Koala

Owner´s manual

permobil

US

Where to find Permobil

Permobil Inc. USA
6961 Eastgate Blvd.
Lebanon, TN 37090
USA

Phone: 800-736-0925
Fax: 800-231-3256
Email: info@permobilus.com

The Permobil Group's Head Office

Permobil AB
Box 120, 861 23 Timrå, Sweden
Tel: +46 60 59 59 00. Fax: +46 60 57 52 50
E-mail: info@permobil.se

NB! Servicing and maintenance by the user should be restricted to tasks designated as suitable for home servicing in the instruction book. All other servicing and maintenance tasks must be carried out by persons with sufficient knowledge to ensure a competent result.

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Safety precautions

General

An electric wheelchair is a motorised vehicle, so extra care should be taken in operating it. It is inadvisable for children to use the wheelchair without supervision.

Mistakes in operation could cause injury to the user or damage the chair. To reduce the risks you must read these User Instructions carefully, especially the safety precautions and the warning messages.

Improper alterations to the wheelchair and its systems may increase the risk of accident. Follow closely the recommendations of the section on Handling to prevent accidents when driving the wheelchair.

All changes or repairs to the essential systems of the wheelchair must be carried out by qualified servicing engineers. Always contact your servicing engineer in case of doubt.

Warning

WARNING

Wherever you see this warning symbol, take special care. There could be a risk of personal injury.

Maximum weight of user

See the supplied Owner's manual for the seat.

Passengers

It is absolutely forbidden to carry passengers on the wheelchair.

Operation

Do not let children drive the wheelchair without supervision.
Do not attempt to drive the wheelchair over any edges higher than 60 mm.

When driving downhill, select the slowest speed and take great care.

The wheelchair is not designed for driving down slopes with a gradient greater than 10°.

Do not drive up slopes with a gradient greater than 10°. There is a risk that the wheelchair will not manoeuvre safely.

Do not drive the wheelchair where the sideways gradient is more than 10°. There is a risk of tipping over.

Driving with seat lift

Take care that nothing is trapped between the chair chassis and the seat when using the seat lift. Raising the seat lift raises the centre of gravity and increases the risk of tipping over, so only use the seat lift on level ground.

Releasing the brakes

To prevent the wheelchair rolling away, make sure that the wheelchair is on a level surface before releasing the brakes.

Charging the batteries

Charge the batteries in a well-ventilated space, not a wardrobe etc. Do not charge batteries in a bathroom or other wet room.

Only chargers with a maximum 8A charging current may be used.

When the charger is connected, the chair must not and cannot be driven.

Transport

Make sure the wheelchair is securely fixed.

A poorly fixed chair could cause serious injury to passengers if it came loose, not to mention damaging the car and the chair itself.

Servicing

Servicing and maintenance by the user should be restricted to tasks designated as suitable for home servicing in the instruction book. All other servicing and maintenance tasks must be carried out by persons with sufficient knowledge to ensure a competent result.

When working on the wheelchair's electrical system, the connection to the negative pole on the battery must always be removed.

Take care with metal objects when working on the batteries. A short circuit could easily cause an explosion. Always wear protective gloves and goggles.

Make sure nothing is trapped between the chair chassis and the seat when operating the seat lift.

Recommended air pressure is 0.2 MPa (2kp/cm^2). Over-inflation could cause an explosion.

The seat is heavy and must be handled with care to avoid personal injury.

General introduction

To gain the maximum benefit from the chair it is important to use it in the intended manner. Please, therefore, read these User Instructions thoroughly, especially the safety precautions. Keep the User Instructions together with the other Permobil items.

Your first task is to charge the batteries. Read the chapter on Batteries if you are uncertain how to do this. Charging takes about eight hours.

Specially adapted wheelchairs

If your Permobil is marked "specially adapted product", it has been adapted to your needs and purposes. This means that the design and function may differ from these User Instructions, or from the design and function of other Permobils of the same type.

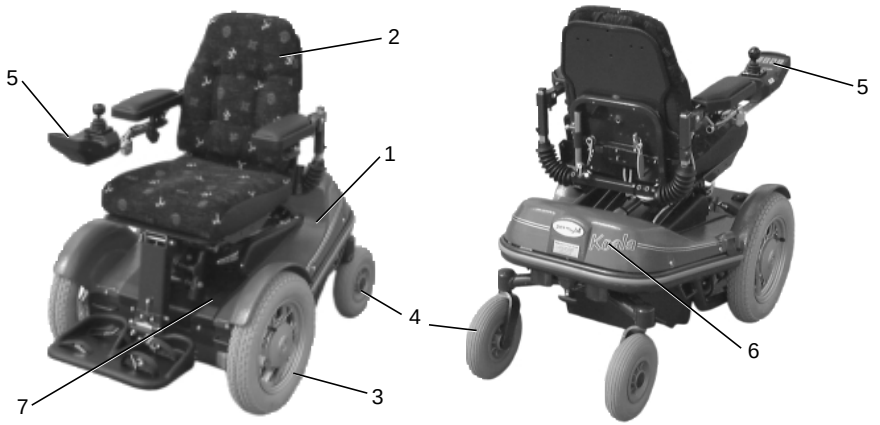
The design and function of your Permobil will be communicated in the written or verbal instructions given when the chair is delivered.

Specifications

All information and specifications in these User Instructions were correct at the time of delivery of this wheelchair. As developments and improvements are constantly being made by Permobil, we reserve the right to make changes without prior notice.

