle

The leg rest can be adjusted and locked in a number of fixed positions. See page 163 for instructions.

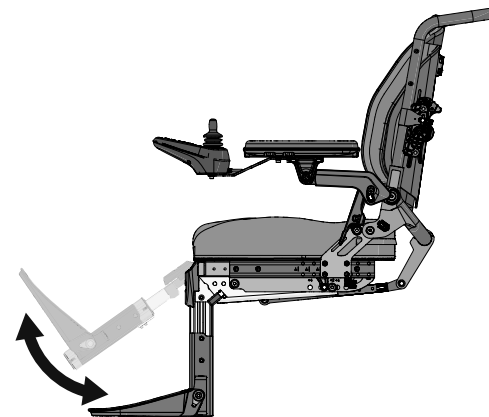


Figure 12. Leg rest angle, manually adjusted.

Swing away leg rest

The Swing away leg rest can be adjusted in a number of positions. See page 166 for adjustment instructions.

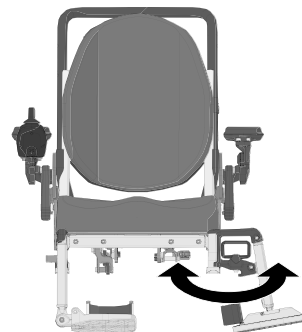


Figure 13. Swing away function.

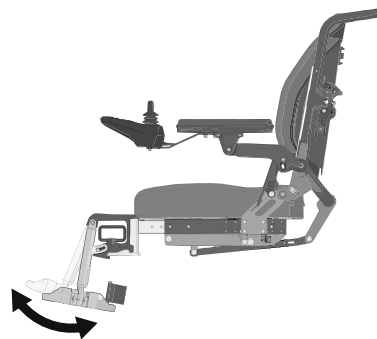


Figure 14. Leg rest angle.

3.4.1.4 Armrest

Armrest fold



WARNING!

Risk of crushing while folding armrests

Beware of moving parts while folding armrest. There is a risk of crushing.

The armrest can now be folded up. The armrests can also be locked in the folded-down position to help the user alter body position.

1. Pull the lever backwards in the direction of the arrow (A) to unlock the armrest. The armrest can now be folded up.
2. In the folded-down position, push the lever forwards to lock the armrest.

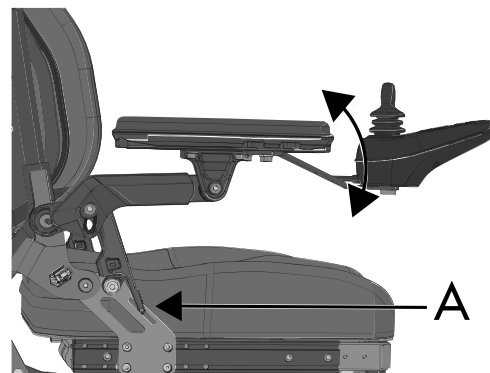


Figure 15. Armrest lock.

3.4.2 Chassis

3.4.2.1 Drive unit and shock absorbers

The wheelchair is equipped with a drive unit (B) and a shock absorber (A) for each drive wheel.



NOTICE

Shock absorber adjustments should be performed by personnel who are well-acquainted with the design and functionality of the wheelchair. When adjustment is needed, contact an authorized Permobil service center.

The drive unit consists of an electric motor with a gearbox and magnetic wheel lock mounted on a swing arm.

3.4.2.2 Wheels

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

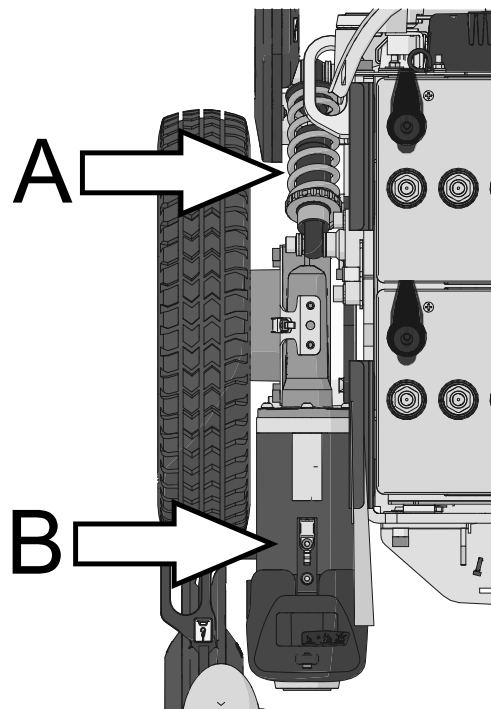


Figure 16. Drive unit and shock absorbers.

3.4.2.3 Lights and reflectors

The wheelchair is equipped with reflectors at the front and rear.

Front lights, rear lights and turn signals are optional.

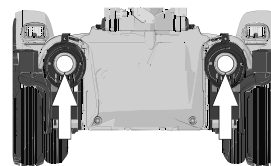


Figure 17. Front reflectors.

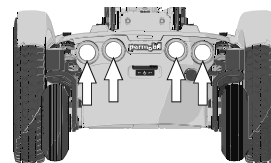


Figure 18. Back reflectors.

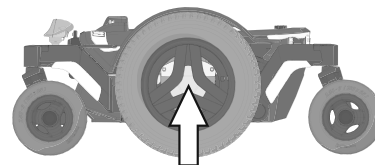


Figure 19. Side reflectors.

3.4.2.4 Batteries

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



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.

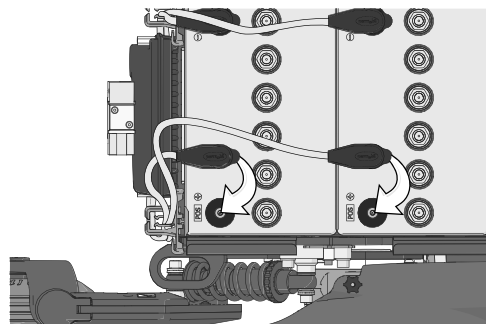


Figure 20. Location of batteries.

3.4.2.5 Main circuit breaker

The wheelchair is equipped with an automatic main circuit breaker that can be reset when it has been tripped.

It also functions as a battery isolator and is controlled, on or off, by using the lever found in a slot in the rear cover of the chassis.



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.

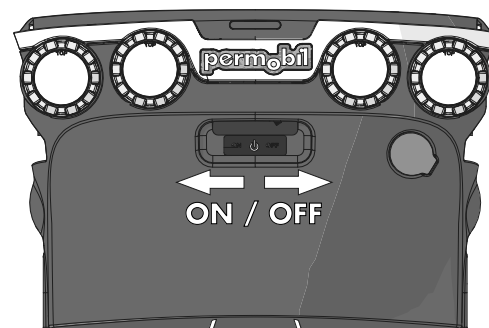
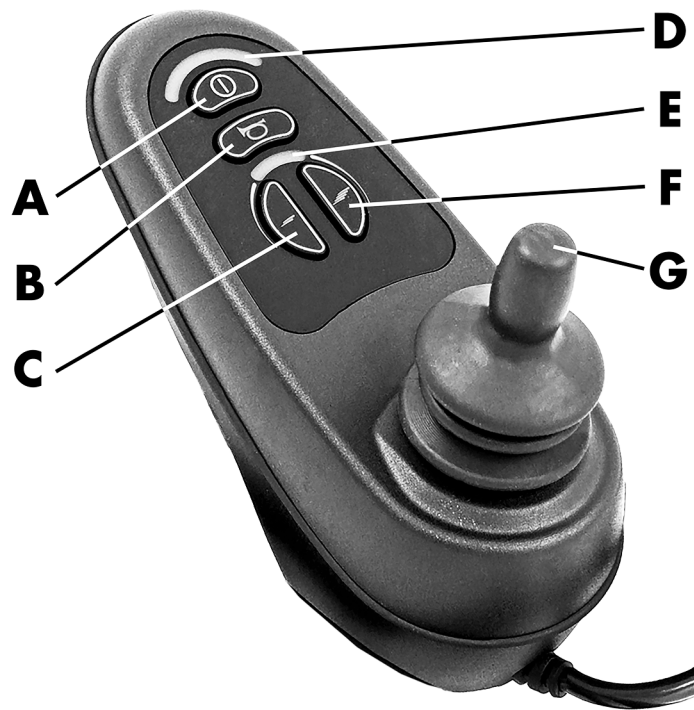


Figure 21 . Main circuit breaker location.

3.5 Control panel

3.5.1 Joystick panel VR2 basic



- A. Main power On or Off.
- B. Horn button.
- C. Speed control, reduce.
- D. Battery voltage indicator.
- E. Speed indicator.
- F. Speed control, increase.
- G. Joystick.

Figure 22. VR2 basic control panel, overview.

3.5.1.1 General

The control panel consists of a joystick and function buttons. The charger socket is located on the front of the panel.

3.5.1.2 Charger socket

This socket may only be used for charging or locking the wheelchair. Do not connect any type of programming cable to this socket. Do not use the socket as a power supply for any other electrical device. Connecting other electrical devices may damage the control system or affect the wheelchair's EMC (electromagnetic compatibility) performance.



NOTICE

Use only the supplied battery charger

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

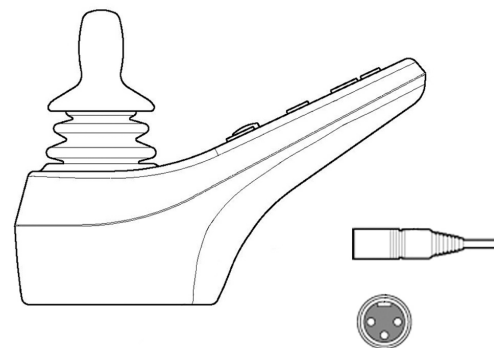


Figure 23. Charger socket.

3.5.1.3 On/Off button

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

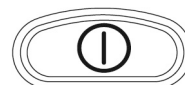


Figure 24. On/Off button.

3.5.1.4 Horn button

The horn will sound while this button is depressed.



Figure 25. Horn button.

3.5.1.5 Maximum speed select

Maximum speed buttons

These buttons reduce or increase the speed of the wheelchair.

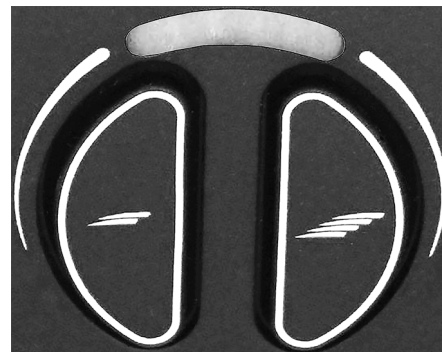


Figure 26. Maximum speed setting buttons and indicator for the selected maximum speed.

Maximum speed indicator

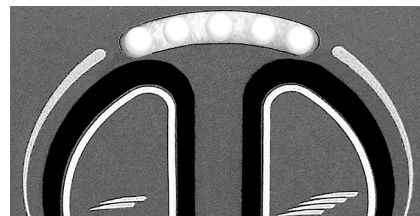
Indicates the maximum speed set for the wheelchair.



NOTICE

Speed indicator also used as a fault indicator

The maximum speed or driving profile indicator also functions as a fault indicator for the wheelchair's electronics. See page 270 for further information.



1 - 2 LEDs
shows low speed



3 - 4 LEDs
shows average speed



5 LEDs
shows maximum speed

Figure 27. Maximum speed indicator.

3.5.1.6 Battery voltage indicator

The battery voltage indicator does not show exactly how much charge is left in the battery, but it provides a rough idea to help you avoid unnecessary stops due to discharged batteries.

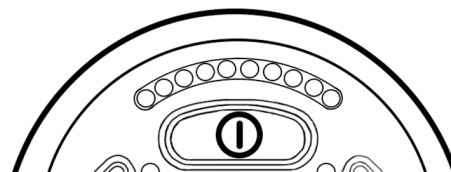
The indicator shows a more precise value about 1 minute after you stop driving and are no longer using any power functions.



NOTICE

Voltage indicator also used as fault indicator

The battery voltage indicator also functions as a fault indicator for the wheelchair's electronics. See page 270 for further information.

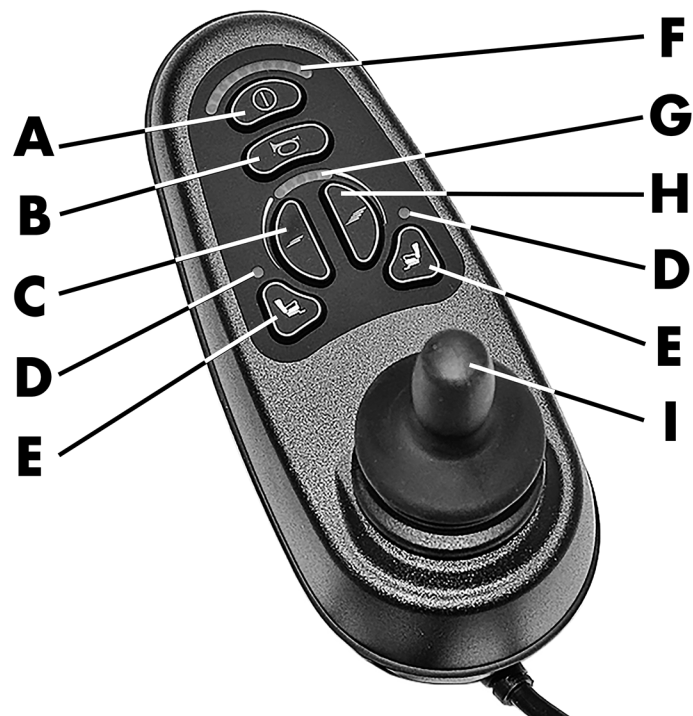


The display shows battery status (from left to right):

Red, Yellow and Green	Fully charged
Red and Yellow	Half charged
Red	Charge the batteries

Figure 28. Battery voltage indicator.

3.5.2 Joystick panel VR2-A two seat functions



- A. Main power On or Off.
- B. Horn button.
- C. Speed control, reduce.
- D. Seat function selected indicator.
- E. Seat function.
- F. Battery voltage indicator.
- G. Speed indicator.
- H. Speed control, increase.
- I. Joystick.

Figure 29. VR2-A control panel with two seat functions, overview.

3.5.2.1 General

The control panel consists of a joystick and function buttons. The charger socket is located on the front of the panel.

3.5.2.2 Charger socket

This socket may only be used for charging or locking the wheelchair. Do not connect any type of programming cable to this socket. Do not use the socket as a power supply for any other electrical device. Connecting other electrical devices may damage the control system or affect the wheelchair's EMC (electromagnetic compatibility) performance.



NOTICE

Use only the supplied battery charger

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

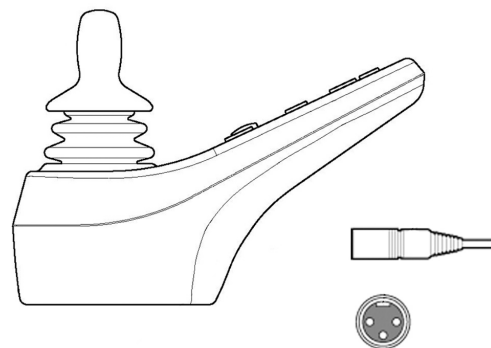


Figure 30. Charger socket.

3.5.2.3 On/Off button

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

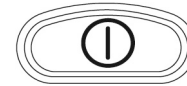


Figure 31. On/Off button.

3.5.2.4 Horn button

The horn will sound while this button is depressed.



Figure 32. Horn button.

3.5.2.5 Maximum speed select

Maximum speed buttons

These buttons reduce or increase the speed of the wheelchair.

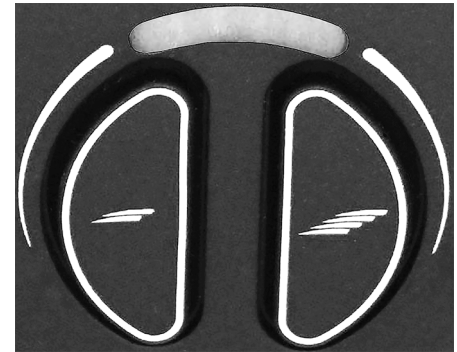


Figure 33. Maximum speed setting buttons and indicator for the selected maximum speed.

Maximum speed indicator

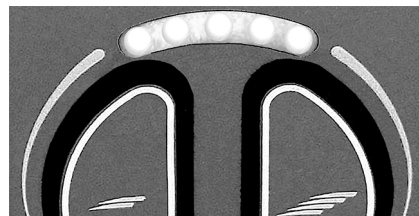
Indicates the maximum speed set for the wheelchair.



NOTICE

Speed indicator also used as a fault indicator

The maximum speed or driving profile indicator also functions as a fault indicator for the wheelchair's electronics. See page 270 for further information.



1 - 2 LEDs
shows low speed



3 - 4 LEDs
shows average speed



5 LEDs
shows maximum speed

Figure 34. Maximum speed indicator.

3.5.2.6 Battery voltage indicator

The battery voltage indicator does not show exactly how much charge is left in the battery, but it provides a rough idea to help you avoid unnecessary stops due to discharged batteries.

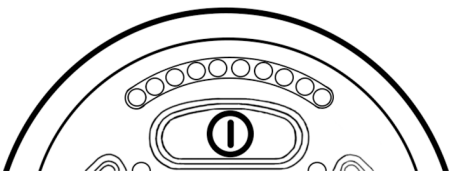
The indicator shows a more precise value about 1 minute after you stop driving and are no longer using any power functions.



NOTICE

Voltage indicator also used as fault indicator

The battery voltage indicator also functions as a fault indicator for the wheelchair’s electronics. See page 270 for further information.



The display shows battery status (from left to right):

Red, Yellow and Green	Fully charged
Red and Yellow	Half charged
Red	Charge the batteries

Figure 35. Battery voltage indicator.

3.5.2.7 Seat function buttons

- i** The VR2-A panel can be used to control two seat functions. Precisely which features are powered on your wheelchair depends on how the wheelchair is equipped.

There are two seat function buttons to control the power functions installed on your seat. A function is activated by pushing one of the buttons. The LED above the button lights up when the function is activated. The chosen function is then controlled with the joystick.

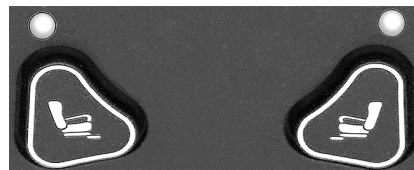


Figure 36. Seat function buttons and LED.

3.5.3 Joystick panel, R-net LED control panel

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.

The wheelchair may also be equipped with a seat control panel in addition to the control panel.



Figure 37. Control panel.

3.5.3.2 Charger socket

This socket may only be used for charging or locking the wheelchair. Do not connect any type of programming cable to this socket. Do not use the socket as a power supply for any other electrical device. Connecting other electrical devices may damage the control system or affect the wheelchair's EMC (electromagnetic compatibility) performance.



NOTICE

Use only the supplied battery charger

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

3.5.3.3 Function buttons

The control panel has a total of 9 function buttons and a joystick.

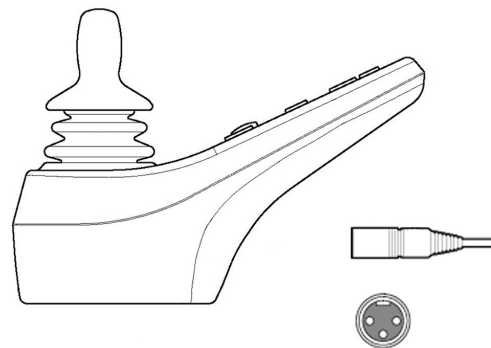


Figure 38. Charger socket.

On/Off button

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

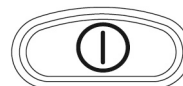


Figure 39. On/Off button.

Horn button

The horn will sound while this button is depressed.



Figure 40. Horn button.

Button and LED for adjusting speed or setting driving profile

This button usually reduces or increases the wheelchair's maximum speed. Alternatively, the button can be used to set the driving profile.

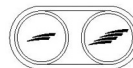


Figure 41. Button and LED for maximum speed or setting the driving profile.

Mode button

These buttons normally reduce or increase the wheelchair's maximum speed. Alternatively, the button can be used to set the driving profile.



Figure 42. Mode button.

