

Chairman 2k/2s

Owner's manual



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Contents

Contents	5
Safety instructions	6
General introduction	8
Specially modified wheelchair	8
Design and function	9
General	9
Seat	10
Seat lift	10
Adjusting seat tilt angle	10
Wheels	11
Reflectors	11
Electrical system	12
Control panel	14
Accessories	22
Tool bag	22
Handling	23
General	23
Driving	23
Driving rules	26
Releasing the brakes	29
Charging the batteries	30
Transport	32
Transporting by air	33
Maintenance and repairs	34
General	36
Cleaning	37
Wheels	37
Batteries	37
Repairs	38
Changing fuses	38
Changing batteries	39
Changing inner tube, front tire	40
Changing inner tube, rear tire	41
Technical specifications	42
Data – Electrical system	43
Important information (only for the US market)	44

Safety instructions

General

An electric wheelchair is a motorized vehicle and special care must, therefore, be taken when it is used.

Incorrect use may both injure the user and damage the chair. In order to reduce these risks, you should read the Owner's Manual carefully, in particular the safety instructions and their warning texts.

Any inappropriate modifications to the wheelchair and its various systems may entail an increased risk of accidents. Carefully follow the recommendations in the Handling section to prevent the risk of accidents in connection with driving.

All modifications to and interventions in the vital systems of the wheelchair must be performed by a qualified service technician. Always contact a qualified service technician in cases of doubt.

Warning



WARNING !

Please show great caution where this warning symbol appears. There is a risk of personal injury.

Passengers

It is absolutely forbidden to carry passengers on the wheelchair.

Operation

Always bear in mind that a high speed and extended braking distance make for an increased risk of accidents. Always use the positioning belt on the Chairman 2s.

Never drive rapidly or at full speed along narrow passages, on narrow sidewalks, etc. where an incorrect maneuver or incorrect steering can cause an increased risk of accidents.

Keep in mind that driving along slopes have an effect on the wheelchair and could make it steer to the side. Never drive at full speed along slopes.

Use of the seat tilt function displaces the center of gravity, which can have a negative effect on the chair's handling characteristics while it is being driven. So you should never drive at full speed if an extreme seat tilt is being used.

Do not let children drive the wheelchair without supervision.

Do not drive the wheelchair over any edges higher than 3 inches.

When driving downhill, select the slowest speed and proceed with caution.

Do not drive up or down slopes with a gradient greater than 12^o*). There is a risk that the wheelchair will not maneuver safely.

**)Dynamic stability according to ISO 7176-2 = 7°.*

When driving down slopes with a gradient greater than 7°, it is very important that the user is fully aware of how to maneuver the wheelchair in a safe manor.

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

Operating the seat lift

Ensure that nothing is caught between the chassis and the seat when the seat lift is operated. Raising the seat lift raises the center of gravity and increases the risk of tipping. Therefore, you should only use the seat lift on level ground and not on hilly ground.

Driving on loose or soft surfaces

When the chair is set to the lowest speed, and the batteries are not fully charged, driving on certain surfaces, such as gravel, sand and thick carpets, may result in restricted movement.

Moving in and out of the wheelchair

The wheelchair must always be turned off when the user moves in and out of it. It should stand on a level floor with the brake control engaged, i.e. with the brake on the driving wheels. Avoid leaning unnecessarily heavily on the arm supports of the seat.

Releasing the brakes

In order to avoid the wheelchair rolling away, ensure that the wheelchair is on a level and dry base before releasing the brakes.

Charging the batteries

The batteries must be charged in a well-ventilated room, not in a closet. Do not charge the batteries in a bathroom or wet room. Use only chargers with a maximum 10A charging current (mean value). When the charger is connected, the chair must not and cannot be driven.

Transport

Ensure that the wheelchair is properly secured (see page 32).

If the chair is not properly secured and comes loose, it can cause serious injury to persons in the vehicle and serious damage to the vehicle.

Service

Carry out only the service and maintenance which are stated in the Owner's Manual. All other service and maintenance must be carried out by persons with sufficient technical skill to be able to carry it out in a professional manner.

During all work on the electrical system of the wheelchair, the circuit breaker should be set to the off position. Take care when using metal objects in connection with work on the batteries. Short-circuiting can easily cause an explosion. Always use protective gloves and goggles.

The recommended air pressure is 29 psi (0.2 MPa). Overfilling entails the risk of explosion.

General introduction

In order that you can obtain the greatest possible benefit from the chair, it is important that it is used in the intended manner. We would, therefore, like you to read the Instructions for Use carefully, in particular the safety instructions. Keep the Owner's Manual together with everything else associated with your wheelchair.

The first thing to do is to charge the batteries. Read the chapter Charging the Batteries on page 30-31 if you are uncertain about how to do this. Charging takes approximately 9 hours.

Specially adapted wheelchair

If your wheelchair is marked with the decal "specially adapted product", it has been adapted to your requirements and wishes. This means that its design and functions may differ from the text in the present Owner's manual or from the design and functions of other wheelchairs of the same type.

Specifications

All the information and specifications contained in the present Owner's Manual were valid at the time of delivery of this wheelchair. As development and improvement take place continuously at Permobil, we reserve the right to make changes without prior notification.

Design and function

General

Overview Chairman 2k/2s with Corpus-seat.