Design and Function

General



1. Chassis
2. Seat
3. Drive wheel
4. Rear wheel
5. Control panel
6. Chassis cover
7. Battery cover

Fig. 1 Permobil Koala

Seat

See enclosed seat instructions

Seat lift/seat adjustment

Koala is fitted with an electrically controlled seat lift. A position adjuster operated from the control panel allows continuous adjustment of the seat to any height between 370-610 mm, permitting simple matching with table, seat heights etc. Whenever the seat lift is raised from its lowest position the chair's maximum speed is lowered to 3.5 km/h.

If the seat angle catch (Fig. 2) is released, the chair will tilt back when the seat lift reaches its highest position. Pull out the knob and twist to release the catch. The chair will not tilt while the catch is engaged.

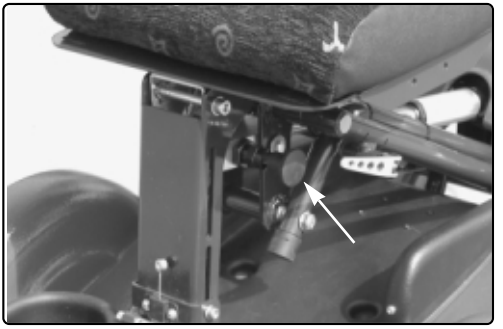


Fig. 2. Seat angle catch when pulled out

The chair is fitted with two safety switches which cut off current to the seat lift if anything is trapped between the chassis and the seat. The safety switches are located on the battery cover.

WARNING

Make sure nothing is trapped between the chassis and the seat when operating the seat lift.

1. Position adjuster
2. Safety switch

Fig. 3 Seat lift

Wheels

The front wheels of the wheelchair, the drive wheels, have pneumatic tyres. The swivel-mounted rear wheels have solid rubber tyres.

Reflectors

The standard wheelchair has no lighting but is fitted with reflectors.

When travelling at night, lighting should be fitted. Available as an optional purchase.

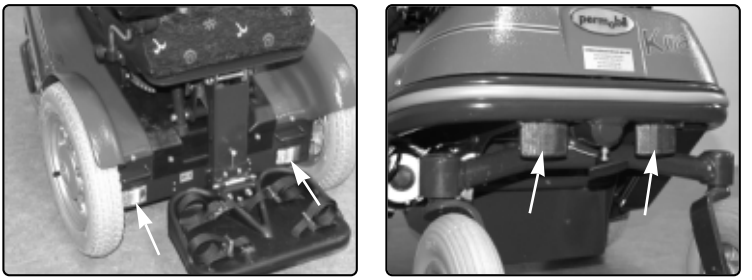


Fig. 4 Reflectors

Electrical system

The wheelchair batteries are situated under the battery cover in the centre of the chassis. The batteries are maintenance-free (jelly-type), so there is no need to check fluid levels.

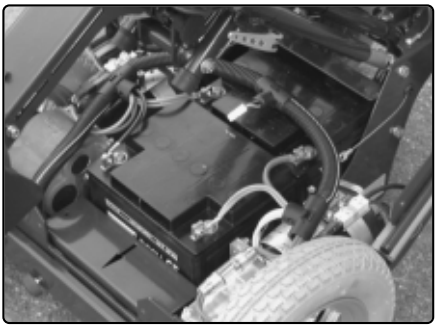


Fig. 5 Batteries

Drive system

The wheelchair has a drive pack for each drive wheel. The motors regulate speed, turning and braking. A joystick on the control panel passes signals to the electronic unit under the chassis cover on the right-hand side, which in turn controls the motors.

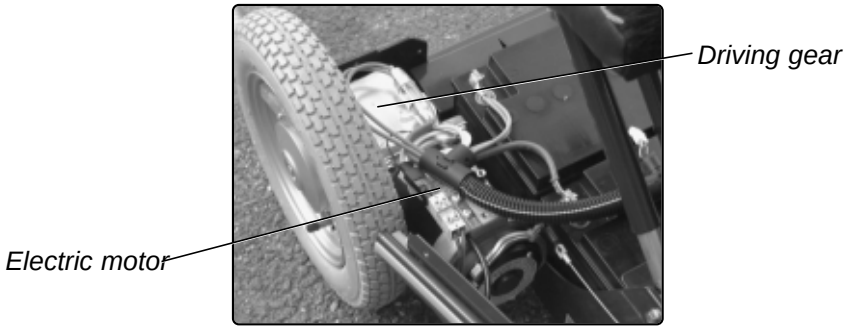
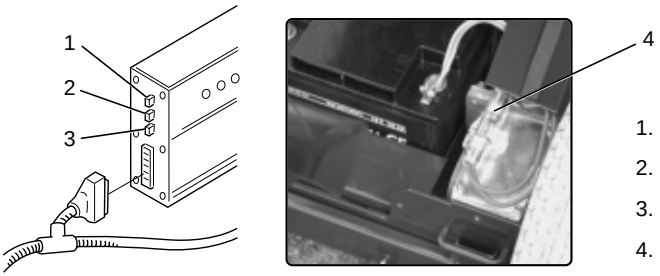


Fig 6. Electric motor with driving gear.

Fuses

The wheelchair has four fuses, the main fuse, the charging fuse, the lighting fuse and the seat lift fuse. The main fuse is mounted above the left-hand drive pack, while the other three are located in the electronic unit.



1. Lighting 7.5A
2. Seat lift 15A
3. Charging fuse 15A
4. Main fuse 80A

Fig. 7 Fuses

Control panel

The wheelchair control panel is fixed to the right or left-hand arm rest, with adjustable location for optimum ease of use. The illustration below shows the different control panel functions.