Hazard warning button

i Only available if the wheelchair is fitted with lights.

This button switches the wheelchair hazards lights on or off. The hazards lights are used when the wheelchair constitutes an obstruction for others. Push the button to switch the hazard lights on and push it again to switch them off. When activated, the hazard LED will flash in sync with the wheelchair's hazard lights.



Figure 43. Hazard warning button and LED.

Lights button

i Only available if the wheelchair is fitted with lights.

This button switches the wheelchair lights on or off. Push the button to switch the lights on and push it again to switch them off. When on, the lights LED lights up.



Figure 44. Lights button and LED.

Left turn signal button

i Only available if the wheelchair is fitted with lights.

This button switches the wheelchair's left turn signal on or off. Push the button to switch the turn signal on and push it again to switch it off. When activated the left turn signal LED will flash in sync with the wheelchair's turn signal.



Figure 45. Left turn signal button and LED.

Right turn signal button

i Only available if the wheelchair is fitted with lights.

This button switches the wheelchair's right turn signal on or off. Push the button to switch the turn signal on and push it again to switch it off. When activated the right turn signal LED will flash in sync with the wheelchair's turn signal.



Figure 46. Right turn signal button and LED.

3.5.3.4 Battery voltage indicator

The battery voltage indicator does not show exactly how much charge is left in the battery, but it provides a rough idea to help you avoid unnecessary stops due to discharged batteries.

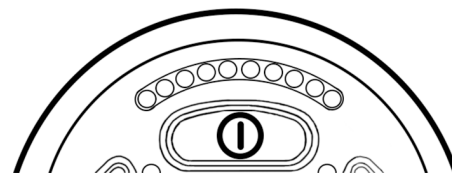
The indicator shows a more precise value about 1 minute after you stop driving and are no longer using any power functions.



NOTICE

Voltage indicator also used as fault indicator

The battery voltage indicator also functions as a fault indicator for the wheelchair's electronics. See page 270 for further information.



The display shows battery status (from left to right):

Red, Yellow and Green	Fully charged
Red and Yellow	Half charged
Red	Charge the batteries

Figure 47. Battery voltage indicator.

3.5.3.5 Maximum speed indicator

Speed

Indicates the maximum speed set for the wheelchair.

Driving profile

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



NOTICE

Speed indicator also used as a fault indicator

The maximum speed or driving profile indicator also functions as a fault indicator for the wheelchair's electronics. See page 270 for further information.

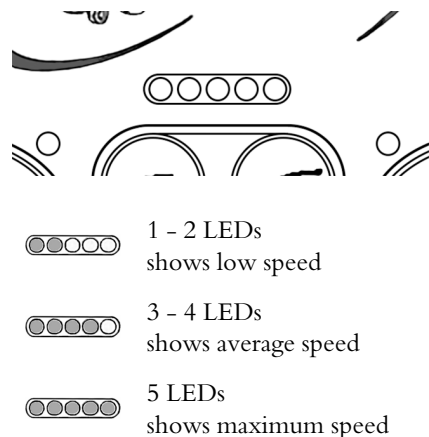


Figure 48. Maximum speed indicator.

3.5.3.6 Seat indicator

On certain seats, the power seat lift, seat angle, backrest angle and leg rest angle functions are controlled by the control panel joystick. In this case, the active seat function is shown on the control panel seat indicator.

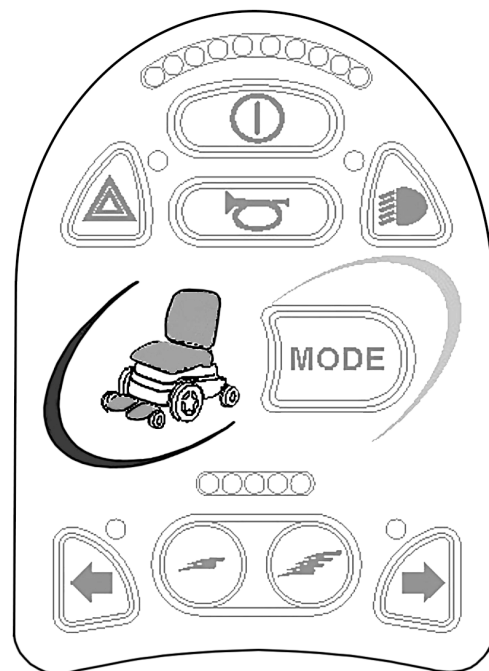
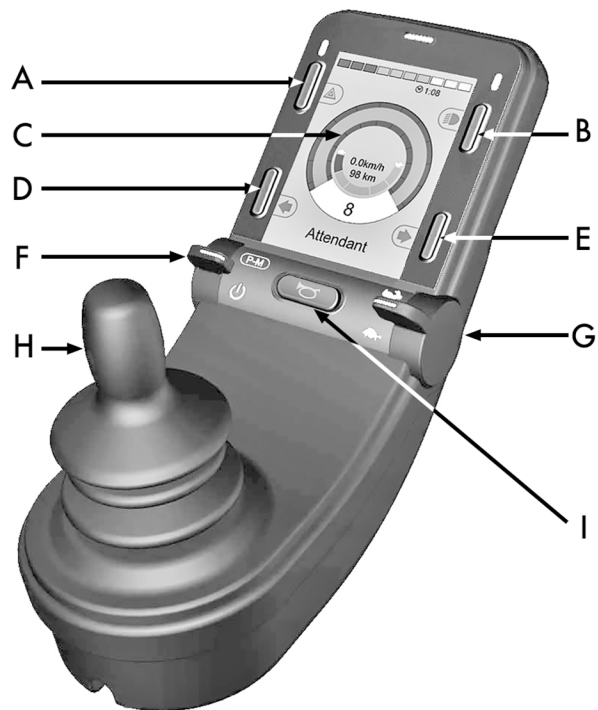


Figure 49. Seat indicator.

3.5.4 Permobil Joystick Module for R-net



- A. Hazard flashers on or off.
- B. Headlights on and off.
- C. Screen.
- D. Left turn signals.
- E. Right turn signals.
- F. Main power On or Off; mode or profile selector.
- G. Maximum speed paddle, decrease or increase.
- H. Joystick.
- I. Horn button.

Figure 50. Permobil joystick panel, 2,8" color display.

The overview image on the preceding page shows the basic functions of the control panel. All buttons, toggle switches and the joystick may have additional functionality.

The charging socket is located on the front of the panel

Figure 51 *Charger socket.*

Two jack sockets are located on the base of the panel. One is intended for an external On/Offswitch and the other for an external profile switch. Figure 60 *Jack sockets.*

The wheelchair may also be equipped with an extra seat control panel in addition to the control panel.

3.5.4.1 Charger socket

This socket may only be used for charging or locking the wheelchair. Do not connect any type of programming cable to this socket. Do not use the socket as a power supply for any other electrical device. Connection other electrical devices may damage the control system or affect the wheelchair's EMC (electromagnetic compatibility) performance.



NOTICE

Use only the supplied battery charger

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

3.5.4.2 Buttons and paddle switches

On the control panel there is a total of 5 buttons and 2 paddle switches.

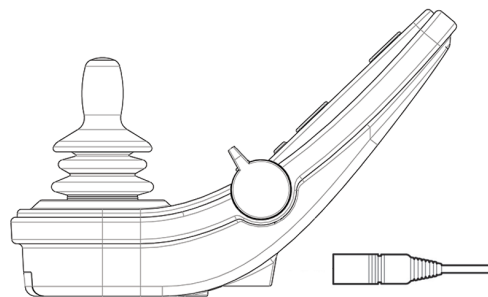


Figure 51 . Charger socket.

Power, mode and profile paddle

The paddle switch is used to switch the control system on or off.

Push the paddle forward to switch the power on and pull it backwards to switch the power off.

The paddle switch can also be used to scroll through the available profiles and modes. Push the paddle forward to scroll through the available profiles and modes.



Figure 52. Power, mode and profile paddle.

i If your panel is equipped with an early version of the toggle switch as shown in figure 53, follow the description below.

Pull on the paddle switch to switch the power on or off.

The paddle switch can also be used to scroll through the available profiles and modes. Push the paddle forward to scroll through the available profiles and modes.

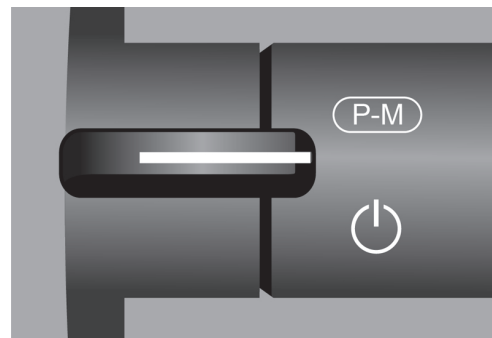


Figure 53. Power, mode and profile paddle switch, early version.

Maximum speed paddle

This paddle decreases or increases the wheelchair's maximum speed. The maximum speed indicator on the display shows the current setting. Push the paddle forward to increase the setting and backwards to decrease the setting.

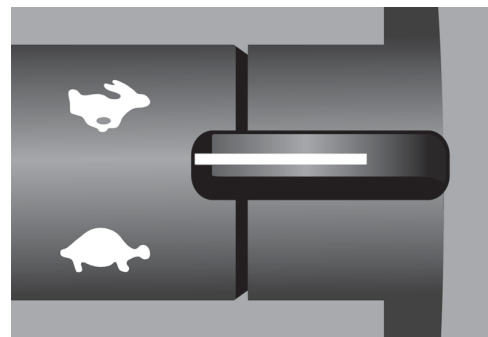


Figure 54. Maximum speed paddle, decrease or increase.

Horn button

The horn will sound while this button is depressed.



Figure 55. Horn button.

Function Buttons

There are a total of four buttons located on the left and right sides of the display. The symbols on the display show the current button function.

Hazard warning button and screen symbol

i Only active if the wheelchair is fitted with lights.

This button switches the wheelchair hazards lights on or off. The hazards lights are used when the wheelchair is positioned such that it constitutes an obstruction for others. Push the button to switch the hazard lights on and push it again to switch them off. When activated the screen symbol will flash in sync with the wheelchair hazard lights.



Figure 56. Hazard warning button and screen symbol.

Lights button and screen symbol

i Only active if the wheelchair is fitted with lights.

This button switches the wheelchair lights on or off. Push the button to switch the lights on and push it again to switch them off. When on, the lights screen symbol lights up.



Figure 57. Lights button and screen symbol.

Left turn signal button and screen symbol

i Only active if the wheelchair is fitted with lights.

This button switches the wheelchair's left turn signal on or off. Push the button to switch the turn signal on and push it again to switch it off. When activated, the left turn signal screen symbol will flash in sync with the wheelchair's turn signal.



Figure 58. Left turn signal button and screen symbol.

Right turn signal button and screen symbol

i Only active if the wheelchair is fitted with lights.

This button switches the wheelchair's right turn signal on or off. Push the button to switch the turn signal on and push it again to switch it off. When activated, the right turn signal screen symbol will flash in sync with the wheelchair's turn signal.



Figure 59. Right turn signal button and screen symbol.

3.5.4.3 Jack sockets

The external On/Off switch jack (A) allows the user to turn the control system on or off using an external device such as a buddy button.

The external profile switch jack (B) allows the user to select profiles using an external device, such as a buddy button. To change the profile while driving, simply press the button.

3.5.4.4 Display

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

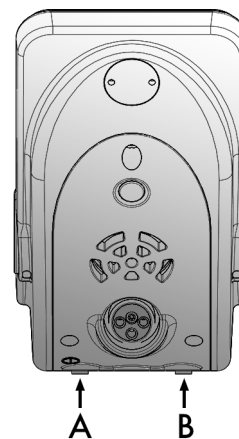


Figure 60. Jack sockets.

Screen symbols

The R-net drive screen has common components that always appear and components that only appear under certain conditions.

- A.** Speedometer
- B.** Profile name
- C.** Battery indicator
- D.** Clock
- E.** Maximum speed indicator
- F.** Current profile

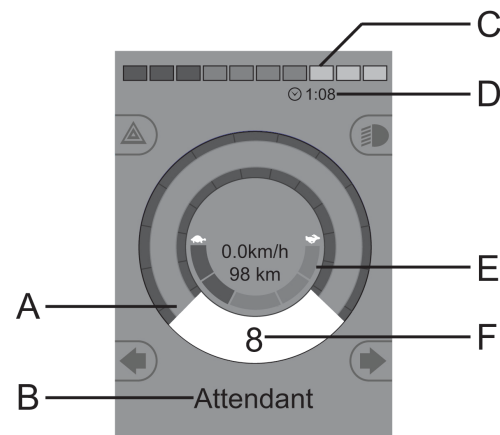


Figure 61 . Drive screen when set to profile 8.

Battery indicator

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

- Steady light: everything is in order.
- Flashing slowly: the control system is functioning correctly, but charge the battery as soon as possible.
- Stepping up: the wheelchair batteries are being charged. The wheelchair cannot be driven until the charger is disconnected and the control system is switched off and on again.



Figure 62. Battery indicator.

Maximum speed indicator

This displays the current maximum speed setting.

The maximum speed setting is adjusted using the speed paddle.



Figure 63. Maximum speed indicator.

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.

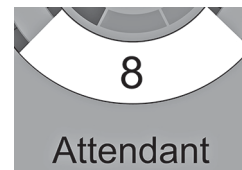


Figure 64. Current profile.

In focus

When the control system contains more than one method of direct control such as a secondary joystick module or a dual attendant module, the module that has control of the wheelchair displays the 'in focus' symbol.



Figure 65. In focus.

Speed limited

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



Figure 66. Speed limited.

Restart

When the control system requires a restart, e.g. after a module reconfiguration, this symbol will flash.



Figure 67. Restart required.

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 68. 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 186, there might be something wrong with the wheelchair. Contact your service technician.



Figure 69. Motor temperature.

Hourglass

This symbol is displayed when the control system is changing states. An example would be entering into programming mode. The symbol is animated to show sand falling.



Figure 70. Hourglass.

Emergency stop

If the control system is programmed for latched drive or actuator operation, then an emergency stop switch is usually connected to the external profile switch jack. If the emergency stop switch is operated or disconnected, this symbol will flash.



Figure 71. Emergency Stop.

Settings Menu

The Settings Menu permits the user to set the clock, display brightness, background color etc.

Press the hazard flasher button for 2 seconds in order to open the menu. Scroll through the menu by moving the joystick back and forth.

A right joystick deflection will enter a submenu with the related function options.

Exit the setting menu by first selecting Exit on the bottom of the menu and then moving the joystick to the right.

The menu items are described in the following sections.

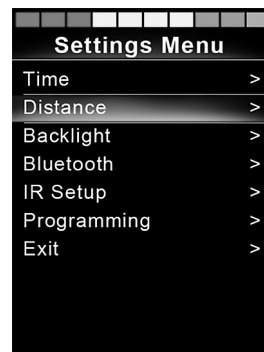


Figure 72. Settings Menu.

Time

The following section describes submenus related to Time.

- Set Time** allows the user to set the current time.
- Display Time** this sets the format of the time display or turns it off. The options are 12hr, 24hr or Off.

Distance

The following section describes submenus related to Distance.

- Total Distance** this value is stored in the power module. It is related to the total distance driven during the time that the current power module has been installed in the chassis.
- Trip Distance** this value is stored in the joystick module; it relates to the total distance driven since the last reset.
- Display Distance** sets whether Total Distance or Trip Distance appears as the odometer display on the joystick module.
- Clear Trip Distance** a right joystick deflection will clear the Trip Distance value.

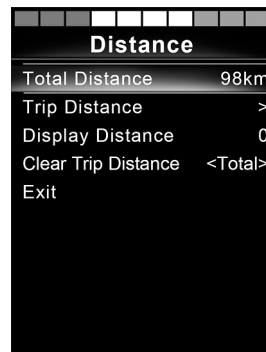


Figure 73. Distance measurement.

Backlight

The following section describes submenus related to Backlight.

Backlight	this sets the backlight on the screen. It can be set between 0% and 100%.
Auto Backlight	the joystick module contains an ambient light sensor to automatically adjust screen brightness. The programmable options are Off or On. Set to On the display adjusts the screen brightness based on the light sensor reading. Set to Off ; screen brightness will not change with changes in light intensity.
Backlight Time	this adjusts the period of time the backlight will remain active once no further instructions are received from an input device, it is adjustable between 0 and 240 seconds.

Bluetooth®

i Applies to control panels equipped with integrated Bluetooth®.

A right deflection of the joystick will enter a submenu to configure the Bluetooth® mode screen. Refer to the Bluetooth® mode chapter for more details, see page 93.

IR Setup

i Applies to control panels equipped with integrated IR.

A right deflection of the joystick will enter a submenu for learning and deleting IR codes. Refer to the IR section for more details; see page 106.

Programming

The following section describes submenus related to Programming.

Sleep	sets the time after which the control system will go to sleep if an input device command is not received.
Sounder Volume	sets the volume of the sounder used to indicate button presses.
Horn Volume	sets the volume of the horn.
Start-up Beep	sets whether not the controller emit a short beep when turned on. Available only in later versions of the control panel.
Momentary Screens	sets whether programmed Momentary Screens are displayed.
Display Speed	sets how the wheelchairs speed is displayed; options are mph, km/h or Off.
Displays	sets the format of the digital drive display; options are odometer, speed or both.

Diagnostics allows the user to read diagnostic information from the control system.

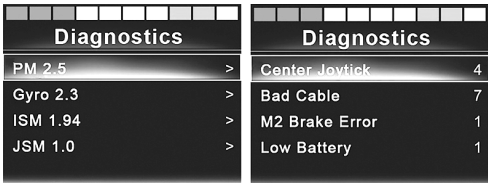


Figure 74. Two samples from the Diagnostic screen.

Timers enables the user to view how many hours the chair has been driven for.

Exit

Exits the Settings Menu.

3.5.4.5 Bluetooth® mode

i Applicable only to R-net control panels, 3,5" or 2,8" color display, with Bluetooth® integrated in the joystick module.
The joystick modules differs in that the 3,5" screen version is equipped with the buttons Mode and Profile, positioned under the screen. Joystick modules with 2,8" screens are more compact and lack these buttons.

General

When a wheelchair is delivered equipped with a control panel containing Bluetooth®, the Bluetooth® functions are pre programmed to a basic setup. This setup is described below.

The basic setup is prepared for pairing of up to four Bluetooth® devices, two PC mice or Android™ devices and two iDevices®, without any additional tools. The setup can be reprogrammed using a programming key and an R-net programmer installed on a computer. With this equipment it is possible to e.g. rename or replace text and icons describing a certain device, activate mouse commands, nudge time, change the cursor speed etc.

Pairing with devices

A device must be set to On from the Settings Menu before it can be paired. Follow the description below.

Settings Menu

Press the hazard flasher button for 2 seconds in order to open the Settings Menu. Select Bluetooth®.

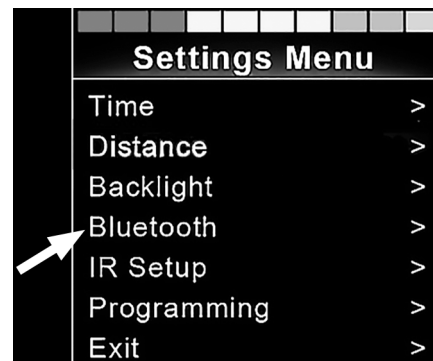


Figure 75. Select Bluetooth® to get access the submenu.

The screen now displays the submenu as illustrated.

Choose a device; set it to On with a right deflection by the joystick.

The R-net system must now be switched off and then on again.

The name of each device can be changed by using a computer with an installed R-net programming tool.

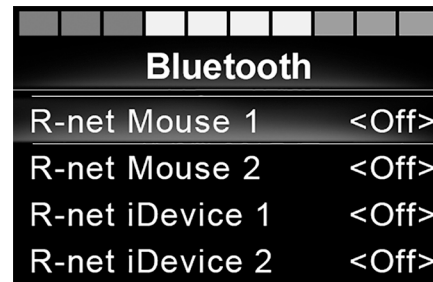


Figure 76. The Bluetooth® submenu.

Pairing setup

The control panel Bluetooth® must then be put into Discovery Mode by following this sequence description:

- Deflect the joystick in the forward direction and hold until there is a beep. This takes approximately 10 seconds; then release.
- Deflect the joystick in the reverse direction and hold until there is a beep. This takes approximately 10 seconds; then release.