Fig.1. Front view

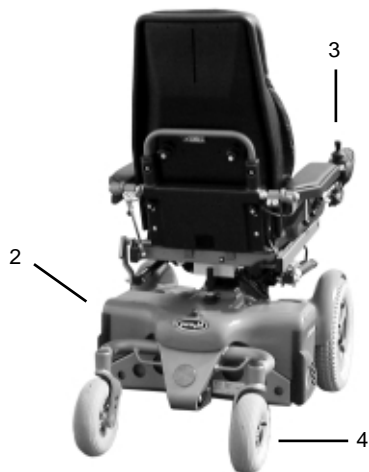


Fig. 2. Rear view

- 1. Seat
- 2. Chassis
- 3. Control panel
- 4. Rear wheel
- 5. Drive wheel

Seat

See the supplied Owner's Manual for the seat.

Seat lift

The Chairman 2k/2s can be fitted with an electrically controlled seat height adjuster. An actuator device which is controlled from the maneuvering panel makes it possible to raise the seat up to 7 3/4" to adapt the height to tables, benches, etc. If the seat lift is raised from its lowest position, the wheelchair's maximum speed is reduced by 50 %.



Seat lift



Seat tilt

Fig. 3.

Adjusting seat tilt angle

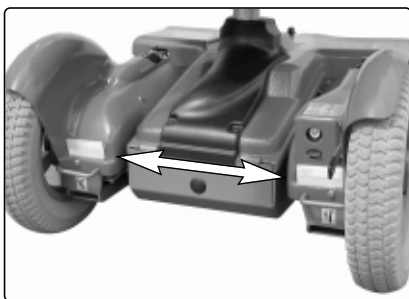
The Chairman 2k/2s can be fitted with an electric seat tilt actuator adjuster, which lets you adjust the angle of the seat. The electric seat tilt actuator is controlled from the control panel or from the seat control panel.

Wheels

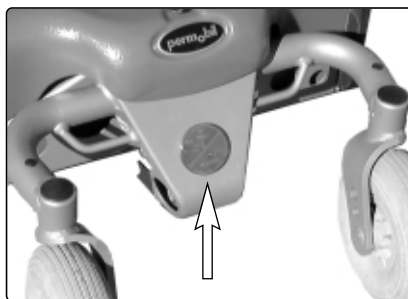
The front wheels of the wheelchair, the driving wheels, have pneumatic tires. The rear wheels, the link wheels, can have either pneumatic or solid rubber tires.

Lights and reflectors

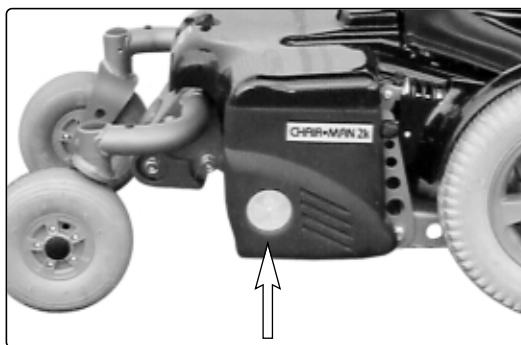
In the standard configuration, the wheelchair is equipped with reflectors front, back and at the sides. Front/back lights and flashing indicators are available as accessories



Front reflectors



Rear reflector



Side reflector

Fig. 4. Reflectors

Electrical system

The batteries are fitted under the cover at the rear of the chassis.

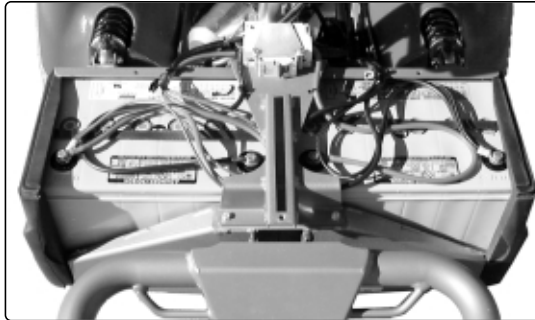


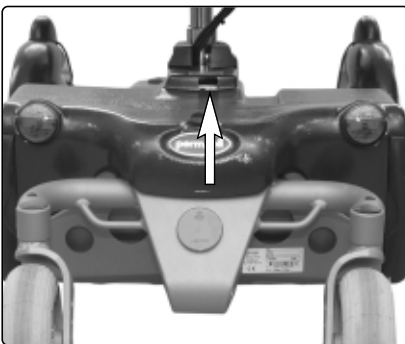
Fig. 5. Batteries

Main fuse

The main fuse is of the automatic type, which can be reset after having been triggered. It is located on the top side of the chassis behind the seat lift, see Fig. 6.

Charging fuse

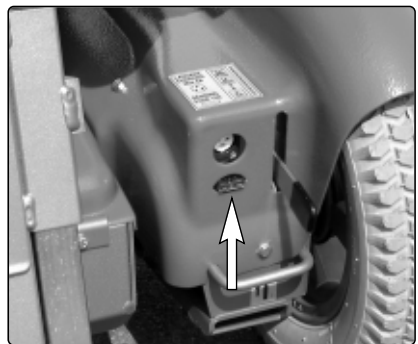
The charging fuse is positioned at the front edge of the chassis cover, under the charging outlet.



Main fuse

Chairman 2k 63A

Chairman 2s 80A



Charging fuse 15A

Fig. 6. Fuses

Driving

The wheelchair has a drive pack for each drive wheel. The motors regulate the speed, turning and braking. A joystick on the maneuvering panel sends signals to the electronics unit placed under the cover on the rear part of the chassis. The electronics unit then controls the motors.