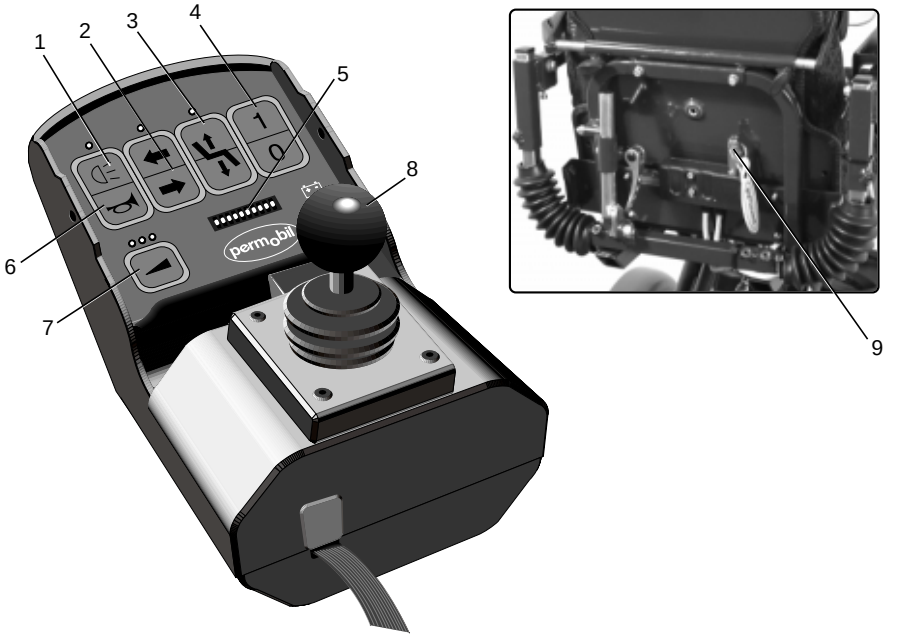


Fig. 8 Control panel

1. No function at present
2. No function at present
3. Seat lift
4. On/off switch
5. Battery voltage indicator
6. Horn
7. Speed selector (low, medium, high)
8. Joystick
9. Start key

Start key

The start key is a plug device which is inserted in the box on the rear of the back rest. The key must be inserted before the main switch can be activated.

Fig. 9 Start key

Seat lift

The seat lift switch moves the seat lift up and down. When the seat lift is in operation, the indicator lamp (Fig. 10) lights. Whenever the seat lift is raised from its lowest level, maximum speed is reduced by half (3.5 km/h).

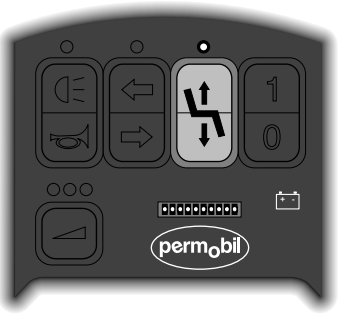


Fig. 10 Seat lift switch

Main switch

The main switch acts as an on/off switch for power to the wheelchair and must be set to "on" before the chair will operate.

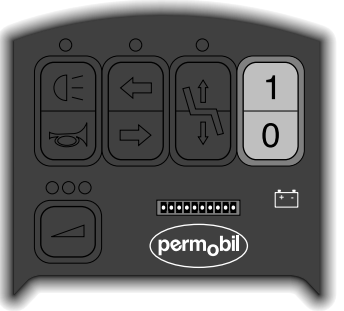


Fig. 11 Main switch

Battery voltage indicator

The window display on the control panel (Fig. 12) indicates the following (left to right):

Red/yellow/green = Fully charged

Red/yellow = Half charged

Red = Recharge batteries

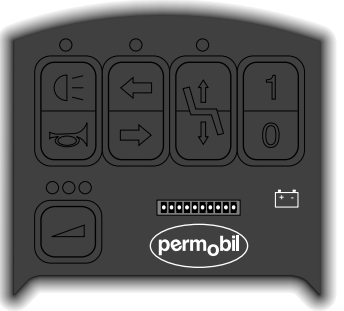


Fig. 12 Battery voltage indicator

Horn

Pressing this switch sounds the horn and attracts the attention of other road users.

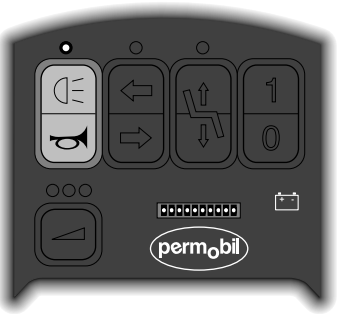


Fig. 13 Horn switch

Speed selector

The speed can be set at three levels, with one or more of the indicator lamps lighting up, depending on the speed range selected.

Low = 0-1.5 km/h, one lamp lit

Medium = 0-3.5 km/h, two lamps lit

High = 0-7.5 km/h, three lamps lit

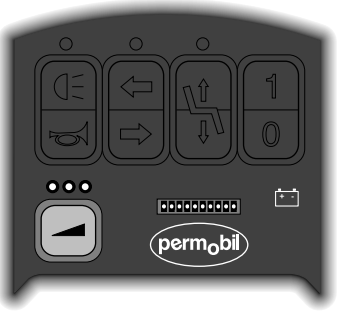


Fig. 14 Speed selector

Joystick

The joystick is used for regulating the speed of the wheelchair forwards or backwards, for turning and for braking.

Speed is continuously adjusted by movements of the joystick, either forwards or backwards. The speed is directly proportional to joystick movement (a small movement causes a low speed, a large movement a high speed).

Turning is effected by moving the joystick to one side or the other.

Braking occurs by moving the joystick back to neutral or by letting go of it all together.