The screen will display a flashing Bluetooth® icon above the computer image. This confirms that the control panel Bluetooth® is set in Discovery Mode. It is now discoverable for other Bluetooth® devices.

Pairing with different devices

Depending on the type of device you are pairing with; a PC, an Android™ device or an iDevice®, you will need to follow a specific procedure depending on the device you want to connect to.

Some procedures are described below.



Figure 77. The arrow points to the flashing Bluetooth® icon.

Pairing with a PC

The following process should be carried out on a PC:

- Open the window where you can select a Bluetooth® device to add to the PC. The name and path will differ slightly for different versions of Windows.
- Enter the password 1234 if prompted.
- Click on R-net Mouse X when it appears in the screen and the connection will be finalized. The R-net mouse will now appear in the list of devices on the PC.
- When an connection is established the Bluetooth® icon on the control panel display stops flashing.

Pairing with an Android™ device

The following process should be carried out on the Android™ device

- Select system settings and set Bluetooth® to on.
- Select R-net Mouse X from the list of available devices.
- Enter the password 1234 if prompted.
- R-net Mouse X should now appear as a paired device.
- When an connection is established the Bluetooth® icon on the control panel display stops flashing.

Pairing with iDevice®

The following process should be carried out on the iDevice®.

- Select settings and set Bluetooth® to on.
- Select R-net iDevice® X from the list of available devices.
- R-net iDevice® X should appear as a paired device.
- When an connection is established the Bluetooth® icon on the control panel display stops flashing.

Updating the list of devices

The control panel stores the Bluetooth® IDs of up to four devices.

To replace an entry on the list of devices, one of the existing pairings must be deleted. This process is initiated from the paired device and will vary depending on the type of device.

Once a device is unpaired, a new device can be added.

Operating Bluetooth® devices

This section describes the basic settings of a wheelchair delivered with a control panel with integrated Bluetooth®.

Accessing a Bluetooth® device

The following section describes how to access one of the paired Bluetooth® devices.

To enter Bluetooth® mode

i Joystick module with 2,8" screen is more compact and lacks Mode and Profile buttons.

Press button Mode button (A) a number of times until Bluetooth® mode is entered or press and hold key B for more than 2 seconds to enter Bluetooth® mode, M3.



Figure 78. Two ways to access a Bluetooth® device.

If more than one Bluetooth® device is paired and enabled, a screen will appear where a Bluetooth® device can be selected for connection and use.

If only one Bluetooth® device is enabled it will be shown directly on the screen.

Step between the devices by deflecting the joystick forward or back.

Select the device by right deflection.

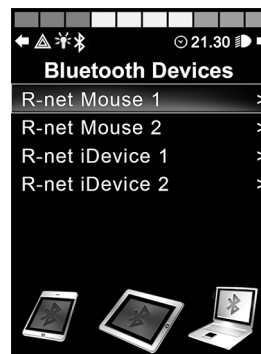


Figure 79. The Bluetooth® Device screen from which paired devices are chosen.

When a Bluetooth® device is selected, the screen will show an icon representing the chosen device type.

If only one Bluetooth® device is enabled, this screen will appear as soon as Bluetooth® mode is activated.

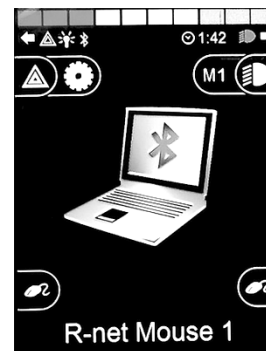
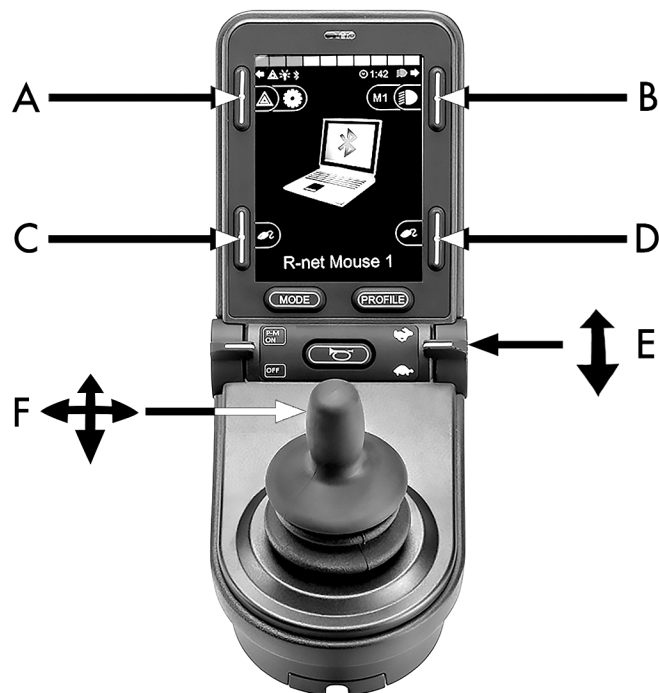


Figure 80. A selected Bluetooth® device.

Operating buttons in Bluetooth® mode



- A. Access settings, page 102.
- B. Return to drive mode, page 102.
- C. Left mouse click, page 103.
- D. Right mouse click, page 103.
- E. Scroll up or down, page 103.
- F. Joystick functions, page 104.

Figure 81 . Buttons and other controllers for operating in Bluetooth® mode.

Buttons A to D, paddle switch E and joystick F, as shown in the previous overview illustration, have predefined functions when a Bluetooth® device is selected in Bluetooth® mode. The functions are described below.

A – accessing settings

Press the button for more than 2 seconds. This opens the Setting Menu (Setting Menu); see *Settings Menu*, Page 88.

A short press turns the hazard flashers on or off.



Figure 82. Button to access settings in Bluetooth® mode.

B – return to drive mode

Press the button for more than 2 seconds. This puts the wheelchair into drive mode.

A short press turns head lights on or off.



Figure 83. Button to return to drive mode from Bluetooth® mode.

C – left mouse click

Press button to perform a left mouse click.



Figure 84. Left button for left mouse clicks.

D – right mouse click

Press button to perform a right mouse click.



Figure 85. Right button for right mouse clicks.

E – scroll up or down

Push the paddle switch to scroll up.

Pull the paddle switch to scroll down.



Figure 86. In mode Bluetooth® the right paddle switch is used to scroll up or down.

F – joystick functions

Move cursor in desired direction by deflecting the joystick.

Nudge forward to scroll up.

Nudge back to scroll down.

Left mouse click; left nudge.

Right mouse click; right nudge.

i A nudge is a quick, full deflection; settings can be changed to accommodate your needs using a computer with the programming tool installed.



Figure 87. With the use of Bluetooth® the joystick can take control of the mouse functions.

Notes - Bluetooth® mode settings changed after delivery

Button, toggle switch or joystick	Function

3.5.4.6 IR mode

- i** Applicable only for R-net control panels with integrated IR, 3.5" or 2.8" color display with IR.

General

The infrared control, integrated in the joystick module, makes it possible to replicate commonly used IR devices, such as remote controls for TV, audio, cable, satellite or environmental controls. IR codes can either be learned without any tools or loaded by the PC-based IR configurator software. The programming abilities of the IR configurator entail more than just loading codes.

This manual describes only the learning method.

The wheelchair is prepared for IR mode but there are no IR codes stored in the system at delivery.

IR setup

IR Setup menu can be accessed via the Settings Menu; see *Settings Menu*, Page 88.

On entering the IR Setup menu, the default appliances will appear. When an appliance is selected, its commands are shown.

When a command is followed by a check mark it means that it has a stored IR code. When a command is not checked, its IR code has not yet been stored.

IR codes can be stored or deleted as described in the following sections.

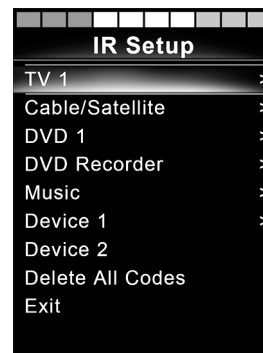


Figure 88. The IR Setup screen.



Figure 89. Commands on the TV MENU screen.

Learning an IR code

The IR receiver is located above the screen on the control panel, marked with an A in the figure.

When learning a code, the remote control device must be held so that its IR transmitter points towards the IR receiver on the control panel, i.e. the little window marked A in the figure.

Learning an IR code procedure

Enter the IR Setup menu.

Select an appliance, e.g. TV – (Device 1) as illustrated. "(Device 1)" shows where the equipment's unique name may appear on the screen.



Figure 90. The IR receiver location.

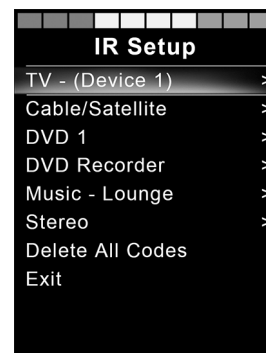


Figure 91 . Sample of IR Setup.

The commands for the appliance will appear on the screen as shown in figure. Select a command to learn.

In this example; Channel Up will be selected from the TV MENU.

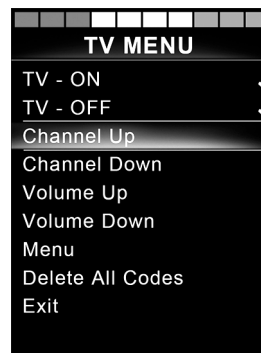


Figure 92. The screen displayed when an appliance has been selected.

Select Learn Code, by deflecting the joystick right while the command is highlighted.

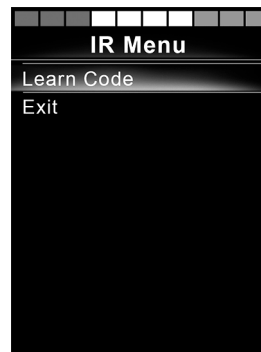


Figure 93. IR Setup menu, Learn Code.

Point the TV remote control towards the control panel's IR receiver and press the channel up button twice.



Figure 94. Point the remote control at the IR receiver. Press the button twice.

If the Learn Code operation has been successfully completed, a green check mark will be displayed on the screen.

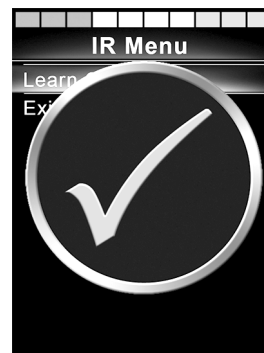


Figure 95. Learning operation successful.

If the Read Code operation fails, a red cross will be displayed on the screen. Please retry the Learn Code operation.

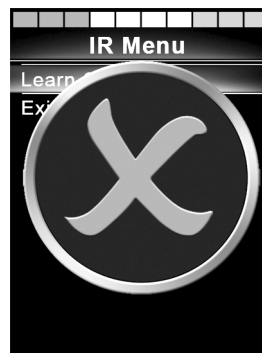


Figure 96. Learning operation unsuccessful.

After the code has been learned, scroll down to highlight Exit. Deflect the joystick to the left to return to the appliance menu, IR Setup.

- i** The first time an IR code is learned, it is necessary to cycle the power by turning the power off at the control panel and on again. If other IR codes have already been learned, it is not necessary to cycle the power.

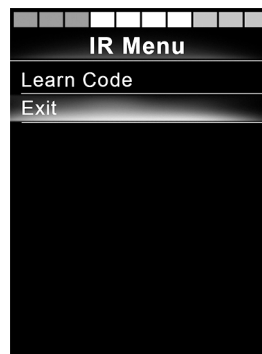


Figure 97. Scroll down to Exit.

Learning sequenced IR codes

Multiple IR codes can be learned for a single command in the IR Setup menu. This enables multiple IR codes to be transmitted through a single command when in IR mode.

Examples:

1. The on/off function for multiple appliances, the TV and the DVD for example, can be learned by a single entry in the IR Setup menu. The control panel will then transmit the codes for the learned command in one burst. In this case, turning the TV set and the DVD recorder on or off practically simultaneously.
2. Previously, selecting a TV channel required the user to select the individual channel's digits from a list. This could be quite inconvenient when trying to select a TV channel with multiple digits e.g. Channel 143. Now the individual codes for the numbers 1, 4 and 3 can be learned by a single command in the IR Setup menu. When this command is selected in IR Setup menu the IR codes are transmitted practically simultaneously.

Create a sequence

- Select the command to use as the sequence initiator. In this example, TV – ON.
- Select Learn Code, by deflecting the joystick to the right while the command is highlighted.
- Point the TV remote control at the control panel's IR receiver and press the On/Off button twice.
- After each successful learn operation a check momentarily appears on the screen, select Learn Code again.
- Point the DVD remote control at the control panel's IR receiver and press the On/Off button twice.
- After each successfully learned operation, a check momentarily appears on the screen, select Learn Code again.
- Complete the sequence by highlighting Exit and deflecting the joystick to the left.
- Now the TV – ON command will have a check mark and three dots beside it, showing a learned sequence.

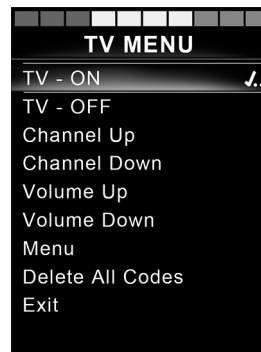


Figure 98. A check mark followed by three dots showing a learned sequence.

Enabling and disabling IR codes

IR codes can be enabled or disabled in the IR Setup menu. If a code is disabled, it will not transmit and will not appear in IR mode.

To disable an IR code, deflect the speed paddle up or down. A disabled IR code appears with an X against the highlighted command.

To enable an IR code, deflect the speed paddles up or down. An enabled code appears with a check mark against the highlighted command.

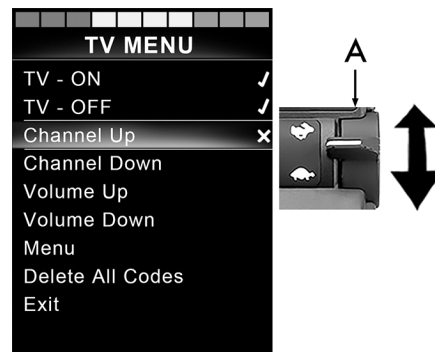


Figure 99. Screen and speed paddle switch marked A.

Deleting IR codes

To delete an IR code for a specific command, highlight the command in the appliance menu and deflect the joystick to the right. Then select the Delete Code option.

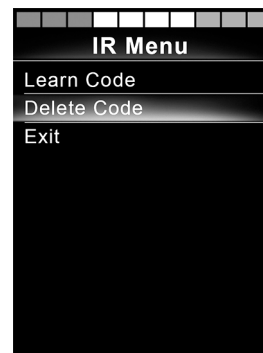


Figure 100. Deleting codes for specific commands.

To delete all IR codes for an appliance, select Delete All Codes within that appliance's submenu.

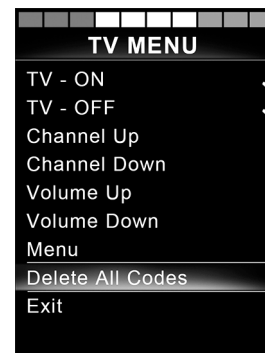


Figure 101. Deleting all codes for a specific appliance.

To delete all IR codes stored in the control panel, select Delete All Codes within the IR Setup menu.



Figure 102. Delete all codes from the IR Setup menu.

3.5.4.7 Locking and unlocking the control system

Locking

- Switch the control system on and move the paddle forward.
- After 1 second the control system will beep. Now release the paddle.
- Deflect the joystick forward until the control system beeps.
- Deflect the joystick rearward until the control system beeps.
- Release the joystick; there will be a long beep.
- The wheelchair is now locked.
- The wheelchair is switched off.



Figure 103. The lock symbol is displayed when the wheelchair is locked.

Unlocking

- If the control system has switched off, move the paddle forward.
- Deflect the joystick forward until the control system beeps.
- Deflect the joystick rearward until the control system beeps.
- Release the joystick; there will be a long beep.
- The wheelchair is now unlocked.

3.5.4.8 Seat functions

Not applicable to all seat models

On some seats, the power functions can be controlled using the control panel joystick. Some models can memorize three seat positions. The seat adjustment mechanism stores each memorized seat position. This makes it easy to retrieve a seat position saved earlier.

Maneuvering the seat

1. Push the mode paddle switch forward one or more times until a seat function icon 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. The icons shown may vary depending on the seat model and available functions.
3. Move the joystick forward or rearward to activate the function.



NOTICE

The symbol M

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

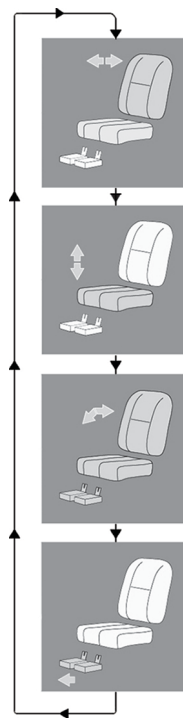


Figure 104. Move the joystick to the left or right to select a function. The icon for the seat function selected appears in the display.

Return to drive mode

Push the mode paddle switch forward one or more times until a standard display image with speed indicator appears in the control panel display.



Figure 105. Standard display image with speed indicator.

Memory

Retrieving position from memory

Some seat control systems can memorize three seat positions. The seat adjustment mechanism stores each memorized seat position. This makes it easy to retrieve a seat position saved earlier.

1. Push the mode paddle switch forward one or more times until a seat function icon appears in the control panel display.
2. Move the joystick to the left or right to select a memorized position (M1, M2 or M3). A seat icon and memory symbol M for the memorized position 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 forward until the seat is fully adjusted to the required position. Once the seat has assumed the saved position, it stops moving.



Figure 106. Memory function activated.



NOTICE

Releasing the joystick stops seat movement

Release the joystick at any time to stop seat movement.

Return to drive mode

Push the mode paddle switch forward one or more times until a standard display image with speed indicator appears in the control panel display.

Saving a seat position to memory

1. Set the seat's power functions to the preferred position.
2. If not activated, activate the seat/memory function by pushing the "Mode" paddle switch forward 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 memorized position (M1, M2 or M3). A seat icon and memory symbol M for the memorized position selected are shown in the control panel display.
4. Move the joystick rearward 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 1.07. Memory function activated.

Return to drive mode

Push the mode paddle switch forward one or more times until a standard display image with speed indicator appears in the control panel display.



Figure 108. Save function activated.

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>.

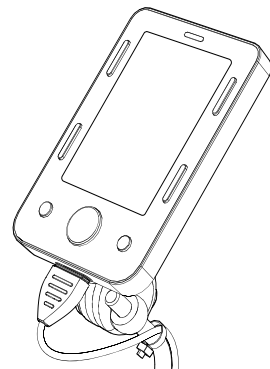


Figure 109. Omni2 display module.

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

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4.1 Settings and adjustments

4.1.1 Cushions

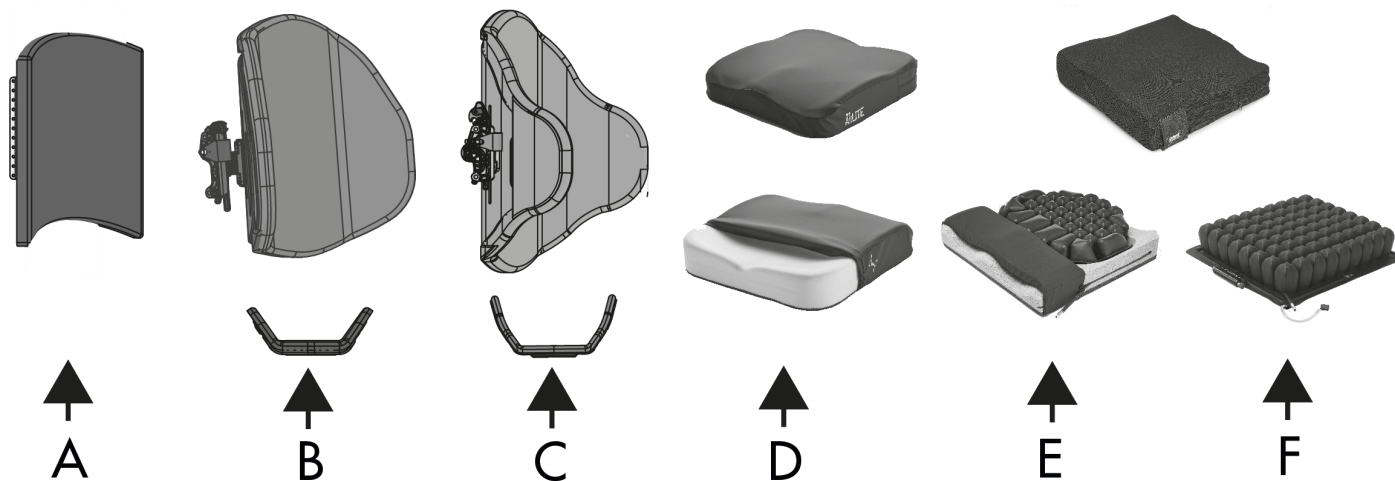


Figure 110. Overview of backrests and cushions.