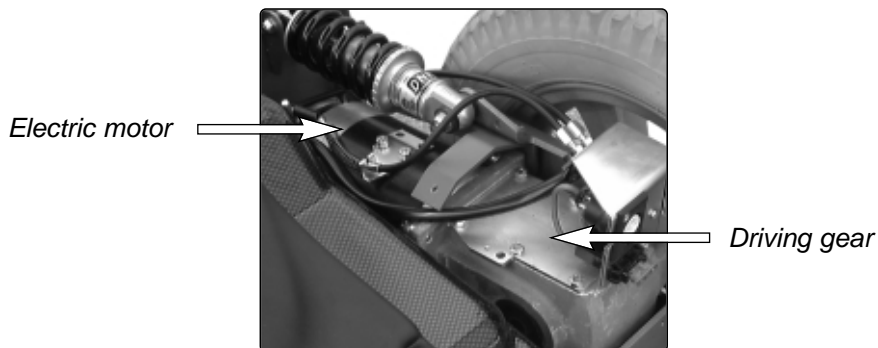


Fig. 7. Electric motor with driving gear

Shock absorbers

The wheelchair is fitted with two shock absorbers, with adjustable spring force. If the weight of the user is not specified, the wheelchair is supplied with the shock absorbers set to a standard value, which is correct for a user from 110 – 154 lbs.



Fig. 8. Shock absorber

Adjusting spring force

Adjustments should be made by someone familiar with the design and operation of the shock absorbers. When adjustment is required, contact your nearest service engineer/service center or Permobil.

Control panel Chairman 2k/2s

The control panel of the wheelchair is mounted on the arm rest and its location can be adjusted to achieve the most comfortable position in connection with manoeuvring. The Control Panel can be mounted on either the right or left side, depending upon the user's need. The fig. below shows the various functions of the control panel.

You can also have a seat control panel fitted to your wheelchair. You can then choose whether you want to adjust the electrical seat functions from the seat control panel.



Fig. 9. Control panel Chairman 2k/2s

- | | |
|------------------------------|------------------------|
| 1. Mode Selector | 6. Lights |
| 2. Indicators | 7. Indicators |
| 3. Warning light | 8. Horn |
| 4. Start button | 9. Joystick |
| 5. Battery voltage indicator | 10. Seat control panel |

Security key

The security key can be used to lock the wheelchair to prevent unauthorized use. To lock the wheelchair it must be switched on, the key should then be inserted into and withdrawn from the panel outlet, the wheelchair will now be locked.

To unlock the wheelchair, switch it on. The maximum speed indicator will ripple up and down but driving will not be possible. The key should now be inserted into and withdrawn from the panel outlet, the wheelchair can now be driven.



Panel outlet with security key

Start button

You use this button to start and stop the wheelchair. The start button must have been pressed for the chair to operate.

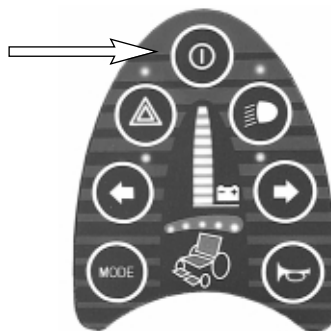


Fig.10. Start button

MODE (selector)

You use this switch to activate the speed selector and »Leverman« (see page 18).

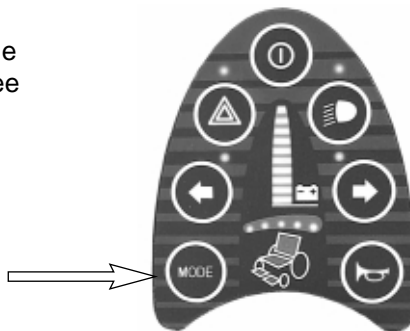


Fig.11. Mode (selector)

Battery voltage indicator

The window display on the control panel (fig.12) shows the following indicator lights (from bottom to top):

- Red+Yellow+Green = Fully charged
- Red+Yellow = Half charged
- Red = Charge the batteries



Fig. 12. Battery voltage indicator

Warning symbol

When you press the switch, the indicator lamps flash on the control panel for the warning symbol (red lamp) and for both indicator lights (green lamp). If your wheelchair has lights, both indicator lamps flash too, to attract attention.

NB! This function works even when the start button is switched off

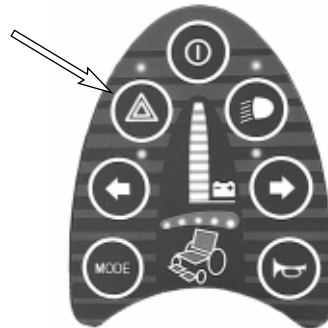


Fig. 13. Switch warning

Speed selector

The speed can be set in 5 stages, and one or more of the indicator lamps light depending on which speed range has been selected.

Setting speed, see page 18.

- 1 - 2 lamps = Low speed
- 3 - 4 lamps = Medium speed
- 5 lamps = Maximum speed

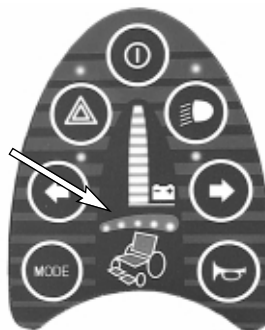


Fig. 14. Speed selector

Lights

Press the switch to turn on the lights of the wheelchair.

Indicators

Pressing the right or left arrow activates the chair's indicators, if equipped.