Fig. 15 Joystick

Accessories

Tool wallet

A tool wallet for the wheel chair is provided, and contains the following tools

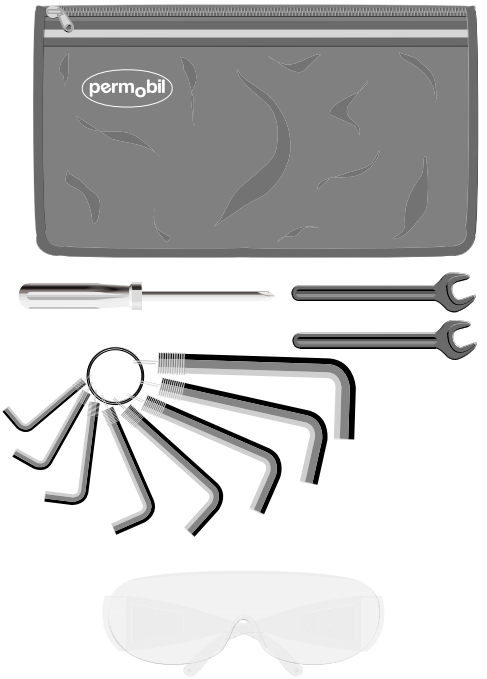


Fig. 16 Tool wallet

Tool	*Use*
1st. Safety goggles	Work on the battery
1 st. Allen key set	General maintenance/seat adjustment
2 no. 13 mm spanners	General maintenance, battery replacement
1 st. Screwdriver	General maintenance/removal of covers

Bumper

A bumper attachment for the front of the wheelchair is available as a Koala accessory.

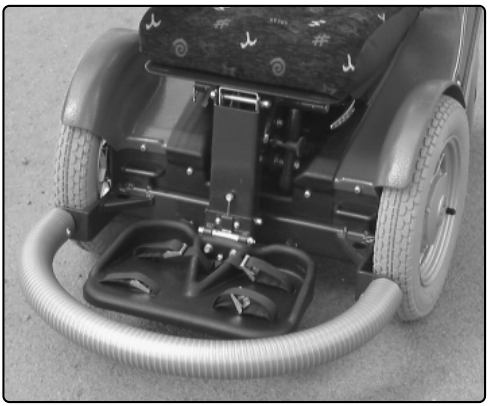


Fig. 17 Bumper

Handling

General

This wheelchair is designed for use in and out of doors. Indoors, there are no particular points to note. But out of doors you must remember to drive very slowly on steep descents and not to drive over edges more than 60 mm high.

Don't go out alone on your first test drive. The test drive is a check of how you and the Permobil will function together and you may need a helping hand.

Remember that children should not drive an electric wheelchair unsupervised.

Driving

1. Insert the start key in the box behind the back support.
2. Switch on the power by pressing the main switch on the control panel.

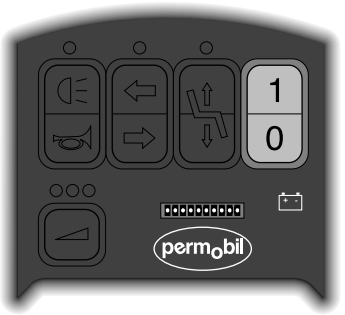


Fig. 18 Main switch

3. Select a suitable speed by pressing the speed selector until the correct indicator lamp lights up for your type of driving. Preferably start with a low speed.

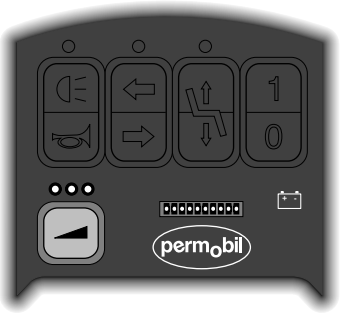


Fig. 19 Speed selector

4. Carefully move the joystick forward to drive forwards or backwards to reverse.

Forward drive *Reverse*

Fig. 20 Joystick

5. The speed of the wheelchair can be adjusted continuously by moving the joystick different distances forwards or backwards. The Permobil's electronics enable you to move at crawl speed over edges. You drive up to the edge and then carefully drive over it. When driving down an obstacle or down a steep slope, you must drive slowly and brake gently. The maximum speed should be set to low. You can brake gently by pulling the joystick back to a position within the neutral area. When your speed reduces, you can let go of the joystick completely.

NB The wheelchair will operate at reduced speed when the seat is raised. You can only use full speed if the seat is in its lowest position.

Steering

Move the joystick to one side or the other while travelling forwards or backwards to turn the wheelchair in the desired direction.

Turning to the left *Turning to the right*

Fig. 21 Turning

Driving rules

High edges

WARNING

Never drive the wheelchair over edges higher than 60 mm.

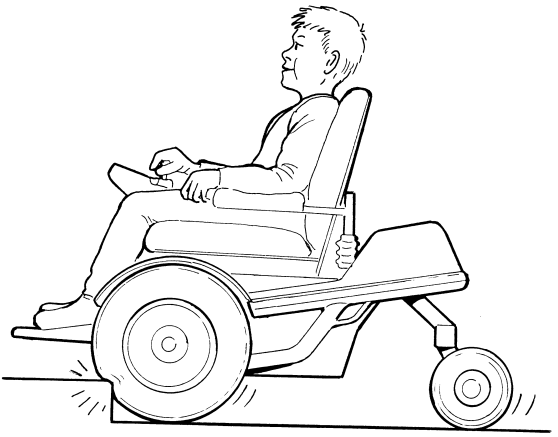


Fig. 22 High edges

Downhill slopes

When driving downhill you must use the lowest speed and take great care.

WARNING

The wheelchair is not designed for driving down slopes with a gradient greater than 10°.