- A.** Curved solid backrest cushion.
- B.** ROHO® AGILITY® Mid Contour backrest (foam pad or air insert).
- C.** ROHO® AGILITY® Max Contour backrest (foam pad and/or air insert).
- D.** ROHO® AirLITE® seat.
- E.** ROHO® Hybrid Elite SR™ seat.

F. ROHO® QUADTRO SELECT® seat.

4.1.1.1 Curved solid backrest

The curved solid backrest is not adjustable.

4.1.1.2 ROHO® AGILITY® Mid Contour backrest

Checking pressure

- i** A daily check by hand is recommended to ensure the cushion is properly inflated.

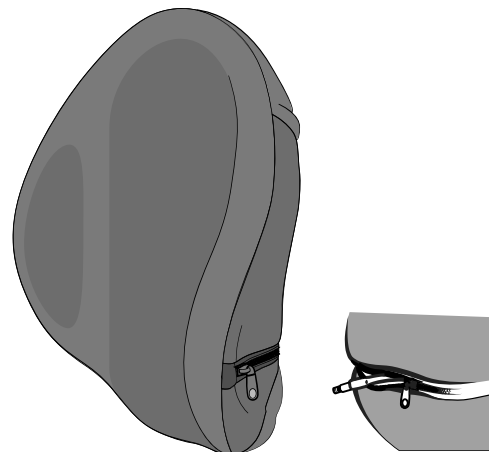


Figure 111. One air insert for back.

Adjusting back air insert

The following items are necessary for this task:

- Hand pump.
1. Slide the pump nozzle over the valve and turn the valve counterclockwise to open.
 2. Inflate the air insert until the cells arch.

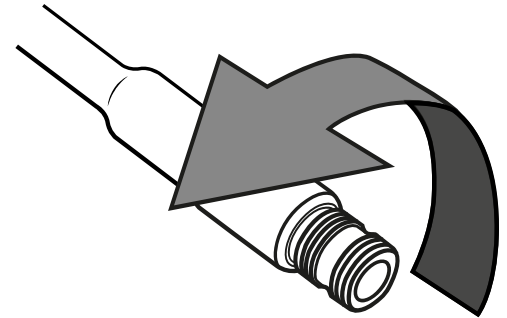


Figure 112. Open valve.



Figure 113. Arched air cells.

3. Pinch the pump nozzle and turn the valve clockwise to close.
4. Remove the pump.

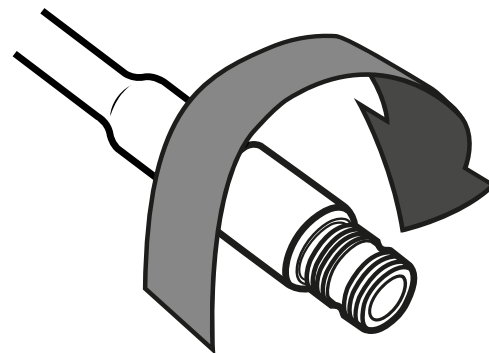


Figure 1 14. Close valve.

5. Position the user in the wheelchair in their preferred posture.
6. Turn the valve counterclockwise to release air until the user is comfortable.
7. Turn the valve clockwise to close.
8. Detach the flap closest to the zipper.
9. Place the valve hose inside the zipper.
10. Zip the cover closed and reattach the flap.

Adjusting lumbar support

The lumbar support pad provides added support to the lumbar region. It may be placed either in front of or in back of the foam pad. Placement behind the foam pad is recommended for models with the air insert. Placement in front of the air insert may reduce the performance of the air insert.

1. Detach the cover flap closest to the zipper and unzip the cover.
2. Place the lumbar support in front of or in back of the foam pad.
3. Secure the lumbar support pad with the fastener strip.
4. Zip the cover closed and re-attach the cover flap.

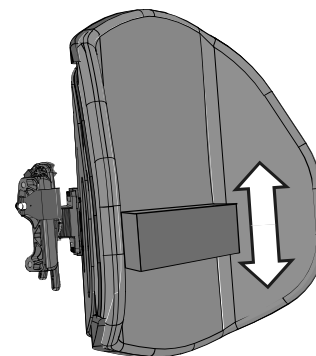


Figure 115. The foam pad.

4.1.1.3 ROHO® AGILITY® Max Contour backrest

Checking pressure

- i** A daily check by hand is recommended to ensure the cushion is properly inflated.

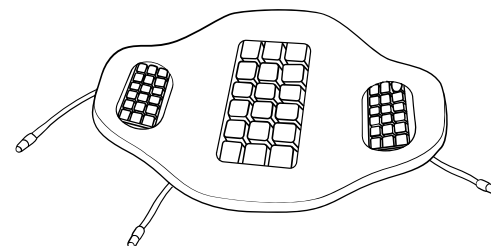


Figure 116. Three air inserts for back and sides.

Adjusting back air insert

The following items are necessary for this task:

- Hand pump.
1. Slide the pump nozzle over the valve and turn the valve counterclockwise to open.
 2. Inflate the air insert until the cells arch.

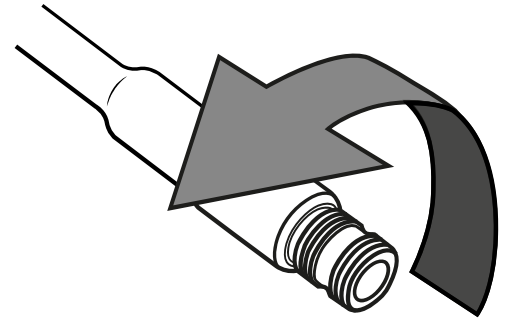


Figure 117. Open valve.



Figure 118. Arched air cells.

3. Pinch the pump nozzle and turn the valve clockwise to close.
4. Remove the pump.

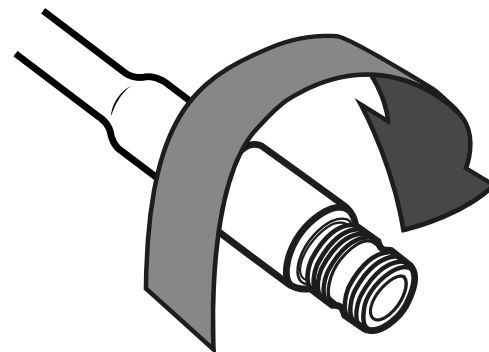


Figure 119. Close valve.

5. Position the user in the wheelchair in their preferred posture.
6. Turn the valve counterclockwise to release air until the user is comfortable.
7. Turn the valve clockwise to close.
8. Detach the flap closest to the zipper.
9. Place the valve hose inside the zipper.
10. Zip the cover closed and reattach the flap.

Adjusting the lateral air insert

The lateral air insert provides the user with additional trunk support and aids positioning.

1. Detach the cover flap closest to the zipper and unzip the cover.
2. Place the lateral air insert in front of or in back of the foam pad.
3. Secure the lateral air insert with the fastener strip.
4. Zip the cover closed and re-attach the cover flap.

Adjusting lumbar support

The lumbar support pad provides added support to the lumbar region. It may be placed either in front of or in back of the foam pad. Placement behind the foam pad is recommended for models with the air insert. Placement in front of the air insert may reduce the performance of the air insert.

1. Detach the cover flap closest to the zipper and unzip the cover.
2. Place the lumbar support in front of or in back of the foam pad.
3. Secure the lumbar support pad with the fastener strip.
4. Zip the cover closed and re-attach the cover flap.

4.1.1.4 ROHO® AirLITE® seat

The ROHO® AirLITE® cushion is not adjustable. The cushion must be properly sized to the user. Weight limit: 300 lbs.

4.1.1.5 ROHO® Hybrid Elite SR™ seat

Checking pressure

i A daily check by hand is recommended to ensure the cushion is properly inflated.

The cushion is most effective when 1/2" – 1" of air is maintained between the cushion insert and the user's lowest bony prominence.

1. Slide your hand between the cushion and the user's buttocks.
2. Lift the user's legs slightly and feel for the lowest bony prominence.
3. Lower the user's leg to a sitting position.
4. At the right air pressure, you will only just be able to move your fingers.

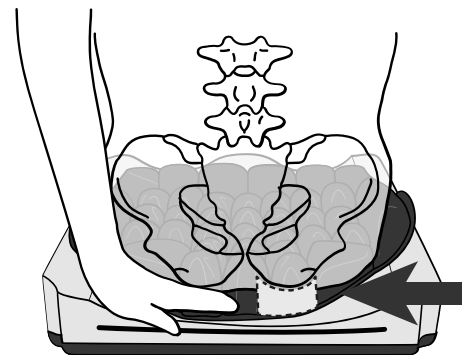


Figure 120. Check pressure.

Adjusting seat air cushion

The following items are necessary for this task:

- Hand pump.

Adjustments are allowed while the user is seated.

The cushion is most effective when $1/2'' - 1''$ of air is maintained between the cushion insert and the user's lowest bony prominence.

1. Turn the valve counterclockwise to open.
2. Slide the pump's rubber nozzle over the air valve and inflate the cushion insert until it begins to arch upward slightly.

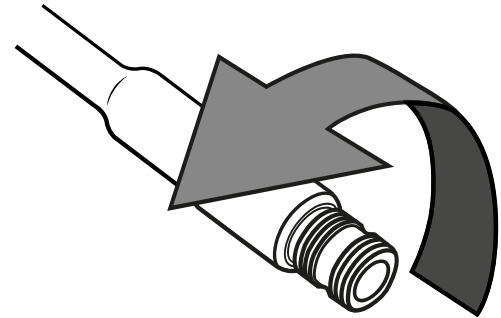


Figure 121. Open valve.



Figure 122. Arched air cells.

3. Pinch the pump nozzle and turn the valve clockwise to close.
4. Remove the pump.
5. Repeat these steps for the remaining air valve on dual air valve cushion inserts.

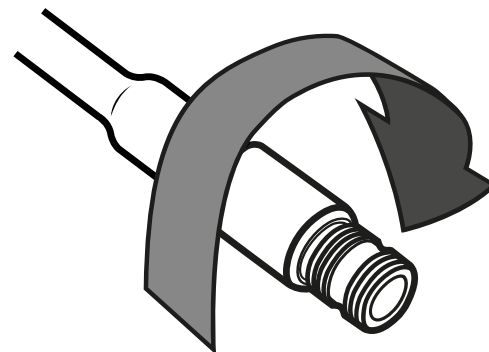


Figure 123. Close valve.

6. After overinflating the cushion, have the user sit on it. Make sure the bony prominence is supported by the air cells.
7. Slide your hand between the cushion and the user's buttocks.
8. Lift the user's legs slightly and feel for the lowest bony prominence.
9. Lower the user's leg to a sitting position.

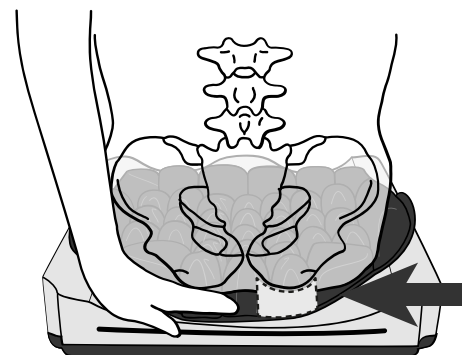


Figure 124. Check pressure.

- 10.** Turn the valve counterclockwise to let out air while keeping your hand underneath the user's lower bony prominence.
- 11.** Release the air until your fingertips are just able to move.
- 12.** Turn the air valve clockwise to close.
- 13.** Repeat these steps for the remaining air valve on dual valve cushion inserts.

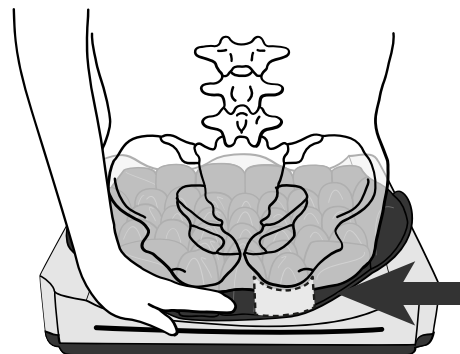


Figure 125. Check pressure.

4.1.1.6 ROHO® QUADTRO SELECT® seat

Checking pressure

i A daily check by hand is recommended to ensure the cushion is properly inflated.

The cushion is most effective when there is no more than 1" and no less than 1/2" of air maintaining between the cushion insert and the user's lowest bony prominence.

1. Slide your hand between the cushion and the user's buttocks.
2. Lift the user's legs slightly and feel for the lowest bony prominence.
3. Lower the user's leg to a sitting position.
4. At the right air pressure, you will only just be able to move your fingers.

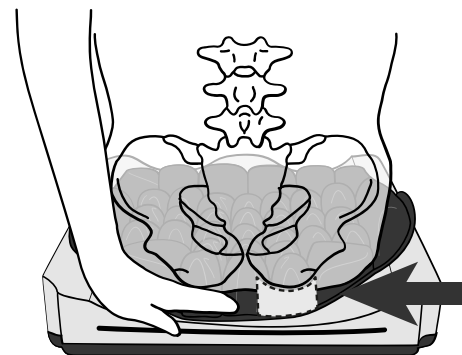


Figure 126. Check pressure.

Adjusting seat air cushion zones

The following items are necessary for this task:

- Hand pump.

Adjustments are allowed while the user is seated.

The cushion is most effective when there is no more than 1” and no less than 1/2” of air maintaining between the cushion insert and the user’s lowest bony prominence.

1. Turn the air valve counterclockwise to open.

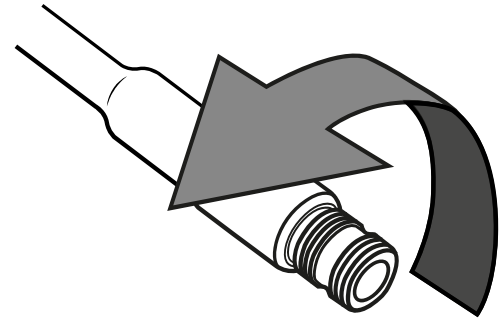


Figure 127. Open valve.

2. Make sure the ISOFLO® Memory Control is also open by pushing the green ISOFLO® knob to the right (A) or unlocked.
3. Slide the pump's rubber nozzle over the air valve and inflate the cushion until it begins to arch upward slightly.

Note that the air will travel to the closest quadrant first and then pass through the ISOFLO® to inflate the other quadrants. This is why the first quadrant looks overinflated when you start the inflation process.

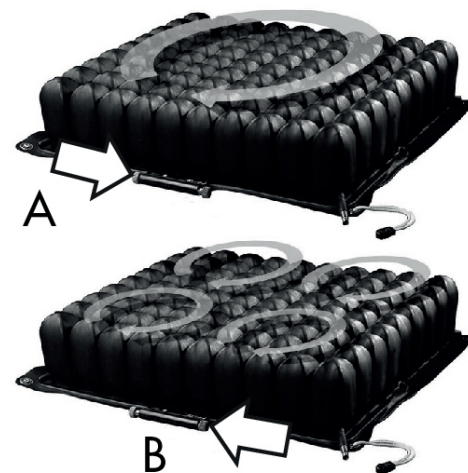


Figure 128. Memory control.

4. Pinch the pump nozzle and turn the valve clockwise to close.
5. Remove the pump.

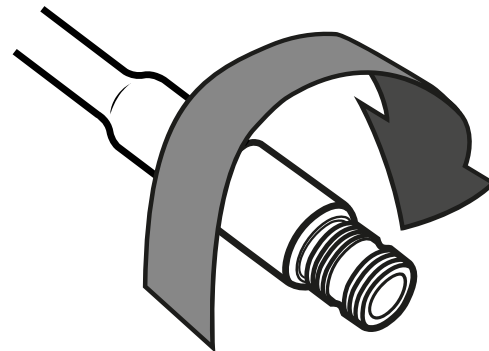


Figure 129. Close valve.

6. Have the user sit in the chair centered on the cushion.
Slide your hand between the cushion surface and the user's buttocks.
7. Lift the user's legs slightly and feel for the lowest bony prominence.
8. Lower the user's leg to a sitting position.
9. Turn the air valve counterclockwise to let out air while keeping your hand underneath the user's lowest bony prominence.
10. Slowly release the air until you can only just move your fingertips.

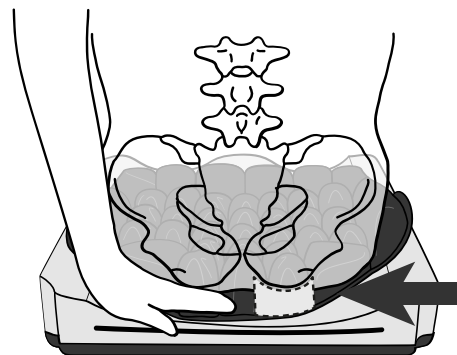


Figure 130. Check pressure.

11. Turn the air valve clockwise to close.

The air will be released first from the quadrant that contains the air valve. Because the air must travel through the ISOFLO® Memory Control, do this in increments. Close the valve and give the air time to equalize to avoid letting too much air out of the cushion.

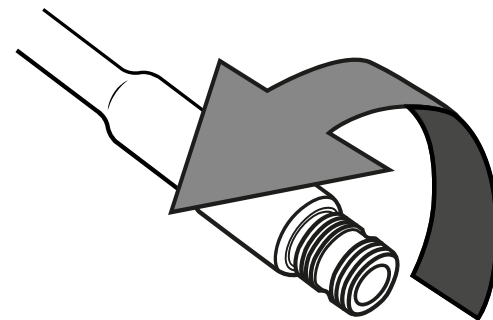
12. Position the user on the cushion in their desired posture and have the user maintain this position while air passes through the ISOFLO® Memory Control.

Figure 131. Open valve.

13. Once the air transfer is complete, push the red ISOFLO® knob to the left (B), in its locked position. This will isolate the flow of air and provide a more stable sitting position.
14. Re-check each part of the cushion to ensure proper inflation.

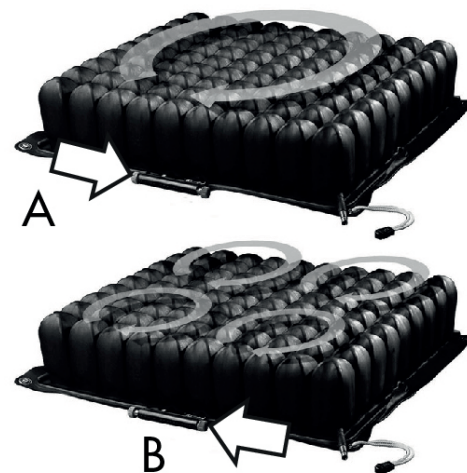


Figure 132. Memory control.

4.1.2 Permobil headrest with link hardware

Accessory

This headrest has expanded adjustment options to give the user optimal comfort. It is easy to find a correct fit for anyone and the headrest may be removed and installed while preserving the same settings.

4.1.2.1 Removing the headrest

1. Undo the handle (B) at the back of the backrest.
2. Remove the headrest by lifting it straight up (A).

4.1.2.2 Installing the headrest

1. Install in the reverse order.

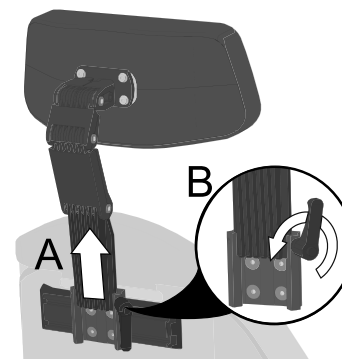


Figure 133. Removal of headrest.