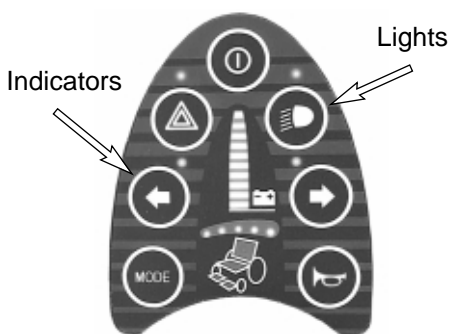


Fig. 15. Light/indicator switches

Warning horn

Press the button to sound the horn and attract attention.

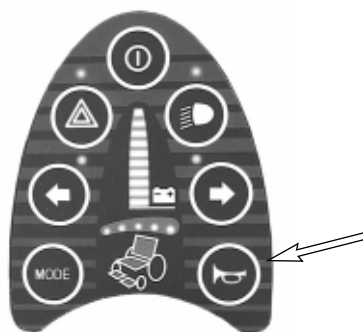


Fig. 16. Horn switch

Joystick

The joystick is used to regulate the speed of the wheelchair forwards or backwards, to turn and to brake.

The speed is regulated proportionally by moving the joystick forwards or backwards.

The speed is directly proportional to the movement of the joystick (small movement low speed - large movement high speed).

The wheelchair is turned by moving the joystick to the left or right.

The wheelchair is braked by moving the joystick back to the neutral position or letting it go.



Fig. 17. Joystick

Leverman (Joystick manager)

With the help of Leverman, you can set the maximum speed of the wheelchair and also control the electric seat functions.

Speed selector

Press MODE button once. The speed indicator lights flash and by moving the joystick to the right/left you can increase/decrease the maximum speed of the wheelchair.

- Confirm your setting and return to drive by pressing the MODE button twice or move on to next step by one press.

NB! If the joystick is moved forwards/backwards during setting of the maximum speed, the chair will go back to drive mode using the present speed range.

Leg support

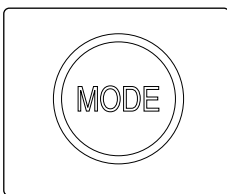
Press MODE button twice. The right foot plate indicator lamp is lit. Move the joystick forward/backwards to move the leg support out or in.

- Make your adjustment and return to drive by pressing the MODE button once or go on to next step by moving the joystick to the right.

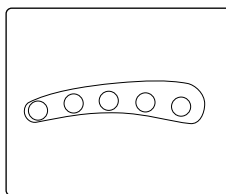
Seat lift/Seat tilt/Back rest

Press MODE button twice. The right foot plate indicator lamp is lit. By moving the joystick to the right or left you can now select desired seat function and make your adjustments by moving the joystick forward/backwards.

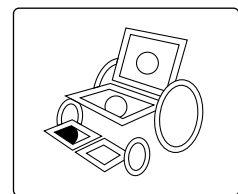
- Return to drive by pressing the MODE button once.



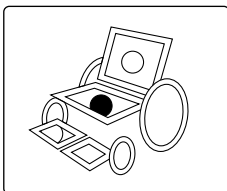
MODE button



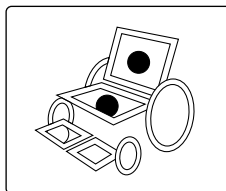
Speed indicator



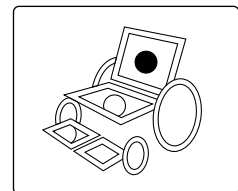
Leg support activated



Seat lift activated



Seat tilt activated



Back rest tilt activated

Seat control panel

The seat control panel is attached between the control panel and the right armrest. The control panel and seat control panel can also be fitted to the left armrest. The fig. 18 below shows the various functions.

Seat lift, fig. 18:1

The seat is raised when the top part of the seat lift button is pressed, and lowered when the bottom part of the button is pressed.

Backrest angle, fig. 18:2

The backrest is tilted forwards when the top part of the backrest angle button is pressed and backwards when the bottom part of the button is pressed.

Seat tilt angle, fig. 18:3

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

Leg support, fig. 18:4

The leg support moves forwards when the top part of the leg support button is pressed, and backwards when the bottom part of the button is pressed.

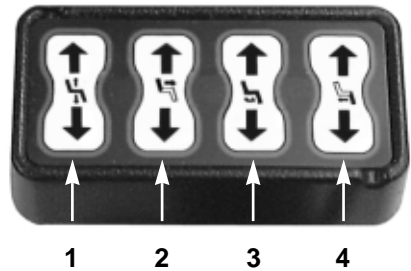


Fig. 18. Seat control panel

1. Seat lift
2. Backrest angle
3. Seat angle
4. Leg support

Joystick

The joystick is used to regulate the speed of the wheelchair forwards or backwards, to turn and to brake.

Speed

The speed is regulated proportionally by moving the joystick forwards or backwards.

The speed is directly proportional to the movement of the joystick.

- Small movement = low speed
- Large movement = high speed.



Fig 19. Regulation speed

Turning and braking

The wheelchair is turned by moving the joystick to the left or right.

The wheelchair is braked by moving the joystick back to the neutral position or letting it go.



Fig. 20. Regulation turning

Accessories

We are constantly developing accessories for our wheelchairs. Contact your nearest Permobil retailer for more information about the accessories available for your wheelchair.

Tool bag

The wheelchair is supplied with a tool bag which contains the following tools.



Fig 21. Tool bag

<i>Tool</i>	<i>Area of use</i>
1. Pair of protective goggles	Work on the batteries
2. Set of Allen keys	General maintenance/adjustment of the seat
3. 1 x 13 mm spanner	General maintenance, changing the battery
4. Seat lift crank	Raising the seat
5. Security key	Lock/Unlock the wheelchair

Handling

General

This wheelchair is designed for use both inside and outside. When driving inside, take normal care. Outside you must remember to drive very slowly on steep downhill slopes and not to drive over curbs and other obstacles higher than 3 inches.