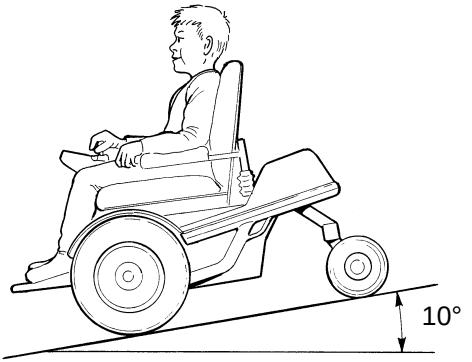


Fig. 23 Driving downhill

Uphill slopes

WARNING

Do not drive up slopes with a gradient greater than 10°.

On slopes with a higher gradient there is a risk that the wheelchair will not manoeuvre safely.

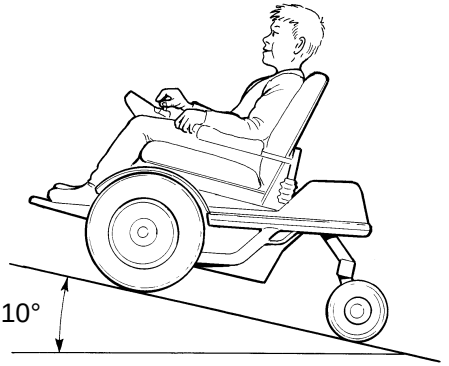


Fig. 23 Driving uphill

Driving on sideways gradients

WARNING

Do not drive the wheelchair on sideways gradients greater than 10°. Risk of tipping over.

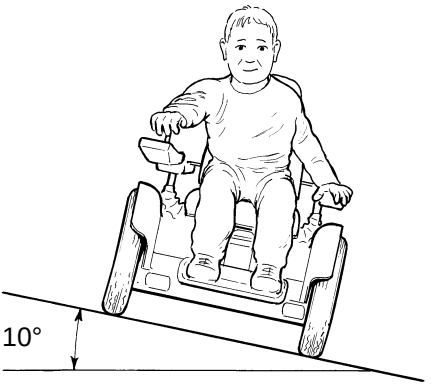


Fig. 25 Driving on sideways gradients

Releasing the brakes

WARNING

To avoid the wheelchair rolling away, make sure it is on level ground before releasing the brakes.

The brakes can be released to allow the wheelchair to be moved manually.

1. Switch off the Permobil by turning the main switch to "off".
2. Pull the brake release lever back and hook it in place (see fig. 26). The chair can now be moved manually.

NB! After moving the chair reapply the brakes by unhooking the brake lever.

Fig. 26. Releasing the brakes

Battery charging

WARNING

Only carry out charging in a well-ventilated area, not a wardrobe etc. Do not charge up in a bathroom or other wet room.

WARNING

Be careful with metal objects when working on the batteries. A short circuit could easily cause an explosion. Always wear safety gloves and goggles.

WARNING

Only chargers with a max. 8A charging current may be used.

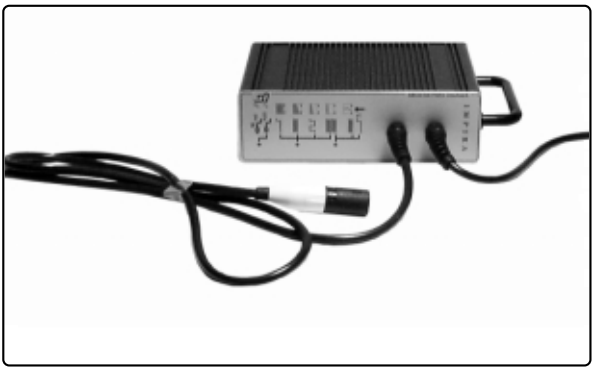


Fig. 27 Battery charger GBC 02

When do the batteries need charging?

To get optimum performance from the batteries, they should be regularly charged up. Avoid running down the batteries completely. Recharge the batteries when the wheelchair is not in use.

A battery voltage indicator on the control panel shows when the batteries are low (see fig. 12, page 17). The batteries must be recharged as soon as possible.

If the batteries are allowed to run down completely, it is important that you charge them up as soon as possible. Delay in recharging may damage the batteries.

With the Permobil GBC 02 battery charger there is no risk of overcharging the batteries. Leaving the charger connected after the READY lamp lights is not an expensive matter. The charger will then be using less than 10 W, a quarter of what an ordinary light bulb would use. However, we recommend that the charger is not connected for more than two days at a time.

Charging with the GBC 02

1. Plug the mains cable into the mains. Check that the green connection lamp on the charger lights up.

2. Plug the charger connector cable into the wheelchair charging socket, which is located under the rubber protector on the right-hand side of the cover.

NB! When the charger is connected, the chair may not and cannot be driven.

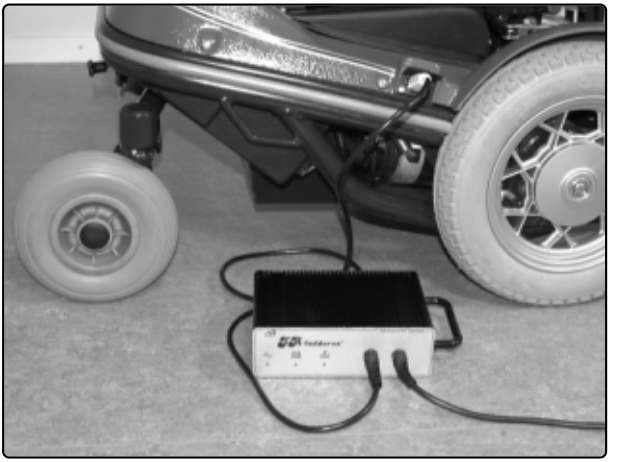


Fig. 28 Connecting the charger

3. After a short time, the charger's yellow lamp will begin to flash slowly. The lamp will flash for the whole charging period, both for the main charge and the equalising phase. This means that the batteries are charged to nearly 100%, after which the charger will revert to maintenance charging and the yellow lamp will show a steady light (= READY).