4.1.2.3 Headrest height

1. Undo the handle (B) at the back of the backrest.
2. Remove the headrest by lifting it straight up (A).
3. Adjust the height by changing the placement of the screw on the inside of the bracket. Place the screw in one of the four positions depending on the preferred height. Position 1 provides the lowest setting and position 4 provides the highest setting.

i If position 1 is to be used, all the functions of the chair must be tested using that position to check for interference.

4. Install in the reverse order.

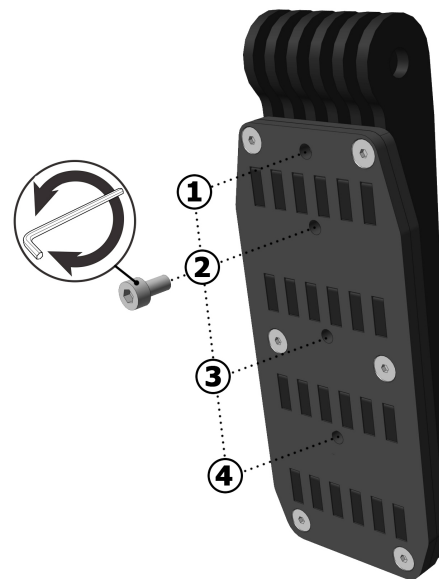


Figure 134. Height adjustment screw.

4.1.2.4 Headrest height and depth

1. Undo the screws located at each link.
2. Adjust the height and depth by angling the links as required.
3. Tighten the screws.

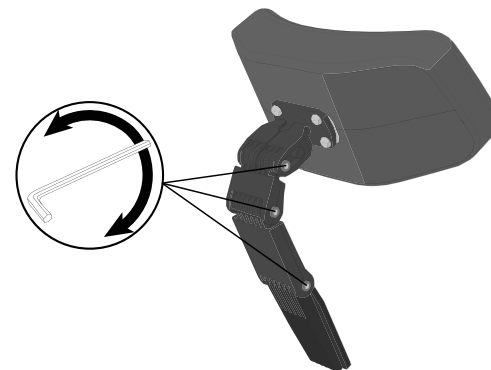


Figure 135. Adjust height and depth.

4.1.2.5 Headrest angle

1. Undo the front screw in the top link (A).
2. Adjust the headrest angle by freely changing the position of the headrest as required (B).
3. Tighten the screw.



NOTICE

Risk of damaging mechanism

Do not put weight on the headrest while adjusting it.

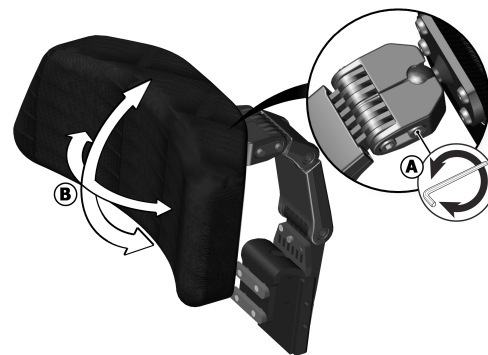


Figure 136. Adjustment of headrest angle.

4.1.3 Backrest

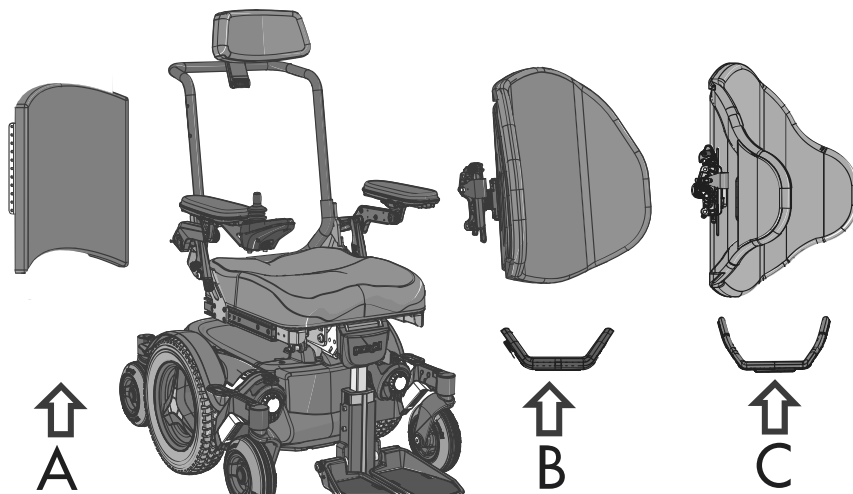


Figure 137. Overview of backrest systems.

- A.** Curved solid backrest.
- B.** ROHO® AGILITY® Mid Contour.
- C.** ROHO® AGILITY® Max Contour.

4.1.3.1 Folding backrest

-  Applicable only for seats equipped with manual quick release to make it possible to enable backrest folding.



WARNING!

Risk of crushing while adjusting backrest

Beware of moving parts while adjusting backrest. There is a risk of crushing.

To make transporting the wheelchair easier, backrests equipped with a manual quick release on the backrest lock pin can be folded in a few simple moves.

1. If equipped with ROHO® AGILITY® Mid Contour or ROHO® AGILITY® Max Contour, remove the ROHO® AGILITY® backrest. See *Removing backrest*, Page 154
2. Verify that the armrests are unlocked. See *Armrest fold*, Page 53.

3. Push the manual quick release button (A in figure 139).
4. Hold the backrest so that it does not drop and pull out the lock pin (B in figure 139).
5. Fold the backrest forward. Make sure cables are not pinched or stretched when folding.

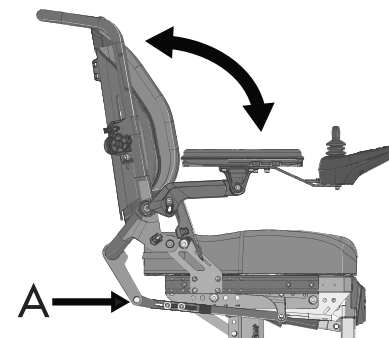


Figure 138. Folding the backrest. (A) Manual quick release position.

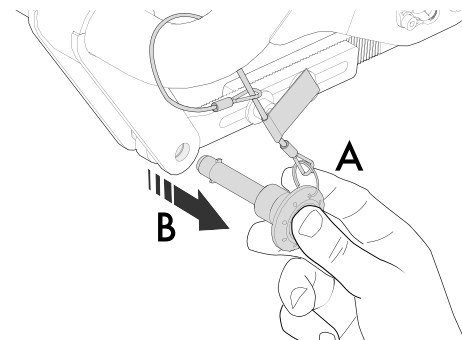


Figure 139. Lock pin for seat equipped with manual quick release. Button (A) releases lock pin.

**WARNING!**

Risk of crushing. Do not remove circlip from lock pin

Risk of crushing or pinching. The lock pin can fall out if the circlip is worn. This may cause the backrest to fold down unintentionally. Do not remove the lock pin if it is secured with a circlip.

4.1.3.2 Backrest frame angle

The following items are necessary for this task:

- Torque wrench.
- Allen socket, 5 mm.

**WARNING!**

Risk of injury while adjusting backrest

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

Adjusting backrest frame angle

1. Secure the backrest by holding it in place before loosen either of the screws, A and B.
2. Loosen the two screws A and B indicated by the arrows.
3. Adjust the backrest to the required angle.
4. Secure the lever by tightening the screws. Tightening torque 7.23 lb.ft.
5. Check that the backrest is locked in position.

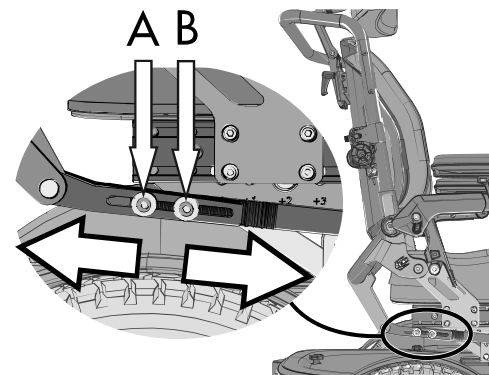


Figure 140. Adjusting backrest frame angle.

4.1.3.3 ROHO® AGILITY®

- i** Applicable for both ROHO® AGILITY® Mid Contour and ROHO® AGILITY® Max Contour.

Removing backrest

1. Release the lock (A) by moving it from position (C) to (B).

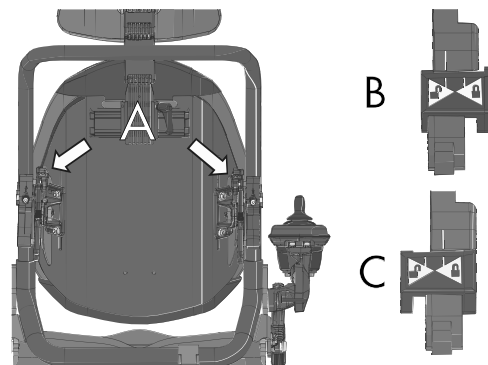


Figure 141 . Removing ROHO® AGILITY® backrest.

2. Flip the levers (A) upward to release the backrest.
3. Lift the backrest upwards and forwards.

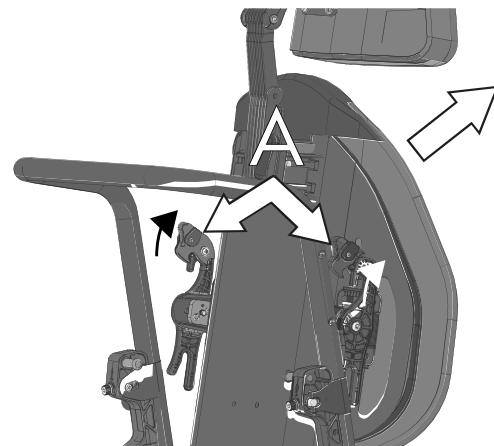
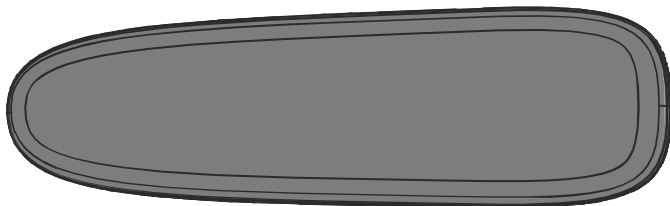


Figure 142. Lift out the backrest.

4.1.4 Armrest

A ⇒



A. Armrest Corpus

B. Armrest PS

B ⇒

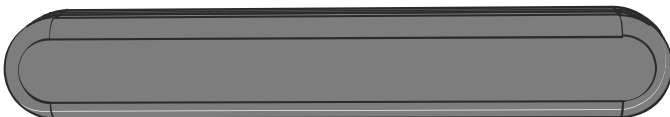


Figure 143. Armrests.

4.1.4.1 Armrest PS

Armrest height

The following items are necessary for this task:

- Torque wrench.
- Allen key socket, 6 mm.

Armrest height is adjustable.

1. Loosen the screw (A) that secures the armrest.
2. Adjust the armrest to the required height.
3. Tighten the screw (A) using a torque wrench. Tightening torque: 7.23 lb.ft.
4. Adjust the armrest angle for maximum comfort. See *Armrest angle*, Page 157.

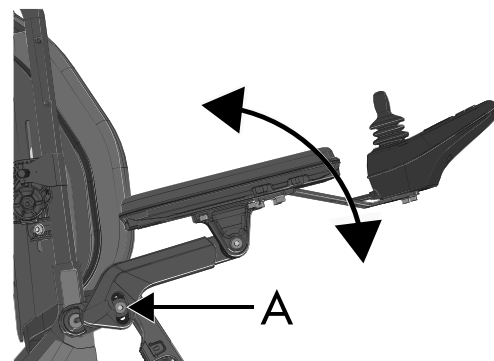


Figure 144. Armrest height adjustment.

Armrest angle

The following items are necessary for this task:

- Torque wrench.
- Allen key socket, 6 mm.

The armrest angle can be adjusted for maximum comfort.

1. Loosen the screw (A).
2. Adjust the armrest to the required angle.
3. Tighten the screw (A) using a torque wrench. Tightening torque: 7.23 lb.ft.

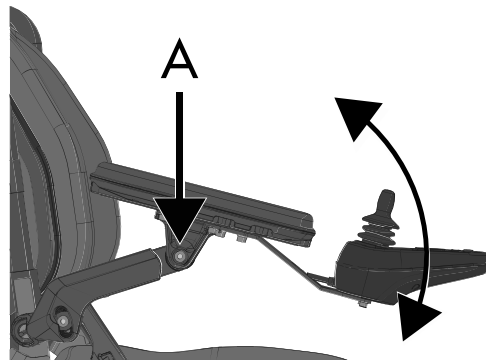


Figure 145. Armrest angle adjustment.

Armrest pad position

The following items are necessary for this task:

- Torque wrench.
- Allen key socket, 5 mm.

Armrest pad position is adjustable for optimal comfort.

1. Loosen the four screws (A) under the armrest.
2. Slide the armrest pad to the required position.
3. Tighten the screws (A) using a torque wrench. Tightening torque: 7.23 lb.ft.

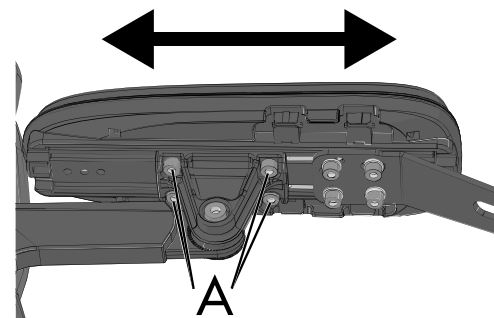


Figure 146. Adjusting armrest pad position.

4.1.4.2 Armrest Corpus

Armrest height

The following items are necessary for this task:

- Torque wrench.
- Allen key socket, 6 mm.

Armrest height is adjustable.

1. Loosen the screw (A) that secures the armrest.
2. Adjust the armrest to the required height.
3. Tighten the screw (A) using a torque wrench. Tightening torque: 7.23 lb.ft.
4. Adjust the armrest angle for maximum comfort. See *Armrest angle*, Page 157.

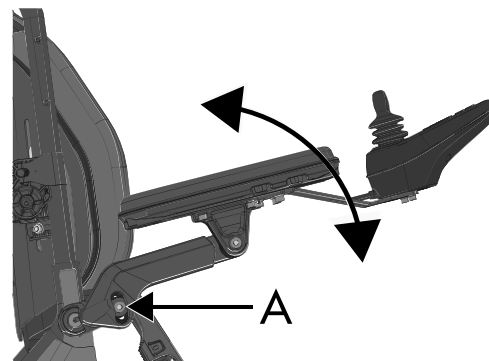


Figure 147. Armrest height adjustment.

Armrest angle

The following items are necessary for this task:

- Torque wrench.
- Allen key socket, 6 mm.

The armrest angle can be adjusted for maximum comfort.

1. Loosen the screw (A).
2. Adjust the armrest to the required angle.
3. Tighten the screw (A) using a torque wrench. Tightening torque: 7.23 lb.ft.

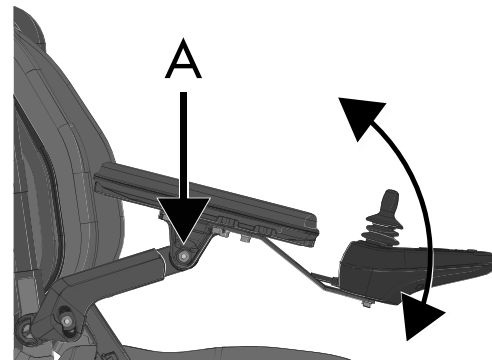


Figure 1 48. Armrest angle adjustment.

Armrest pad position

The following items are necessary for this task:

- Torque wrench.
- Allen key socket, 5 mm.

Armrest pad position is adjustable for optimal comfort.

1. Loosen the four screws (A) under the armrest.
2. Slide the armrest pad to the required position.
3. Tighten the screws (A) using a torque wrench. Tightening torque: 7.23 lb.ft.

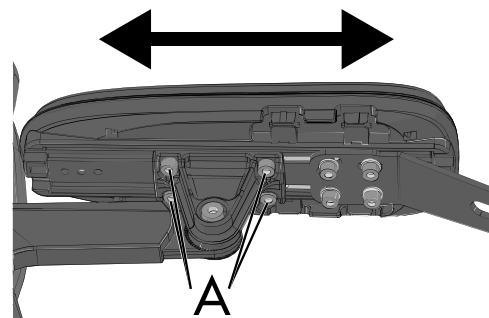


Figure 149. Adjusting armrest pad position.

4.1.5 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.

4.1.5.1 Manual leg rest

Manual leg rest angle

The leg rest can be adjusted and locked in a number of fixed positions. A seat depth between 20" and 22" allows leg rest angles from 80° (B) to 135° (A). With a seat depth between 14" and 19", the leg rest angle (B) will be limited by the front cover to 87.5°.

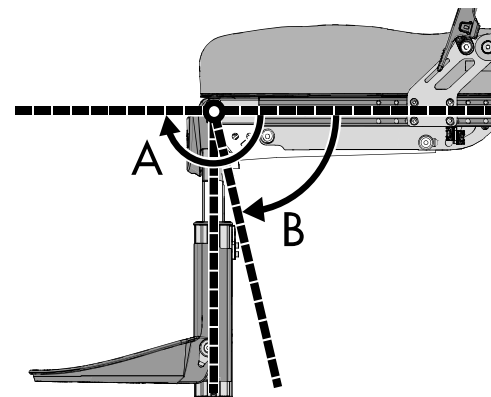


Figure 150. Maximum and minimum adjustment limits.

The following steps describe manual adjustment of the leg rest angle.

1. Release the leg rest by pulling out the lock lever (A).
2. Hold the lock lever and adjust the leg rest angle to the required angle.
3. Release the lock lever (A).
4. Check that the lock lever has returned to its locked position.



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.

Leg rest length

The following items are necessary for this task:

- Torque wrench.
- Allen key socket, 3 mm.

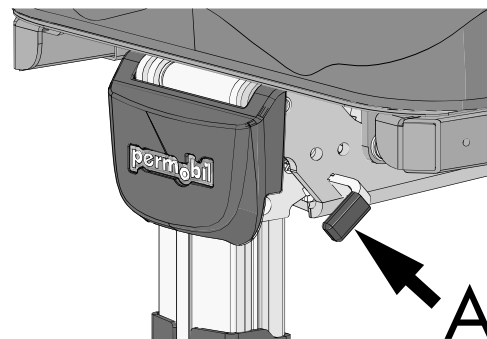


Figure 151. Release the lock lever (A) to manually adjust the leg rest angle.

The length of the leg rest profile can be adjusted by a strap on the back.

1. Loosen the two screws holding the web belt bracket (A).
2. Release the web belt (A) on the back of the leg rest.
3. Move the leg rest to the inner end position.

i Make sure that the outer profile does not touch or collide with the actuator arm. If so, loosen the web belt on the back of the outer profile and continue the leg rest to the inner end position.

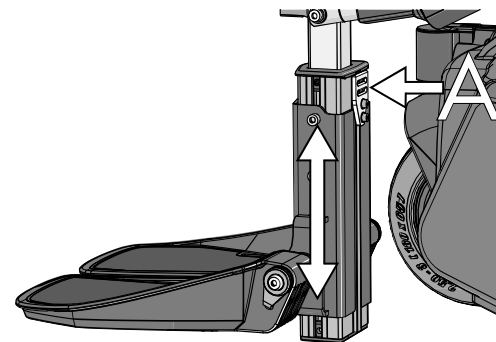


Figure 152. Adjusting leg rest length.

4. Push up the outer profile to which the footplates (A) are installed. Adjust the web belt until the distance (d) is 0.08" – 0.39" between the outer profile and the actuator arm.
5. Tighten the web belt.
6. Run the leg rest to vertical position and back to inner end position.
7. Check the distance (d).
8. Tighten the screws. Tightening torque: 2.1 lb.ft.
9. Check that the footplates are fully secured.

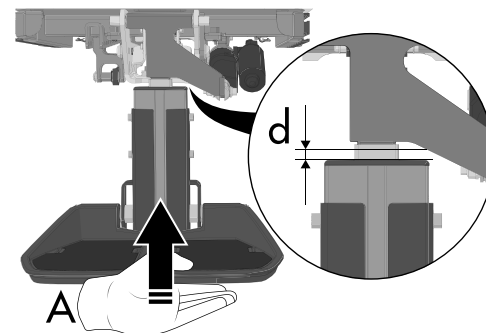


Figure 153. Adjust the web belt.