Do not make the first test run on your own. The test run is to find out how you and the wheelchair work together and you may need some assistance.

Driving

1. Switch on the wheelchair by pressing the start button on the control panel.

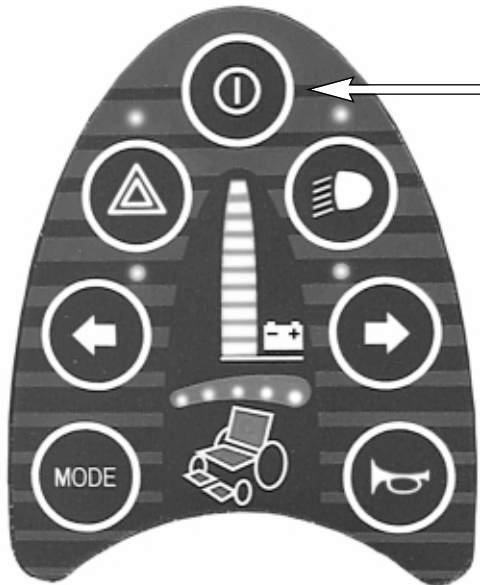


Fig. 22. Start button

2. Set a suitable speed range by first pressing the MODE button and then use the joystick to select the speed, until the desired indicator lamp comes on for your type of driving.

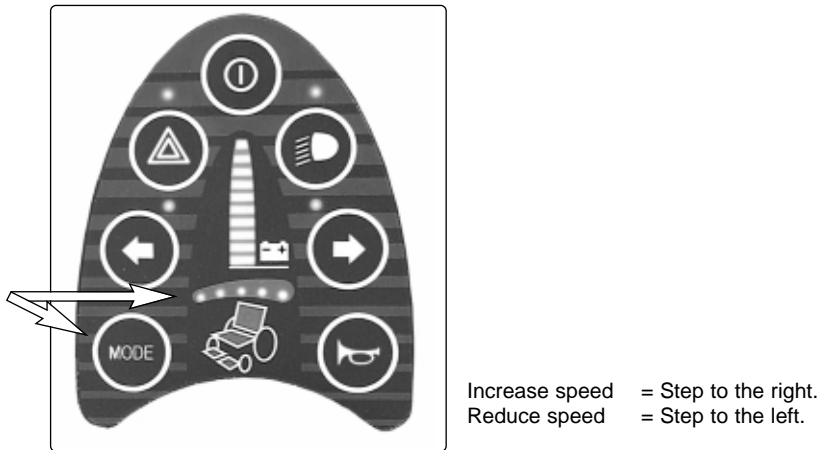


Fig. 23. Speed selector



WARNING !

Always bear in mind that high speed and extended braking distance entail an increased risk of accidents. Always use the positioning belt when seated in your powered wheelchair.

3. Move the joystick carefully forwards to drive forwards, or backwards to reverse.



Fig. 24. Driving forward/backwards

4. The speed of the wheelchair is regulated proportionally by moving the joystick forwards or backwards to different extents. The wheelchair's electronics make it possible to move slowly over curbs and other obstacles. You can drive up to the curb or obstacle and then carefully drive over it.

When you drive down an obstacle or a steep slope, you must drive slowly and brake gently. The maximum speed should be set to low speed. You can brake gently by pulling the joystick back to a position just before the neutral position. When the speed has been reduced, you can let the joystick go.

Always bear in mind that high speed and extended braking distance entail an increased risk of accidents. Always use the positioning belt when seated in your powered wheelchair.

NB: The wheelchair moves at reduced speed if the seat is raised. You can only drive at full speed if the seat is in its lowest position. *Raising the seat also raises the center of gravity and increases the risk of tipping. Therefore, you should only adjust your seat height when driving on level ground and not on hilly ground.*

Steering

The wheelchair can be turned in the required direction by moving the joystick to one side or the other while driving forwards or backwards.



Fig. 25. Steering

Driving rules

High curbs and other obstacles



WARNING !

Do not drive the wheelchair over curbs and other obstacles higher than 3 inches.



Fig. 26. High curbs and other obstacles

Downhill slopes

When driving downhill, select the slowest speed and proceed with caution. **Take extra care when driving downhill on uneven surfaces (e.g. grass, gravel, sand, ice and snow).**



WARNING !

Do not drive down slopes with a gradient greater than 12 degrees*).



Fig. 27. Driving downhill

**)Dynamic stability according to ISO 7176-2 = 7°.*

Uphill slopes

If you drive up slopes steeper than 12°, there is a risk that the wheelchair cannot be maneuvered safely.



WARNING !

Do not drive up slopes steeper than 12 degrees.



Fig. 28. Driving uphill

Driving along slopes



WARNING !

Do not drive the wheelchair along slopes steeper than 10 degrees. There is a risk of tipping.

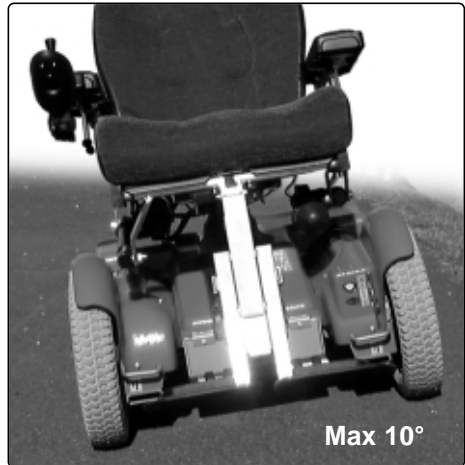


Fig. 29. Driving along slopes

**WARNING !**

Always bear in mind that high speed and extended braking distance entail an increased risk of accidents. Always use the positioning belt when seated in your powered wheelchair.