NB! As the READY lamp only reverts to a steady light when the whole charging process, including the equalising phase, is complete, it may appear that the charging time is longer than with other types of charger. However, no harm is done to the batteries if charging is occasionally broken off before the lamp switches from flashing to steady light.

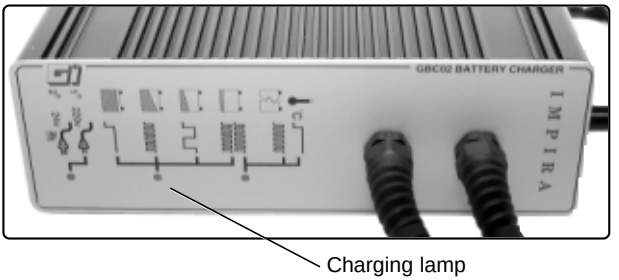


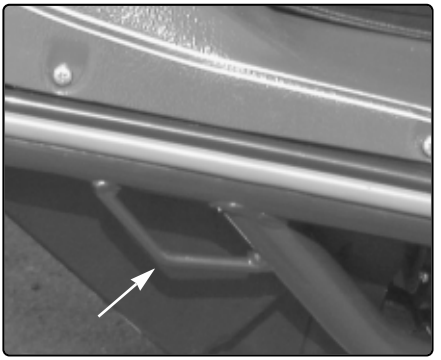
Fig. 29 Charging lamp

Transport

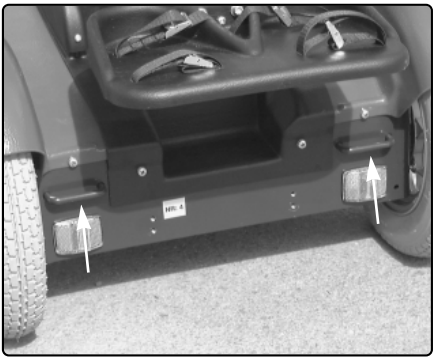
We recommend that Permobil wheelchairs are transported on trailers. The Permobil can be locked in place with loading belts attached to the fixing loops on the front panel and at the side by the bumper. If the chair has to be transported in an estate car or other vehicle it is vital that the chair is properly fixed and that the fixing points used are well anchored.

WARNING

A poorly fixed chair can cause serious injury to passengers if it comes loose, not to mention damage to the vehicle and the wheelchair itself.



Side fixing eyes



Front fixing eyes

Fig. 30 Wheelchair fixing eyes

Air transport

When transporting your chair by air, you should be aware of three things above all: the batteries, the dimensions and weight of the wheelchair and that the seat can be damaged when handled as it is placed together with luggage and other goods in a narrow space.

Batteries
If the wheelchair is equipped with maintenance-free gel batteries; in some airlines it is not necessary to remove the batteries from the wheelchair during the flight. However, the electrical connections to the battery must be disconnected and insulated. Check with your airline which rules apply.

If a wheelchair is equipped with acid batteries, most airlines require that the batteries shall be removed from the wheelchair and transported in special boxes provided by the airline.

Some airlines refuse to take acid batteries aboard at all, so always check with the airline in question which rules apply.

See page 38 for how to remove the batteries.

The dimensions and weight of the wheelchair
The weight and dimensions of the wheelchair are significant in relation to the type of airplanes in which the wheelchair is to be transported. The smaller the airplane, the smaller the wheelchair may be/the less it may weigh and vice versa. Always check with the airline in question which rules apply.

Preventing damage
Cover the maneuvering panel with soft, shock-absorbing material (foamed plastic or similar) and fold it in towards the back rest. Protect other salient objects in similar fashion. Tape any loose cables to the seat or covers.

NB!
To ensure that the chair is transported safely and that no nasty surprises pop up at the last minute, ***always contact the airline with which you are travelling beforehand.***

Maintenance

WARNING

Before working on the wheelchair's electrical system the connection to the negative pole of the battery must always be removed.

WARNING

Be careful with any metal objects when working on the battery. A short circuit could easily cause an explosion. Always wear safety gloves and goggles.

WARNING

Make sure nothing is trapped between the chassis and the seat when operating the seat lift.

General

For optimum performance of your wheelchair it is important to take good care of it.

All wheelchairs are subject to wear, partly due to moving parts and partly due to stresses.

What you need to know is how your wheelchair works, how to drive and use it in the best way and how to take regular care of it.

The purpose of preventive maintenance is to prevent problems arising. If you look after your wheelchair it will function well and the risk of faults will be reduced.

Cleaning

Clean the wheelchair often. After use outdoors it should be cleaned even more thoroughly. Use a damp cloth with a mild soap solution to wipe off dirt and dust.

Once in a while remove the battery and chassis covers and clean them thoroughly, wiping their undersides with a damp cloth.

NB! Do not hose down your wheelchair! The electronics may be damaged.

Wheels

Regularly check the wheels for the correct tyre pressure. Top up the air if necessary. See page 39.

Batteries

Storage

Note that a battery will run down of its own accord and a run-down battery will be ruined if it freezes in cold weather. If the wheelchair is to be kept unused for a lengthy period, the batteries must always be recharged once a month to prevent damage.

NB! The temperature in the place of storage must not fall below 5°C.

The Permobil Koala has maintenance-free jelly-type batteries. This means there is no need to check fluid levels.

Battery life depends entirely on regular charging.