**WARNING!****Ensure adequate footplate clearance**

After footplate adjustment and with the seat in an upright position, ensure there is at least 1" clearance between the ground and the footplate at all times when moving the leg rest in or out. Perform this test first without the user sitting in the wheelchair and again with the user sitting in the wheelchair with his or her feet on the footplates.

4.1.5.2 Swing away 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.

**CAUTION!****Ensure clearance for the caster wheels**

Make sure that there is clearance between the leg rests and the caster wheels, and the footplates and the caster wheels. If you do not pay attention to this clearance, the leg rests, footplates, and caster wheels can be damaged.

- i** When the wheelchair has been driven in reverse, the caster wheels will turn and face the opposite direction.

Swing away leg rest angle

The following items are necessary for this task:

- Torque wrench.
 - Allen key socket, 5 mm.
1. Release the leg rest by loosening the screws (A) and (B).
 2. Adjust the leg rest angle to desired position.
 3. Tighten the screws (A) and (B). Tightening torque: 7.2 lb.ft.
 4. Check that the leg rest are fully secured.

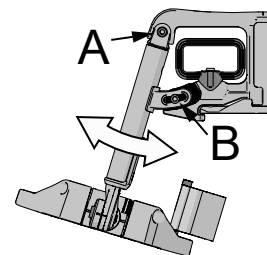


Figure 154. Swing away leg rest angle adjustment.

Swing away leg rest length

The following items are necessary for this task:

- Torque wrench.
 - Allen key socket, 3 mm.
1. Release the lower part of the leg rest by loosening the screws (A).
 2. Adjust the leg rest length to desired position.
 3. Tighten the screws (A). Tightening torque: 5.5 lb.ft.

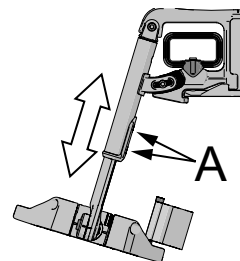


Figure 155. Swing away leg rest length adjustment.

4.1.6 Footplate

4.1.6.1 Footplate, Manual leg rest

Footplate angle



WARNING!

Risk of injury while adjusting footplates

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

The following items are necessary for this task:

- Block wrench, 10 mm.
- Allen key, 5 mm.

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

1. Tilt up the footplate.
2. Loosen the lock nut (A).
3. Set to the required angle by adjusting the stop screw (B) in or out.
4. Lock the stop screw in the required position by fastening the lock nut (A).

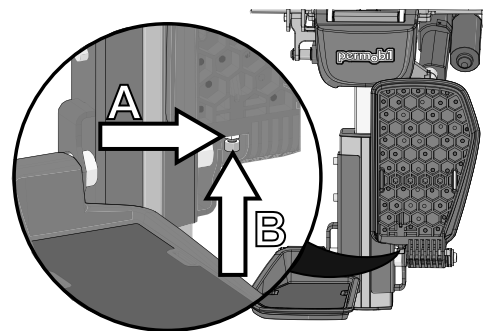


Figure 156. Adjusting footplate angle stop screw.

Footplate height

The following items are necessary for this task:

- Torque wrench.
- Allen socket, 5 mm.

Footplate height is adjustable individually and steplessly.

1. Loosen the two screws (A).
2. Adjust the footplate bracket to the required height.
3. Secure by fastening the two screws (A).

Tighten the screws. Tightening torque: 7.23 lb.ft.

4. Check that the footplate is fully secured.



WARNING!

Ensure adequate footplate clearance

After footplate adjustment and with the seat in an upright position, ensure there is at least 1" clearance between the ground and the footplate at all times when moving the leg rest in or out. Perform this test first without the user sitting in the wheelchair and again with the user sitting in the wheelchair with his or her feet on the footplates.

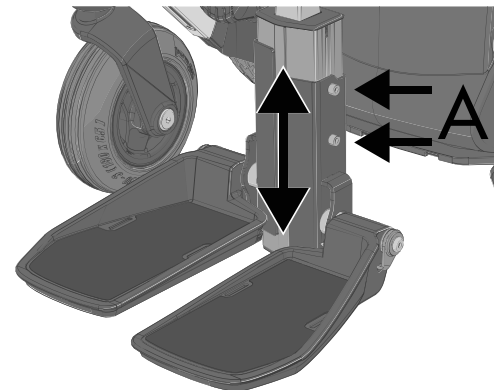


Figure 1.57. Adjusting footplate height.

4.1.6.2 Footplate, Swing away leg rest



CAUTION!

Ensure clearance for the caster wheels

Make sure that there is clearance between the leg rests and the caster wheels, and the footplates and the caster wheels. If you do not pay attention to this clearance, the leg rests, footplates, and caster wheels can be damaged.



When the wheelchair has been driven in reverse, the caster wheels will turn and face the opposite direction.

Vertical footplate angle adjustment, Swing away leg rest



WARNING!

Risk of injury while adjusting footplates

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

The following items are necessary for this task:

- Allen key, 6 mm.

1. Angle up the footplate 90 degrees.

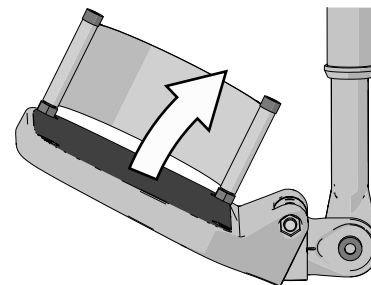


Figure 1 58. Footplate 90 degree angle.

1. Loosen the screw (A).
2. Adjust the angle of the footplate.
3. Tighten the screw (A). Tightening torque: 17.7 lb.ft.

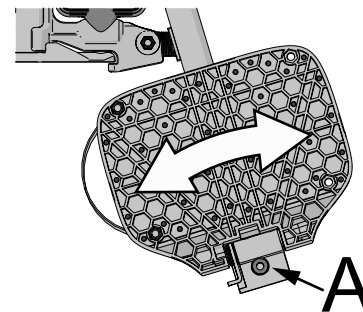


Figure 1 59. Footplate angle.

Horizontal footplate angle adjustment, Swing away leg rest**WARNING!****Risk of injury while adjusting footplates**

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

The following items are necessary for this task:

- Torque wrench, 10 mm.
- Allen key, 6 mm.

1. Loosen the screw (A).
2. Adjust the angle of the footplate.
3. Tighten the screw (A). Tightening torque: 17.7 lb.ft.

**WARNING!**

Ensure adequate footplate clearance

After footplate adjustment and with the seat in an upright position, ensure there is at least 1" clearance between the ground and the footplate at all times when moving the leg rest in or out. Perform this test first without the user sitting in the wheelchair and again with the user sitting in the wheelchair with his or her feet on the footplates.

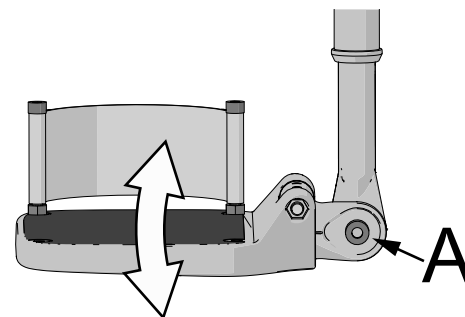


Figure 160. Swing away leg rest footplate angle adjustment.

4.1.7 Panel Holder

4.1.7.1 Fixed panel holder

i The fixed panel holder can be installed on the left or right armrest.

The following items are necessary for this task:

- Torque wrench.
- Allen key, 4 mm.
- Allen key, 5 mm.

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.

Length adjustment

1. Loosen the four screws (A) on the panel joint and adjust the panel to the correct position.
2. Tighten the screws. Tightening torque: 7.23 lb.ft.

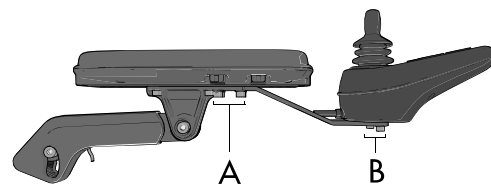


Figure 161. Panel holder overview.

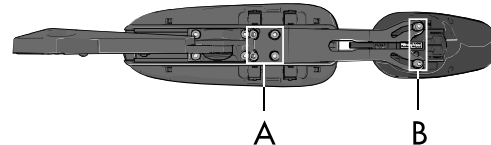


Figure 162. Screws for adjusting the panel holder length and angles.

Angle adjustment

1. Loosen the two screws (B), see figure 162, on the underside and adjust the angle to the required position.
2. Tighten the screws. Tightening torque: 2.1 lb.ft.

4.1.7.2 Parallel panel holder

The following items are necessary for this task:

- Torque wrench.
- Allen key, 4 mm.
- Allen key, 5 mm.

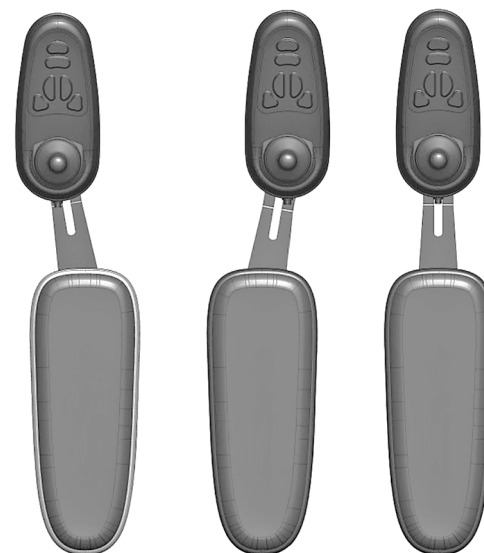


Figure 163. Panel holder angles.

Length adjustment

1. Loosen the screws on the underside enough to slide the parallel panel holder.

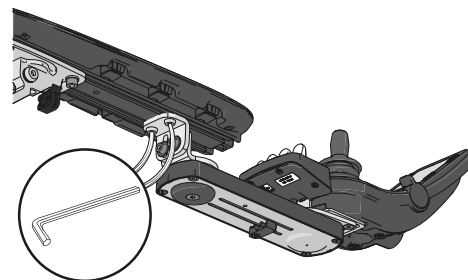


Figure 164. Screws that attaches the parallel panel holder.

2. Adjust the panel to the correct position. Leave a gap of at least 0.4" between the armrest and the panel.
3. Tighten the screws. Tightening torque: 7.23 lb.ft.

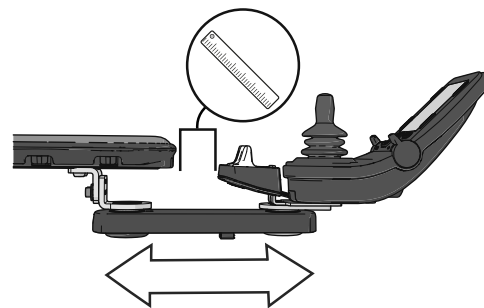


Figure 165. Adjusting the position of the parallel panel holder.

Adjusting the friction joint

1. Loosen the screw to free the friction joint.
2. Slide the panel to the correct position.
3. Tighten the screw to keep it in position. Tightening torque:
0.4 lb.ft.

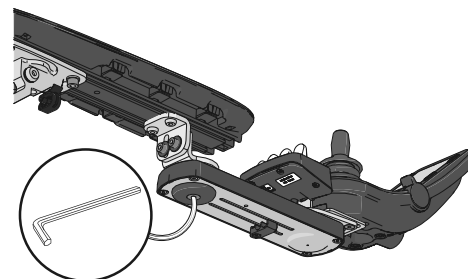


Figure 1 66. Friction joint screw position on the parallel panel holder.

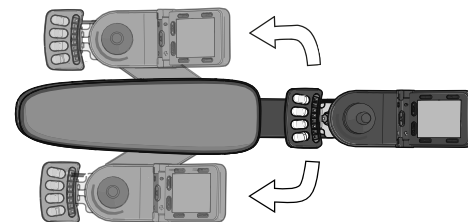


Figure 1 67. Slide the panel and the panel holder to the correct side of the armrest.

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 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 brake release

The wheelchair is fitted with two manual brake releases acting on the magnetic wheel locks to allow manual movement of the wheelchair.



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.

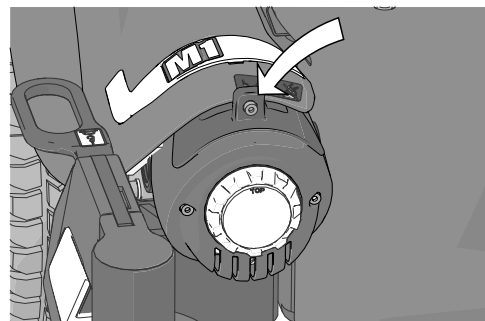


Figure 168. Release lever location.

4.2.2.1 Releasing wheel locks

1. Switch off the wheelchair using the start button on the control panel.
2. Looking at the wheelchair from the front, move the left lever clockwise and the right lever counterclockwise until they reach their end positions. The wheelchair can now be moved 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.

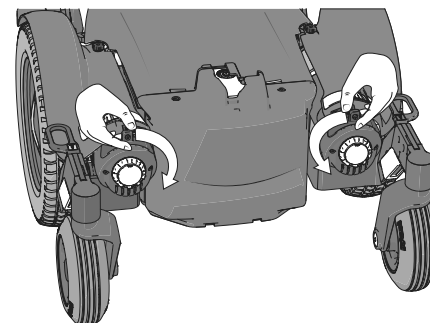


Figure 169. Releasing wheel lock.

4.2.2.2 Engaging wheel locks

1. Switch off the wheelchair using the start button on the control panel.
2. Looking at the wheelchair from the front, move the left lever counterclockwise and the right lever clockwise until they reach their end positions. The wheel locks are now engaged.

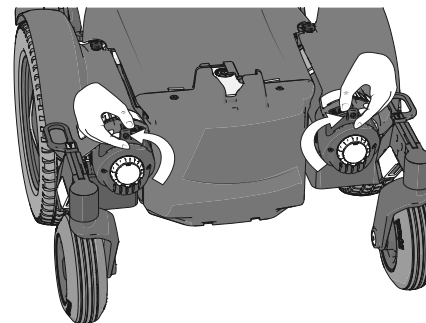


Figure 170. Engaging wheel locks.

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.

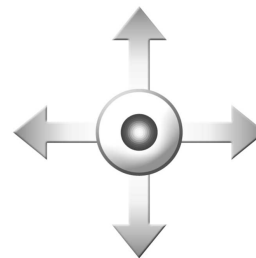


Figure 171. Joystick maneuvering.

**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 2", as long as 4 of the 6 wheels stay in contact with the obstacle's surface as the transition from front to rear takes place. 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.



WARNING!

Driving - high obstacles

Do not drive the wheelchair over obstacles higher than 2". Always exercise great caution when driving over obstacles.

Because seat angles and/or back angles change the center of gravity and increase the risk of tipping, only use these seat functions on flat surfaces and always drive with great caution and at low speed.



Figure 172. Driving over obstacles.

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 173. 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 9°. There is a risk of tipping.

Because seat angles and/or back angles change the center of gravity and increase 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 174. 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 seat angles and/or back angles change the center of gravity and increase 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.



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 10.5°.

Because seat angles and/or back angles change the center of gravity and increase the risk of tipping, only use these seat functions on flat surfaces and always drive with great caution and at low speed.



Figure 175. Driving uphill.

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.

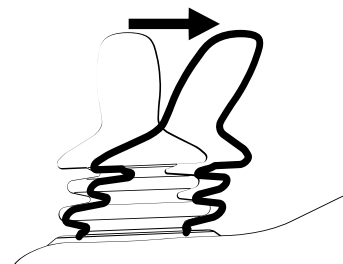


Figure 176. Joystick moved from the central position.

4.2.5.2 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.

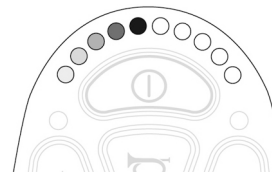


Figure 177. The LEDs on the battery voltage indicator.

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.



NOTICE

Battery charger - see supplied manual

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



Figure 178. Charger socket.

**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.

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.

- i** To make transportation of the wheelchair easier, the backrest can be removed or folded down in a few simple moves; see 4.1.3.1 *Folding backrest*, Page 150
If necessary, the headrest also can be removed; see



Figure 179. Sticker showing the location of the tie-down eyes.



Figure 180. The wheelchair has four tie-down points. The wheelchair and tie-down position in this picture is generic.

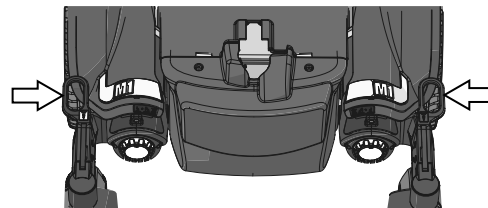


Figure 181. Front tie-down eyes.

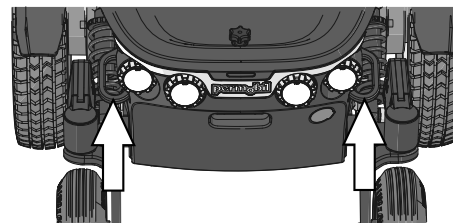


Figure 182. Rear tie-down eyes.

**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 accidentally press down the seat belt's release button.

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

- i** 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.

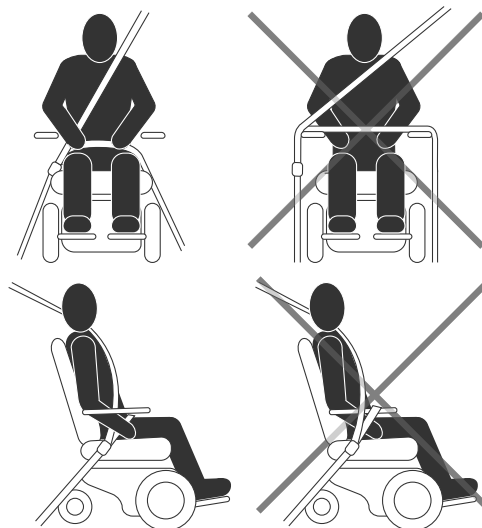


Figure 183. The illustrations on the left show correct positioning of the seatbelt positioning.

**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 General advice for 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.

4.4.2.1 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.

4.4.2.2 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.

4.4.2.3 Preventing damage to wheelchair

Since the wheelchair will be put with other goods in a confined space during 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). 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

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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.	✗			
Check that the joystick panel and other control panels are not damaged.	✗			
Make sure all removable parts are securely fastened.	✗			
Check positioning belts for wear and make sure buckles work.	✗			
Check tires and inflate as necessary.		✗		
If the wheelchair is equipped with lights and turn signals, make sure they are operational and clean.		✗		
Clean the wheelchair and upholstery.			✗	
Check upholstery, seating, headrest, arm pads and calf pads for wear.			✗	

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

Maintenance and inspection schedule	Daily	Weekly	Monthly	Yearly
Check ROHO components for wear or damage.	✗			
Complete ROHO inspection to be performed by a qualified technician.				✗

5.2 Tool bag

The wheelchair comes with a tool bag with the following contents for use for maintenance and minor repairs.

- i** Other tools may be supplied depending on wheelchair configuration.

Tool	Area of use
Allen keys.	General maintenance and seat adjustment.
11, 13 mm wrenches.	General maintenance and replacing batteries.

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.

5.3.4 ROHO® Agility®

Cleaning and disinfecting are separate processes. Cleaning must precede disinfection. Before use by a different individual: clean, disinfect and check product for proper function.



WARNING!

Bleach can cause serious harm to health and the environment

If instructed to use bleach, follow the safety guidelines on the bleach container.

5.3.4.1 Back shell

To clean, hand wash in warm (104°F) water with soap and a sponge. Rinse with clean water. Wipe dry with a clean cloth and then allow to air dry completely.

To disinfect, wipe gently with a cloth dampened with a household disinfectant. Rinse with clean water. Wipe dry with a clean cloth and then allow to air dry completely.

5.3.4.2 Cover

Before cleaning or disinfecting, remove the foam and air components from the cover. Secure the hook and loop fastener strip on the handle at the wide end of the cover. Turn the cover inside out. Zip the cover closed to avoid snags.