**WARNING !**

Never drive rapidly or at full speed along narrow passages, on narrow sidewalks, etc. where an incorrect maneuver or incorrect steering can cause an increased risk of accidents.

**WARNING !**

Keep in mind that driving along slopes have an effect on the wheelchair and could make it steer to the side. Never drive at full speed along slopes.

**WARNING !**

Use of the seat tilt function displaces the center of gravity, which can have a negative effect on the chair's handling characteristics while it is being driven. So you should never drive at full speed if an extreme seat tilt is being used.

Releasing the brakes



WARNING !

In order to avoid the wheelchair rolling away, ensure that the wheelchair is on a level and dry base before releasing the brakes.

The brakes can be released to make it possible to move the wheelchair manually.

1. Press the start button to switch off the wheelchair.
2. Move the lever, Fig. 30, up. The chair can now be moved manually.

NB! Reset the brakes after moving the chair by pulling the lever down. When the brake release has been activated, the wheelchair cannot be driven.

Check of brake release

Check regularly, approx. once per month, the brake release function by engaging and disengaging the brake release a number of times. Check to see if chair actually goes in and out of freewheel by pushing the chair.



Fig. 30. Releasing the brakes

Charging the batteries



WARNING !

The batteries must be charged in a well-ventilated room, not in a closet. Do not charge the batteries in a bathroom or wet room.



WARNING !

Take care when using metal objects in connection with work on the batteries. Short-circuiting can easily cause an explosion. Always use protective gloves and goggles.



WARNING !

Use only chargers with a maximum 10 A charging current (mean value).
(The effective value of the charging current must not exceed 12 A.)

When should the batteries be charged?

As a general rule, you should recharge your batteries as frequently as possible to assure the longest possible life and to minimize the required charging time. Plan to recharge them when you do not anticipate using the chair for a long period of time.

A battery voltage indicator on the control panel indicates when the battery voltage is low (see figure on page 16). The batteries must then be charged as soon as possible.

If the batteries should become completely discharged, it is important that you recharge them as soon as possible. If you delay before recharging them, the batteries can be damaged.

Charging

1. Connect the charger cable from the charger to the charging socket, Fig. 32, on the wheelchair.
2. Connect the charger to the 110 volt supply.

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

NB! The main fuse must always be in the "ON" position when charging is being performed.

Description and Use of Battery Charger, see supplied Owner's Manual.



WARNING !

To avoid sparking and unnecessary wear and tear of the wheelchair's charging socket, be sure that the main voltage and the charger is in OFF position when connecting/disconnecting the charging cable to the wheelchair's charging socket.

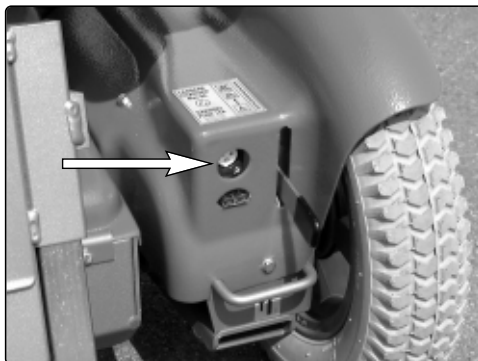


Fig. 32. Charging socket

Transport

The wheelchair can be secured with straps via the fastening loops at the front and rear. If the chair has to be transported in a van, estate car or other vehicle, it is extremely important that the chair is secured properly and that the fastening points used are well anchored in the vehicle.

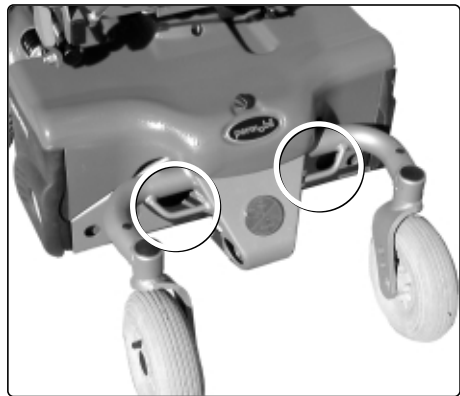


WARNING !

If the chair is not properly secured and comes loose, it can cause serious injury to persons in the vehicle and serious damage to the vehicle and itself.



Front fastening loops



Rear fastening loops

Fig. 33. Chassis fastening loops

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 39 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. Always check with the airline in question which rules apply.

Preventing damage

Cover the control 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 and Repairs

To ensure that your wheelchair works well, it is important that it is well looked after. Every wheelchair is subject to wear, partly between the moving parts and partly on account of strains and stresses. Therefore, you must know how the wheelchair works, how you are to drive it and use it correctly and how you are to look after it.

Preventive maintenance is intended to prevent faults. If you look after your wheelchair, it will work well and the risk of faults is reduced.

**WARNING !**

Any inappropriate modifications to the wheelchair and its various systems may entail an increased risk of accidents. Carefully follow the recommendations in the Handling section to prevent the risk of accidents in connection with driving.

All modifications to and interventions in the vital systems of the wheelchair must be performed by a qualified service engineer. Always contact a qualified service engineer in cases of doubt.

**WARNING !**

Set the circuit breaker to "OFF" before servicing the wheelchair's electronics.