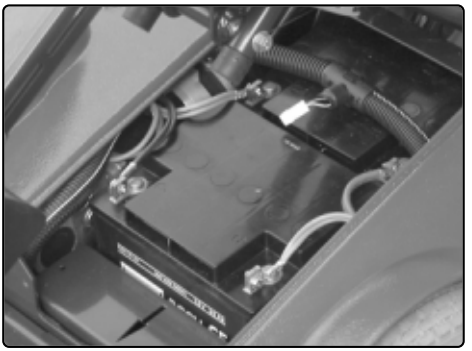


Fig. 31. Batteries

Repairs

Changing fuses

Main fuse

The main fuse should only be changed by persons with a good knowledge of the wheelchair.

NB! A blown main fuse often indicates a serious electrical fault, so the service engineer should be called.

1. Remove the seat cushion. Unscrew the three fixing screws from the seat plate and remove the seat plate.
2. Remove the screw which attaches the adjustment motor cylinder rod to the seat lift.

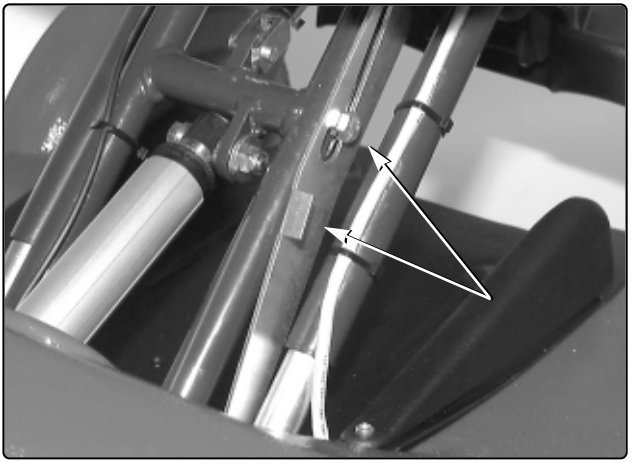


Fig. 32 Fixing screws and catch on cylinder rod

3. Raise the seat lift and hook it up with the catch.
4. Remove the battery cover.
5. Remove the chassis cover.

6. Change the fuse and replace chassis and battery covers.

7. Replace adjustment motor cylinder rod, seat and seat cushion.

WARNING

The seat is heavy and must be handled with care to avoid personal injury.

Fig. 33 Main fuse

Seat lift, lighting and charging fuses

1. Loosen the fixing screw on the computer unit's protective cover and pull it down.

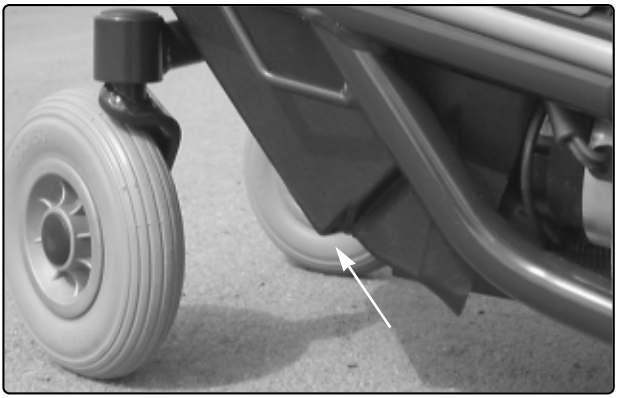
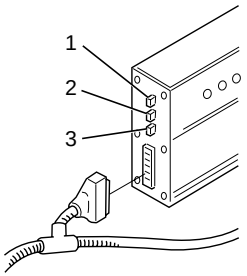


Fig. 34. Protective cover fixing screw

2. Change the blown fuse.



1. Lighting 7.5A
2. Seat lift 15A
3. Charging fuse 15A

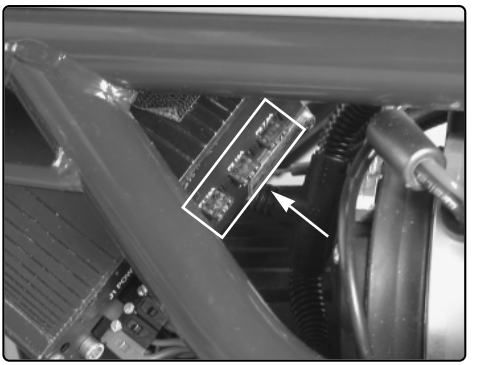


Fig. 35 Fuses

3. Replace cover and tighten fixing screw.

Changing batteries

1. Set the Permobil on an even surface.
2. Raise the seat lift to its full height.
3. Switch off the main switch.
4. Loosen the battery cover and disengage the terminal protection connector.

   NB! Be careful when removing the battery cover. The cable connector under the cover can cause injury.
5. Loosen the battery connections. First the positive, then the negative pole.

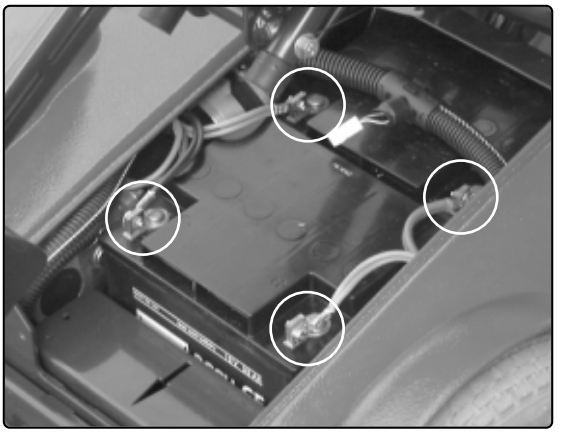


Fig. 36. Battery Connections

6. Remove the spacer plate
7. Lift out the batteries.
8. Set in two new batteries.

   NB! Location
9. Replace spacer plate
10. Connect the battery connections, first the negative, then the positive pole.