To clean, machine wash in warm (104°F) water with mild detergent. Tumble dry on low.

To disinfect, hand wash in warm (104°F) water using 1 part household liquid bleach per 9 parts water. Rinse thoroughly with clean water. Alternatively, machine wash in hot (140°F) water. Tumble dry on low.

5.3.4.3 Foam pad, foam insert and lumbar support pad

Before cleaning, remove the foam components from the cover.

To clean, wipe lightly with a damp cloth. Do not use soap. Do not immerse in water. Wipe off with a clean cloth. Air dry completely before replacing in cover.

Disinfectants are not effective on porous surfaces such as foam. Replace soiled or contaminated foam components with approved ROHO® foam components only. Replacement foam components may be purchased separately. Soiled or contaminated foam components must not be used by different individuals.

5.3.4.4 Air insert

Before cleaning and disinfecting, remove the air insert from the cover and foam pad. Make sure the inflation valve is closed. Do not allow water or cleaning solution to enter the air insert.

To clean, place in a large sink or basin with warm water. Hand wash using mild liquid laundry detergent or a multipurpose detergent (follow product label instructions). Gently scrub all cushions surfaces using a soft plastic bristle brush, a sponge or a cloth. Rinse with clean water. Air dry. Do not machine wash or dry. Do not expose to direct sunlight.

To disinfect, hand wash in warm (104°F) water using 1 part household liquid bleach per 9 parts water. Rinse thoroughly with clean water. Air dry. Do not machine wash or dry. Do not autoclave.

5.3.5 Control panel

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



NOTICE

Hosing can cause damage to electronics

Never hose the wheelchair down as this may damage the electronics. Always switch the wheelchair off for cleaning.

5.3.6 Corrosion protection

The plastic and padded parts are corrosion resistant. The metal parts are protected against corrosion by a zinc layer underneath the powder coating.

5.4 Battery replacement

5.4.1 Remove batteries



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. Use the control panel to raise the leg rest. For manual leg rest, pull out the handle to raise the leg rest.
3. Tilt the seat as far as possible to make the covers more accessible.
4. Switch off the power supply using the On/Off key on the control panel and switch the automatic main circuit breaker to Off.

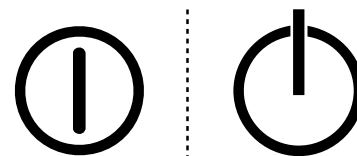


Figure 184. On/Off symbol depending on model.

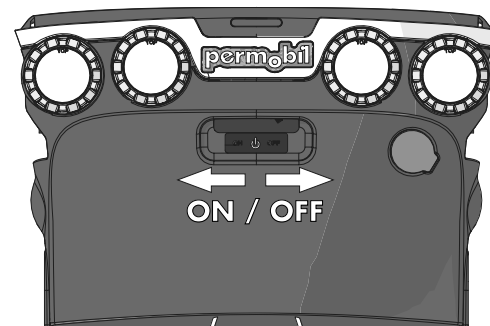


Figure 185. Main circuit breaker.

5. Remove the knob holding the chassis top cover.

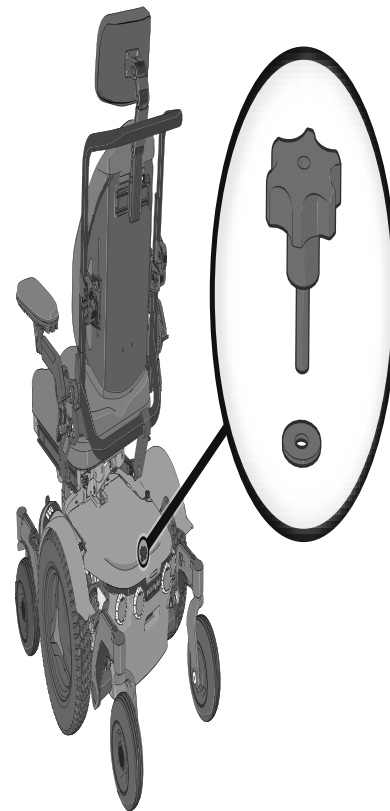


Figure 1 86. The top chassis cover is secured with a knob.

6. Slide the top cover off the chassis.

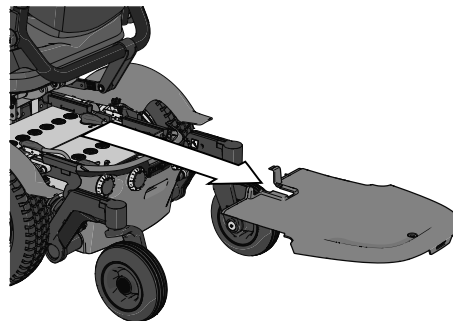


Figure 187. Slide the top chassis cover off.

7. Pull the rear cover off the chassis. Note that the cover is installed around the swing arm axles.

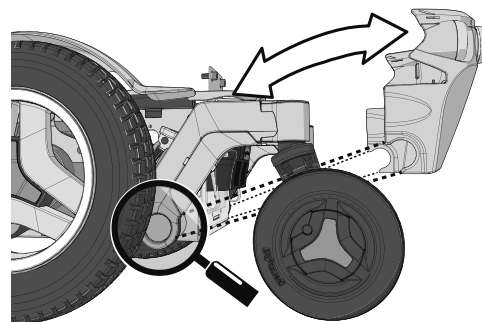


Figure 188. The rear cover.

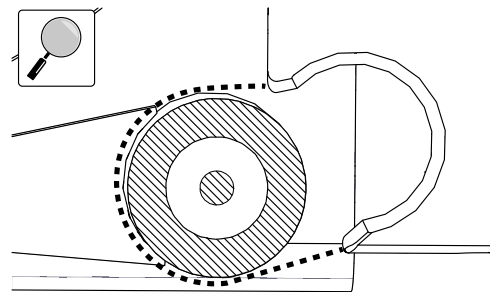


Figure 189. An enlargement of the rear cover going over the rear swing arm axle.

8. Remove the two screws holding the battery box.

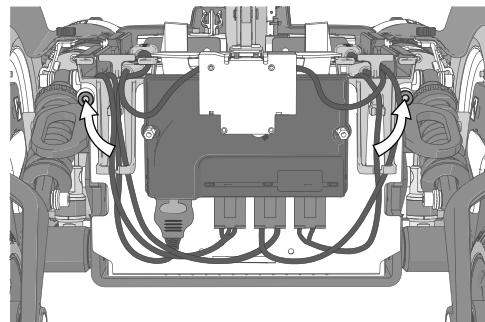


Figure 190. The battery box is secured with two screws.

9. Record the cable setup around and into the power module. The cable setup may vary between different configurations.



Figure 191 . It is important to record the cable setup. Take a photograph or draw it.

- 10.** Disconnect all cables to the power module that are not connected to the battery.

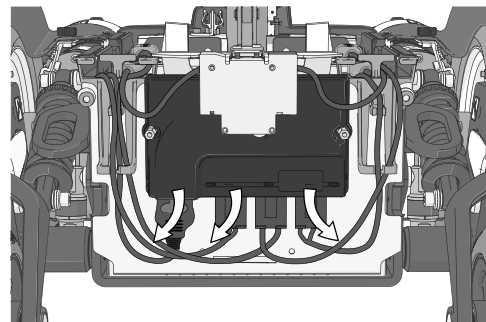


Figure 192. It is important to disconnect all cables that are not connected to the battery. Otherwise there is a risk of damaging these cables.

- 11.** Use the handle to pull the battery box out of the chassis.

i There are straps that stop the battery box in its end position.

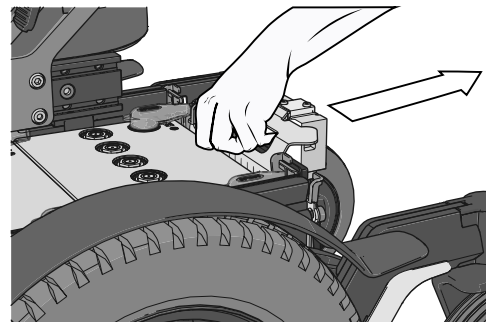


Figure 193. The handle is located at the top of the main circuit breaker.

12. Slide the battery terminal covers along the cables to access all four battery terminal screws.
13. Disconnect the cables from the four battery terminals.
14. Lift the batteries out of the battery box using the straps on the battery.

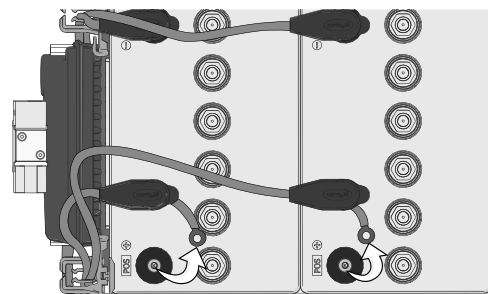


Figure 194. Slide down the covers and unscrew the screws.

5.4.2 Install batteries



CAUTION!

Always use recommended batteries

Always use Permobil recommended batteries. Other replacement batteries have not been tested for use with Permobil wheelchairs.

**CAUTION!****Correct tightening torque and screws**

Always use the recommended tightening torque and the supplied screws. Failure to do so could cause the chair to malfunction.

1. Use the battery straps and lift the new batteries in reverse order (leave the straps on the new batteries).
2. Make sure the batteries are positioned correctly to bring their terminals into the right position; refer to the wiring diagram. Connect the four wires to the correct terminals on the batteries as shown in the diagram.

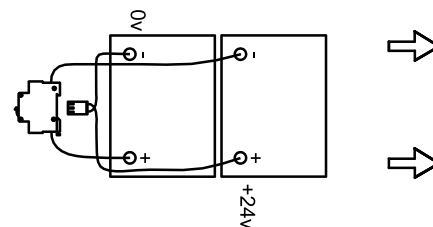


Figure 195. The wiring diagram for battery connection.

3. Tighten the screws. Tightening torque 4.2 lb.ft.
4. Slide up the battery terminal covers.

**CAUTION!**

Replace damaged or missing terminal covers

Always replace damaged or missing terminal covers to avoid short circuit.

5. Push the battery box into the chassis.

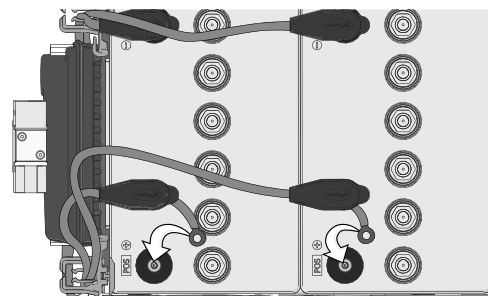


Figure 196. Slide up the covers.

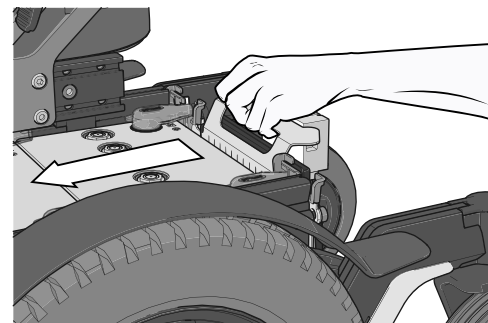


Figure 197. Push in the battery box.

6. Check your documentation of the cable setup ...



Figure 198. Check your documentation of the cable setup.

7. ... and connect accordingly.

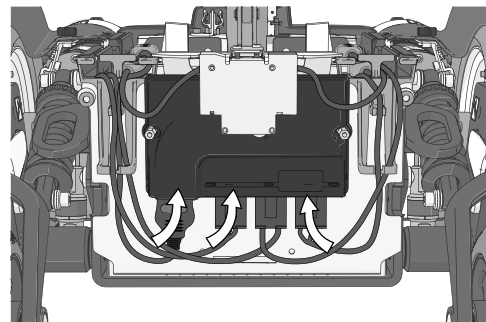


Figure 199. Connect the cables that were disconnected during disassembly.

8. Secure the cables in the cable holders.

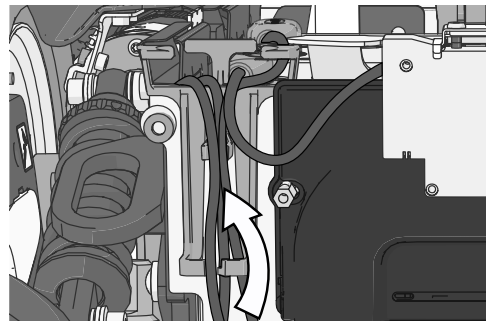


Figure 200. The cable holders are located on each side of the power module.

9. Install the two screws securing the battery box. Use a torque wrench to tighten the screws. Tightening torque: 17.7 lb.ft.

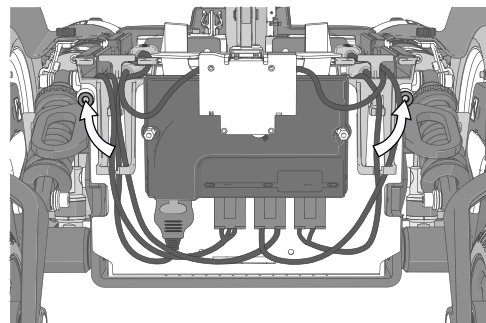


Figure 201 . Tighten the two screws.

**NOTICE****Do not pinch cables**

Do not pinch cables. It could lead to power malfunction on the wheelchair.

10. Install the rear chassis cover on to the chassis.

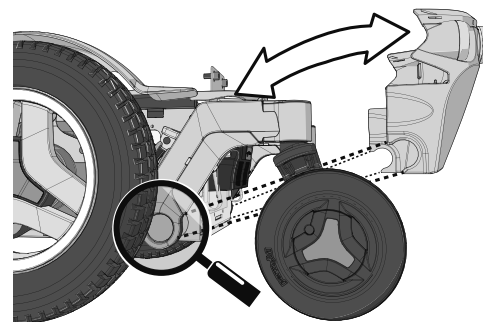


Figure 202. The rear cover.

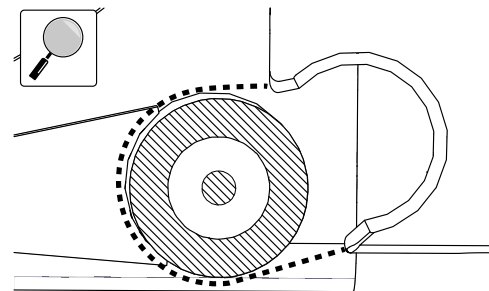


Figure 203. An enlargement of the rear cover going over the rear axle.

11. Install the top cover onto the chassis.

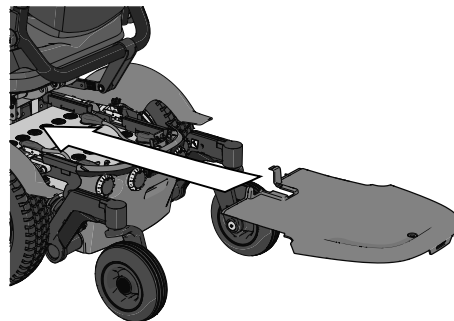


Figure 204. The top cover slides in place.

12. Install the knob together with the washer.

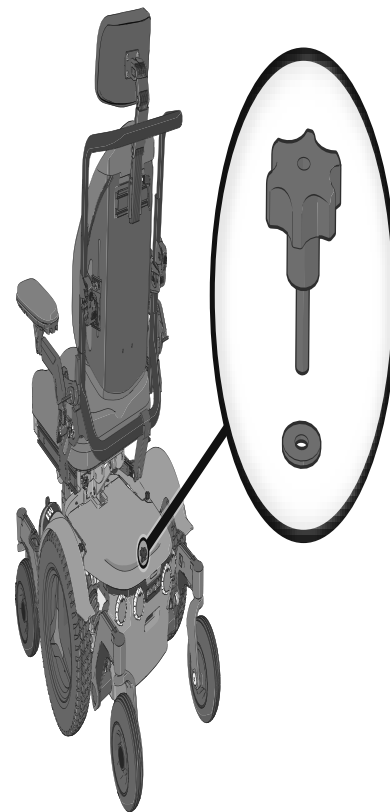


Figure 205. Knob location.

13. Switch the automatic main circuit breaker to the On position and switch on the power supply using the On/Off key on the control panel.
14. Test the chair for proper operation.

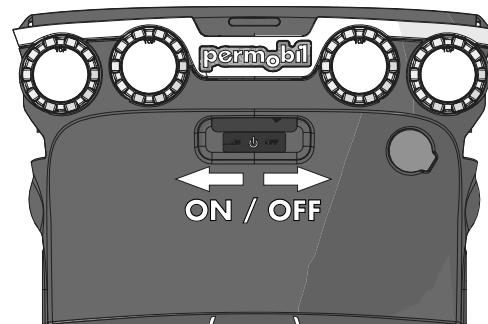


Figure 206. Main circuit breaker is located under the Permobil logotype on the rear cover.

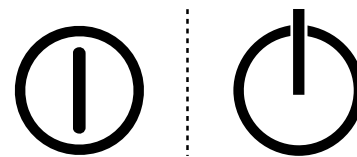


Figure 207. On/Off symbol depending on model.

5.5 Batteries storage

- The wheelchair must not be stored in areas subject to condensation (mist or moisture on surfaces), e.g. utility rooms or similar.

- 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 41.0°F. If the temperature is lower than this, the may not charge fully and may be more vulnerable to corrosion.

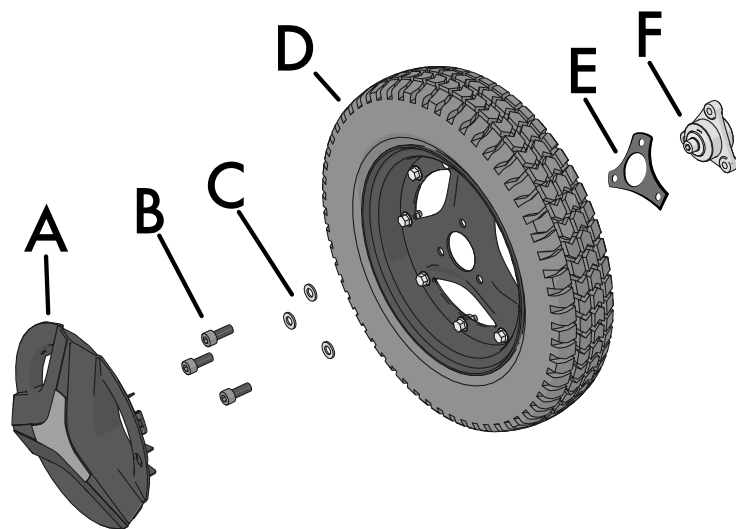
5.5.2 Long-term storage

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 .

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

5.6 Wheels and tires



- A. Hub cap.
- B. Screw, ISO 4762 M8x20 8.8 Fe/Zn 5 C1/ TUF-LOK DIN 267-28.
- C. Washer, ISO 7089 8 200 HV Fe/Zn 5 C1 (8,4x16x1,6).
- D. Drive wheel.
- E. Spacer.
- F. Wheel hub.

Figure 208. Installing of the drive wheel.

**NOTICE****Replace used wheel bolt**

If a wheel bolt is removed for tire service, replace it with a new, unused bolt from Permobil and tighten it to the recommended torque. Also, inspect the drive axle and wheel rim for any damage. Damage to either part can cause the wheel bolt to loosen or fracture. Because the TUF-LOK thread lock fluid wears off, Permobil recommends that wheel bolts only be used once.

The wheelchair drive wheels are available with pneumatic tires or flat-free tires.

The following items are necessary for this task:

- Torque wrench.
- Allen socket, 6 mm.
- Jack.
- 4 Blocks for securing the wheelchair.

5.6.1 Remove drive wheels

- i** Do not remove the wheel hub (F) from drive unit while performing service on a wheel.

1. Switch off the main power switch on the control panel.

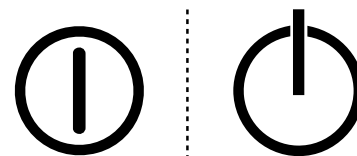


Figure 209. On/Off symbol depending on model.

2. Jack up the wheelchair until the wheel turns freely.

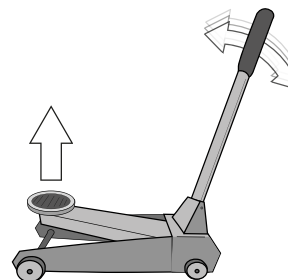


Figure 210. Use a jack or equivalent to lift up the wheelchair.