**WARNING !**

Take care when using metal objects in connection with work on the batteries. Short-circuiting can easily cause an explosion. Always use protective gloves and goggles.

Maintenance

General

- Batteries discharge themselves and must be charged and maintenance-charged to prevent them from being damaged.
- The wheelchair must not be stored in rooms in which condensation occurs (mist or moisture on surfaces), e.g. laundry or similar rooms.
- The wheelchair may be stored in an unheated room. From the point of view of corrosion, it is best for the chair if the room is a few degrees warmer than the surroundings, which keeps the room drier.

Short-term storage

In order for the charging process to produce a battery with good capacity, the temperature in the storage room should not be less than 41 F. Storage at less than 41 F increases the risk that the battery is not fully charged when it is used and also increases the risk of corrosion.

Long-term storage

The chair may be stored in an unheated room but the battery should be maintenance-charged at least once per month. See also Short-term storage above.

Cleaning

Clean the wheelchair often. It is especially important to clean it after it has been used outside. Use a damp rag with a mild soap solution to wipe off dirt and dust.

NB: Do not use a hose to wash the wheelchair with water. The electronics can be damaged.

Wheels

Check regularly that the air pressure in the tires is correct. Fill with air if necessary.

Check of brake release

Check regularly, approx. once per month, the brake release function by engaging and disengaging the brake release a number of times.

Batteries

Storage

Please note that batteries discharge of their own accord and that a discharged battery may freeze and burst when it is cold. If the wheelchair is to be stored and not used for a long period of time, the batteries must always be charged once per month to avoid damaging them.

NB: The temperature in the storage room should not be less than 41 F.

If your wheelchair is equipped with acid batteries, the level of acid should be checked regularly.

If your wheelchair is equipped with gel batteries, there is no need to check the liquid level.

The durability of the batteries depends greatly on regular charging.

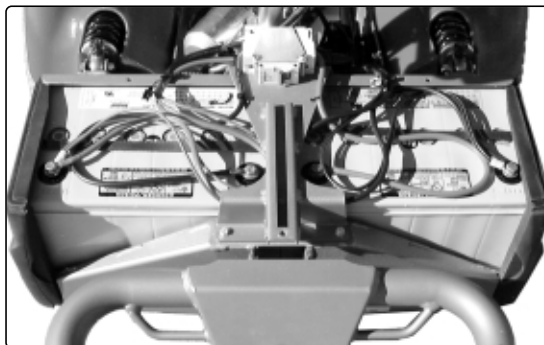


Fig. 34. Batteries

Repairs

Resetting the main fuse/battery cut-out

The main fuse also functions as a battery cut-out but is still referred to as the main fuse in the user instruction.

NB! First switch off the power on the maneuvering panel before switching the power off on the main fuse.

Main fuse

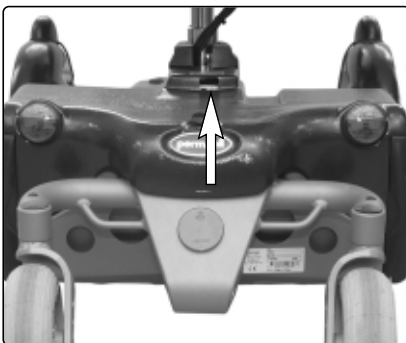
You don't normally need to change the main fuse, as you can reset it when it trips. You reset it by switching it to the "ON" position. The main fuse is located on the top side of the chassis behind the seat lift, see Fig. 35.

NB! If the main fuse trips, it usually means that there is a serious electrical fault. Check the cause carefully before you reset the circuit breaker.

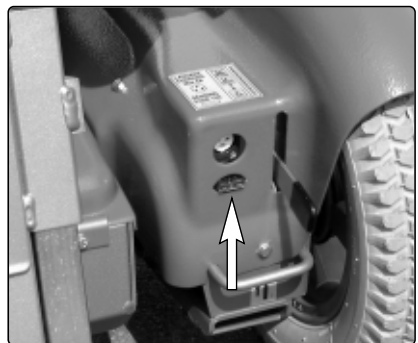
Changing the charging fuse

The fuse holder for the charging fuse is below the charging outlet at the front edge of the wheelchair's chassis cover.

NB! *The chair should be switched off when changing the charging fuse.*



Main fuse
Chairman 2k 63A
Chairman 2s 80A



Charging fuse 15A

Fig. 35. Fuses

Changing the batteries

1. Put the wheelchair on a level surface.
2. Switch off the main switch, which is accessible through a hole, 36:1, in the chassis cover.
3. Loosen the chassis cover a little by unscrewing the knob, 36:2, that holds the cover.
4. Open the battery covers by loosening the knobs, Fig. 37, and drop the covers down.
5. Use the battery straps to pull each battery completely out, Fig. 38.
6. Loosen the battery connections. Positive (+) poles first then the negative (-) poles. Also look at the stickers on the inside of the battery covers.
7. Lift the batteries away.
8. Put in two new batteries, using the battery straps. Leave the straps on the new batteries.
9. Connect the battery cables, first the negative (-) poles and then the positive (+) poles.
10. Lock the battery covers and then the chassis cover.
11. Switch on the main switch.

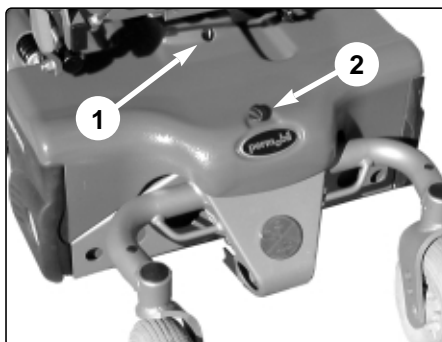


Fig. 36. Main switch hole, chassis cover knob.