11. Replace the battery cover (not forgetting the terminal protection connector) and lower the seat lift.

1**2.** Charge the batteries, see Charging pages 28-30.

Changing an inner tube

1. Set up the wheelchair on blocks and let out the air.
2. Lever the tyre out of the rim.
3. Replace the defective inner tube.
4. Replace the tyre on the rim and reinflate.

Fig. 37. Air valve

Filling with air

WARNING

Recommended air pressure 0.2 MPa (2 kp/cm2). Over-inflation could cause an explosion.

Low air pressure in the tyre will cause abnormal wear and a shorter travelling range. So, check regularly that the pressure in the front tyres is up to 0.2 MPa (2kp/cm^2).

1. Unscrew the plastic cap on the drive wheel air valve.
2. Attach a compressed air nozzle to the air valve and adjust the tyre pressure to the prescribed level.

Specifications

General

Designation.....Koala

Dimensions and weight

Length.....98 cm

Width.....56 cm

Seat height .....37-81 cm

Transport dimensions L/W/H 70/56/65

Weight inc. batteries.....85 kg inc. Mini-Flex seat

Maximum weight of user .....50 kg

Wheels

Wheel dimensions, front.....2.50 x 8

Front wheel air pressure.....0.2 MPa (2 kp/cm^2)

Wheel size, rear.....200 x 50

Performance

Travelling range.....20-25 km

Max. speed, forward.....6.7 km/h

Max. speed, reverse.....3.7 km/h

Turning circle, 180°.....900 mm

Obstacle limit.....60 mm

Gradient limit .....10°

Electrical system

Batteries

Battery type .....Maintenance-free jelly-type batteries

Battery capacity .....2 x 38 Ah

Charging time .....8 hours

Fuses

Charging fuse 15A

Seat lift.....15A

Lighting 7.5A

Main fuse 80A

CAUTION! It is very important that you read this information regarding the possible effects of electromagnetic interferance on your powered wheelchair.

Electromagnetic Interference (EMI) From Radio Wave Sources

Powered wheelchairs and motorized scooters (in this text, both will be referred to as powered wheelchairs) may be susceptible to electromagnetic interference (EMI), wich is interfering electromagnetic energy (EM) emitted from sources such as radio stations, TV stations, amateur radio (HAM) transmitters, twoway radios, and cellular phones.

The interference (from radio wave sources) can cause the powered wheelchair to release its brakes, move by itself, or move in unintended directions. It can also permanently damage the powered wheelchair's control system. The intensity of the interfering EM energy can be measured in volts per meter (V/m). Each powered wheelchair can resist EMI up to a certain intensity. This is called its "immunity level". The higher the immunity level, the greater the protection.

At this time, requested immunity level as per EN 60601-1-2 is 3 V/m. The immunity level of this powered wheelchair model as shipped, with no further modification, is >20V/m in the range of 26 MHz to 950 MHz.

There are a number of sources of relatively intense electromagnetic fields in the everyday environment. Some of these sources are obvious and easy to avoid. Others are not apparent and exposure is unavoidable. However, we believe that by following the warnings listed below, your risk to EMI will be minimized.
The sources of radiated EMI can be broadly classified into three types:

1.
Hand-held portable transceivers (transmitters-receivers) with the antenna mounted directly on the transmitting unit. Examples includes: citizens band (CB) radios, "walkie talkie", security, fire, and police transceivers, cellular telephones, and other personal communication devices.

NOTE! Some cellular telephones and similar devices transmit signals while they are ON, even when not being used.

2.
Medium-range mobile transceivers, such as those used in police cars, fire trucks, ambulances, and taxis. These usually have the antenna mounted on the outside of the wehicle.

3.
Long-range transmitters and transceivers, such as commercial broadcast transmitter (radio and TV broadcast antenna tower) and amateur (HAM) radios.

NOTE! Other types of hand-held devices, such as cordless phones, laptop computers, AM/FM radios, TV sets, CD players, and casette players, and small appliances, such as electric shavers and hair dryers, so far we know, are not likely to cause EMI problems to your powered wheelchair.

Because EM energy rapidly becomes more intense as one moves closer to the transmitting antenna (source), the EM fields from hand-held radio wave sources (transceivers) are of special concern. It is possible to unintentionally bring high levels of EM energy very close to the powered wheelchair's control system while using these devices. This can affect powered wheelchair movement and braking. Therefore, the warnings listed below are recommended to prevent possible interference with the control system of the powered wheelchair.

WARNINGS

Electromagnetic interference (EMI) from sources such as radio ant TV stations, amateur radio (HAM) transmitters, two-way radios, and cellular phones can affect powered wheelchairs and motorised scooters. Following the warnings listed below should reduced tdhe chance of unintended brake release or powered wheelchair movement wich could result in serious injury.

1.
Do not operate hand-held transceivers (transmittersreceivers), such as citizens band (CB) radios, or turn ON personal communications devices, such as cellular phones, while the powered wheelchair is turned ON.

2.
Be aware of nearby transmitters, such as radio or TV stations, and try to avoid coming close to them.

3.
If unintended movement or brake release occurs, turn the powered wheelchair OFF as soon as it is safe.

4.
Be aware that adding accessories or components, or modifying the powered wheelchair, may make it more susceptible to EMI.

(Note: There is no easy way to evaluate their effect on the overall immunity of the powered wheelchair).

5.
Report all incidents of unintended movement or brake release to the powered wheelchair manufacturer, and note whether there is a radio wave source nearby.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