3. Use the blocks to secure the chair further.

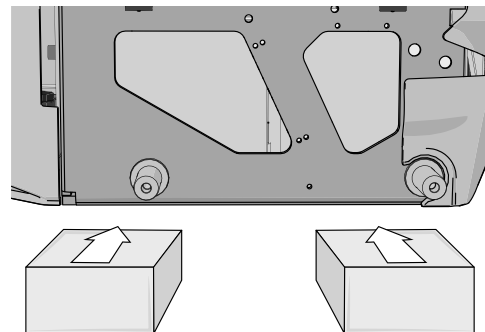


Figure 211 . Use two blocks on each side of the chassis. The wheels have been removed in this figure for a better view.

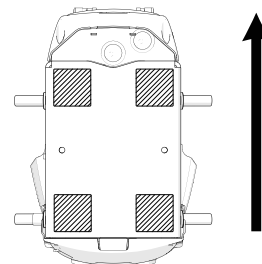


Figure 212. Block location. The arrow shows the direction of travel.

4. Remove the hub cap by carefully levering it out using fingers on two edges of the hub cap.

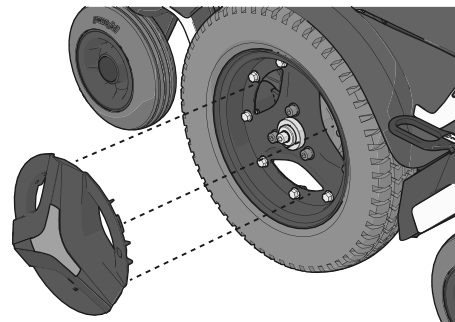


Figure 213. Use your fingers on two edges of the hub cap.

5. Remove the three screws that hold the wheel in place. The central screw must not be removed.
6. Remove the three washers.
7. Remove the wheel by pulling it straight out.
8. Remove the spacer.

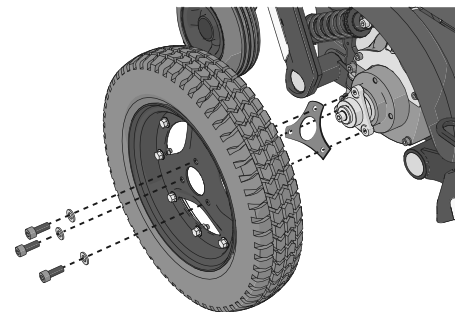


Figure 214. Pull the wheel straight out after you have removed the three screws.

5.6.2 Install drive wheels

1. Fit the spacer. There is a lip on the spacer to hold it in place.
Face the lip towards the chair.

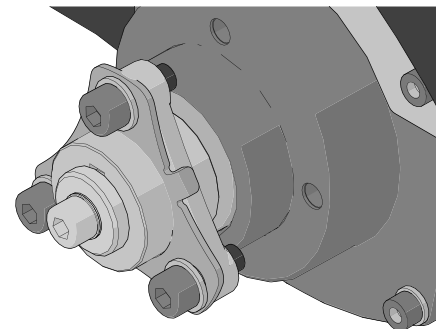


Figure 215. Face the lip on the spacer towards the chair.

2. Fit the wheel onto the wheel hub.
3. Insert the three screws and the three washers. Tighten the screws no more than 11 lb.ft.
4. When all screws and washers are in place, tighten the screws. Tightening torque 17.7 lb.ft.

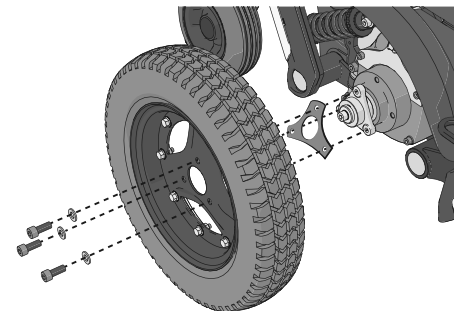


Figure 216. Fit the wheel onto the wheel hub.

5. Push the hub cap in place. On pneumatic wheels, the air valve must be aligned with the slot in the hub cap.
6. Remove the blocks.
7. Lower the wheelchair using a jack or equivalent.

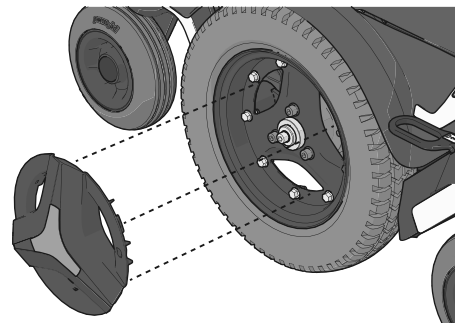
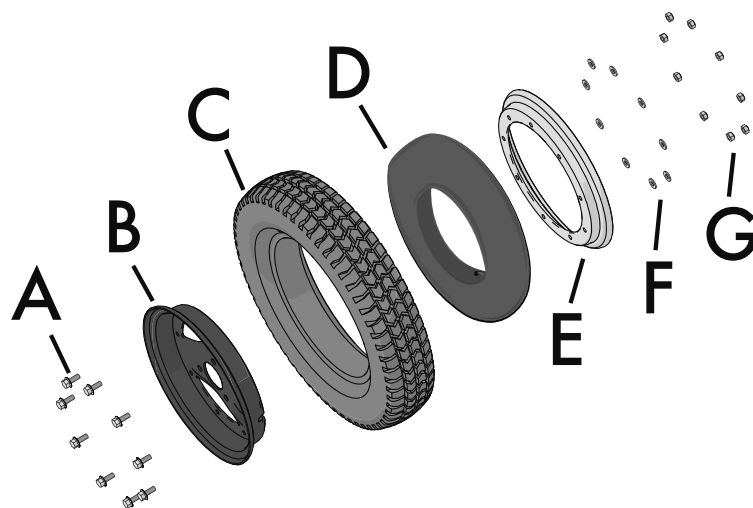


Figure 217. The hub cap snaps when it is in place.

5.6.3 Repair drive wheel



- A.** Screws (×9).
- B.** Rim, outer section.
- C.** Tire.
- D.** Inner tube (only on pneumatic tires).
- E.** Rim, inner section.
- F.** Washers (×9).
- G.** Nuts (×9).

Figure 218. Repair parts air tire.

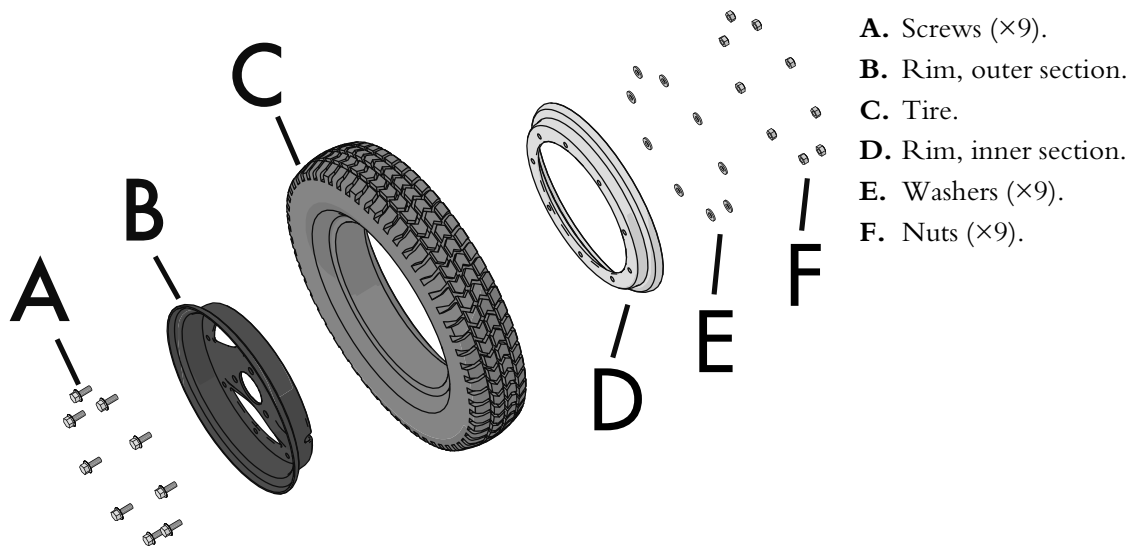


Figure 219. Repair parts solid tire.

Taking the drive wheel apart



WARNING!

Risk of injury - release air from tire

Before taking the wheel rim apart, release air from the pneumatic tire. Failure to do so may cause damage to the tire, rim and/or bodily injury.

The rim can be taken apart to allow fitting or removal of solid or pneumatic tires.

1. Remove the wheel from the wheelchair.
2. If the tire is pneumatic, release the air.
3. Remove the nine screws holding the two halves of the rim together.
4. Take the rim apart.

i 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.

Assembling the drive wheel

Assemble in the reverse order. Tighten the nine screws using a torque wrench. Tightening torque: 16.2 lb.ft. If the tire is pneumatic, inflate the tire to the recommended tire pressure: 29–36 psi.



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.

5.6.4 Inflating tires

- i** 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.

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

At regular intervals, check that the wheelchair's tires have the prescribed pressure between 29–36 psi. Incorrect tire pressure can impair stability and maneuverability, while extremely low tire pressure can cause abnormal wear as well as shorter tire life.

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



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.

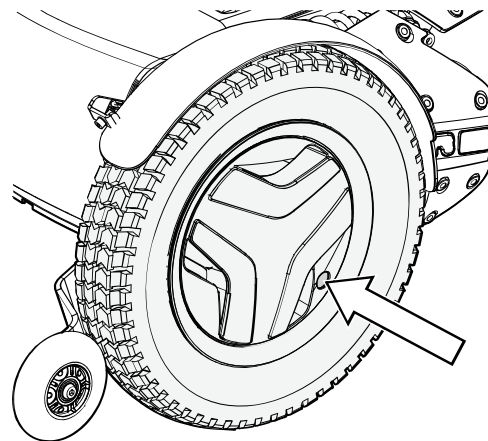


Figure 220. Filling valve on drive wheel.

**NOTICE****Risk of damage if tires are overfilled**

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

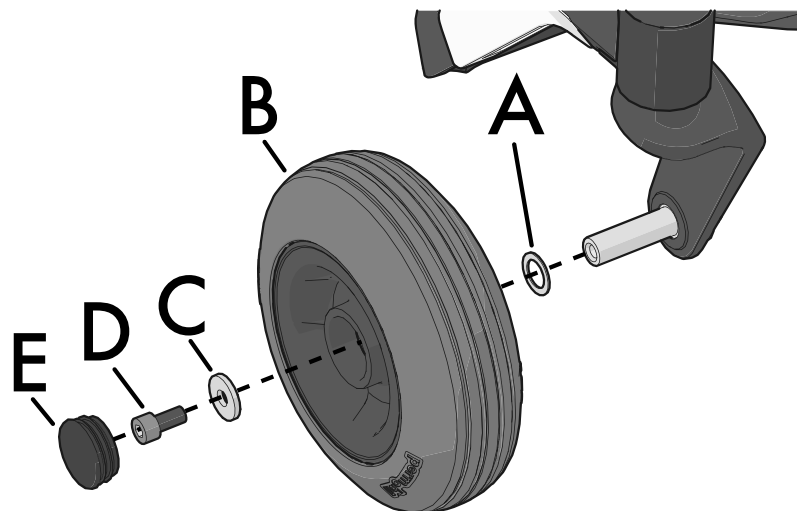
**NOTICE****Risk of reduced performance when tire pressure is insufficient**

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.

5.6.5 Caster wheels



- A. Spacer.
- B. Wheel.
- C. Washer, 8.5×23×3.
- D. Screw, ISO 4762 M8×16 10.9 Fe/Zn/TUF-LOK.
- E. Hub cap (the design may vary depending on markets and market regulations).

Figure 221. Assembling the rim.

The casters have solid polyurethane tires.

The following items are necessary for this task:

- Torque wrench.
- Allen socket, 6 mm.
- Jack.
- 4 Blocks for securing the wheelchair.

5.6.6 Removing casters

1. Switch off the main power switch on the control panel.

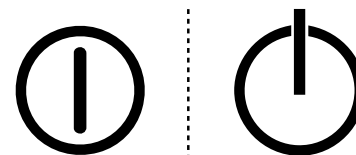


Figure 222. On/Off symbol depending on model.

2. Jack up the wheelchair until the wheel turns freely.

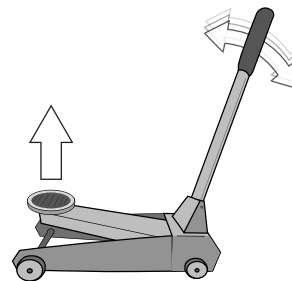


Figure 223. Use a jack or equivalent to lift up the wheelchair.

3. Use the blocks to secure the chair further.

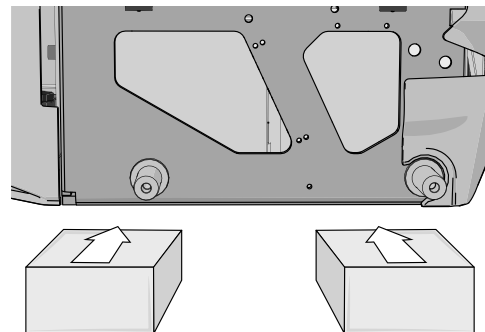


Figure 224. Use two blocks on each side of the chassis. The wheels have been removed in this figure for a better view.

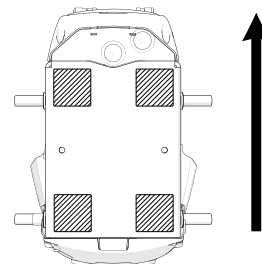


Figure 225. Block location. The arrow shows the direction of travel.

4. Remove the hub cap (E) by carefully prying it out using a screw driver.
5. Remove the screw (D) and the washer (C).
6. Pull the wheel off the shaft.

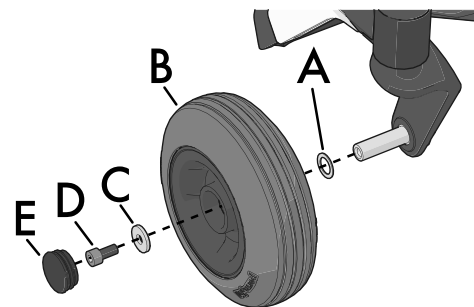


Figure 226. Assembling the rim.

5.6.7 Installing casters



NOTICE

Replace used wheel bolt

If a wheel bolt is removed for tire service, replace it with a new, unused bolt from Permobil and tighten it to the recommended torque. Also, inspect the drive axle and wheel rim for any damage. Damage to either part can cause the wheel bolt to loosen or fracture. Because the TUF-LOK thread lock fluid wears off, Permobil recommends that wheel bolts only be used once.

1. Check that the wheel shaft and rim are undamaged. Clean to remove dirt and rust. Replace damaged parts.
2. Fit the spacer (A) on the axle.
3. Install the wheel (B) on the axle by hand without using any tools. Make sure the rim is fully seated on the axle.
4. Use the screw (D) and washer (C) to install the wheel (B); do so by hand without using any tools.
5. Tighten the screw (D) using a torque wrench. Tightening torque: 17.7 lb.ft. Do not use a pneumatic impact wrench.
6. Fit hub cap (E).
7. Remove the blocks.
8. Lower the wheelchair using the jack.

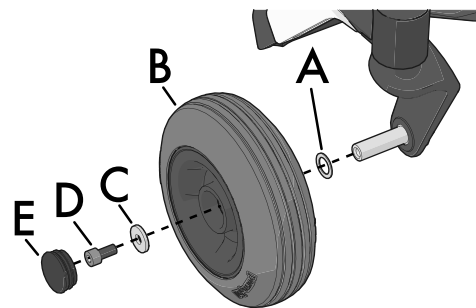


Figure 227. Assembling the rim.

5.7 Main circuit breaker

The main circuit breaker also functions as a battery isolator although it is referred to as the main circuit breaker in the user's manual.

The main circuit breaker is automatic and can be reset when it has tripped. Reset it by putting the switch to the On position.



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.

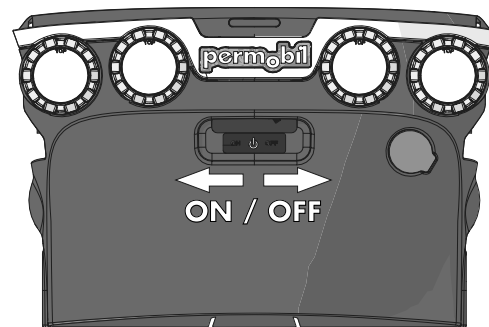


Figure 228. Main circuit breaker.

5.8 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.

5.9 Positioning belt

i 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.

5.10 Serial number labels

5.10.1 Serial number label on chassis

The serial number label is located on the lower, left hand side of the wheelchair chassis. Look between the rim spokes.

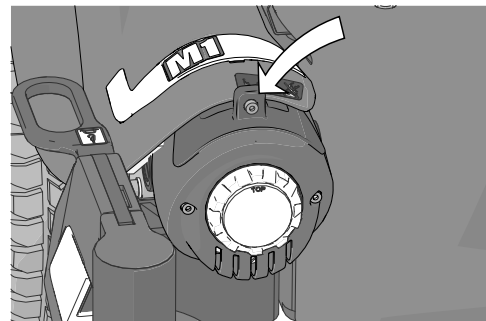


Figure 229. Brake release lever.



Figure 230. Chassis identification number label.

5.10.1.1 Serial number label description

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.

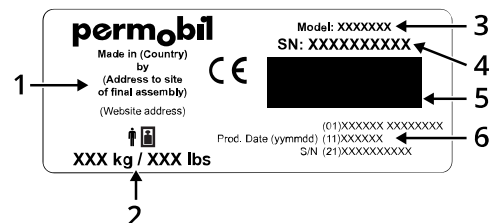


Figure 231. Serial number label.

5.10.2 Serial number label R-net power module

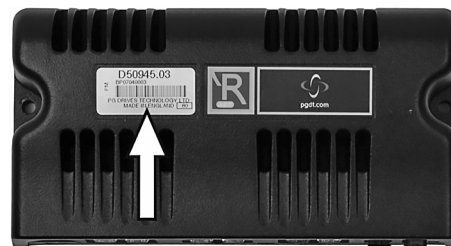


Figure 232. Power module ID number.

5.10.3 Serial number label on the control panel

The serial number label is only visible when the panel is removed from the panel holder.



Figure 233. Control panel ID number.

6 Troubleshooting

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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 258.
	Main circuit breaker tripped.	See page 258.
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 (20-30 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 258.
The wheelchair can only be driven at reduced speed.	Seat angle raised too high. Applies only to power 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 258.
	The charging circuit breaker has tripped.	Wait five minutes, the circuit breaker will automatically reset.
The ROHO® AGILITY® insert is not holding air.	The inflation valve is not closed.	Confirm that the inflation valve(s) are completely closed — turn clockwise. See 4.1.1 <i>Cushions</i> , Page 126
	The inflation valve is damaged.	Inspect the inflation valve and hose.
	There are holes in the cushion.	Look for holes in the cushion. If very small holes or no holes are visible, follow the instructions in the repair kit supplied. See 4.1.1 <i>Cushions</i> , Page 126

The ROHO® AGILITY® air insert does not feel comfortable.	The air inserts are not properly adjusted.	Add or remove air to adjust to your comfort level. See 4.1.1 <i>Cushions</i> , Page 126
	The air inserts are not properly inserted.	Make sure the air cells are facing the front of the wheelchair and the cover is properly positioned. See 4.1.1 <i>Cushions</i> , Page 126
The ROHO® AGILITY® air insert slides inside the cover.	The air inserts are not properly inserted.	Make sure the air insert is properly positioned and the fabric is secured to the fastener strip in the cutout area of the foam pad. The perimeter of the air insert should be tucked in between the foam layers around the edge of the cutout area. See 4.1.1 <i>Cushions</i> , Page 126

6.2 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.

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.

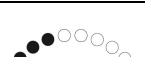
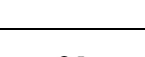
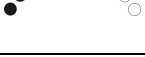
**WARNING!****Performing diagnostics**

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.
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.

Event	Indication	Remedy
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.
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.

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