Fig. 37. Battery cover knob

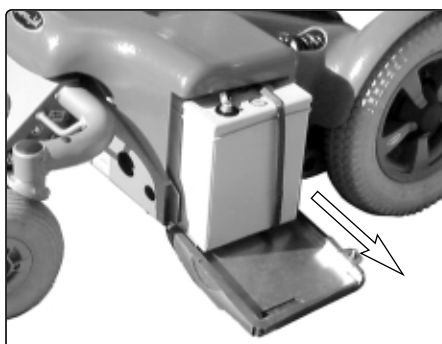


Fig. 38. Pulling out the batteries

Changing inner tubes

1. Block up the wheelchair and let out the air.
2. Pull the tire off the wheel rim.
3. Change the punctured inner tube.
4. Replace the tire on the wheel rim and fill with air.



Fig. 39. Filling valve

Filling with air



WARNING !

The recommended air pressure is 29 psi (0.2 MPa). Overfilling entails the risk of explosion.

Low air pressure in the tires produces abnormal wear and reduces the range. Therefore, check regularly that the tires have a pressure of 29 psi (0.2 MPa). Rotate the tire such that the valve stem is in the '12 o'clock position' if your tires contain liquid tire sealant.

1. Unscrew the plastic caps on the air valves of the front and rear tires.
2. Connect the air nozzle to the valve and adjust the tire pressure to the stipulated level.

Changing inner tubes for the rear tires

NB! Only applies if your wheelchair has pneumatic rear tires.

1. Support the chair on blocks and let out the air.
2. Split the rim by unscrewing the five socket-head screws that hold the rim together.
3. Replace the damaged tube.
4. Assemble the rim with the tire, making sure the tube doesn't get trapped between the two halves of the rim, and inflate. Therefore, check regularly that the tires have a pressure of 29 psi (0.2 MPa).

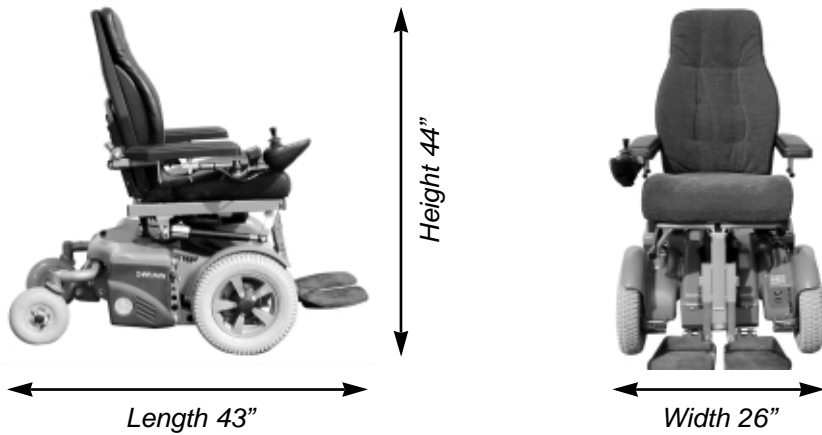


Fig. 40. Socket-head screws and inflation valve

Technical specifications

The specifications given in the following pages are only applicable to the Chairman 2k/2s chassis with Corpus seat.

For size and weight information about each seat, see the Owner's Manual accompanying the seat.



Smallest transportation size = length 33", width 26", height 27"

Data

General

Name Chairman 2k/2s

Size and weight

Length..... 43"
 Width..... 26"
 Height 44"
 Smallest transport size, lwxh 33x26x27"
 Weight incl. batteries and Corpus-seat.. 320 lbs
 Max. battery size 10,25x6,75x8,25"

Wheels

Tire size, front..... 300 x 8
 Tire size, back 210 x 65
 Max air pressure, front/back tires..... 29 psi (0,2 MPa)

Performance

Range 19 - 25 miles
 Turning distance, 180 degrees 44"
 Ability to negotiate obstacles 3"
 Hill climbing capability, uphill 12 degrees
 Hill climbing capability, downhill 12 degrees*)

	Chairman 2k	Chairman 2s
Max speed, forward.....	5 mph	7.5 mph

*)Dynamic stability according to ISO 7176-2 = 7°.

Electrical system

Electronics	Chairman 2k	Chairman 2s
	PM80 Pilot+	PM100 Pilot+

Control panel
 JSM-L 7key Pilot+

Batteries
 Recommended battery type Group 24, Gel
 Battery capacity 2 x 73 Ah
 Charging time 9 hours

Fuses	Chairman 2k	Chairman 2s
Charging fuse.....	15A	
Mainfuse.....	63A	80A

Trouble Shooting Guide

The troubleshooting guide below describes a number of events that can arise when you use your wheelchair, as well as providing suggestions for solutions. Note that this guide does not describe all the possible events that can arise, and you should always get in touch with your service contact or Permobil when you are unsure

EVENT	POSSIBLE CAUSE	SOLUTION
The wheelchair does not start.	Batteries discharged.	Charge the batteries.
	The cable connection to the control panel has become loose.	Attach the cable to the control panel.
	Main fuse set in "OFF" position after, for example, changing batteries.	Reset the main fuse. See page 38.
	Main fuse triggered.	See page 38.
The wheelchair can not be driven.	Battery charger connected.	Terminate the charging and remove the charging cable from the charging outlet.
	Brake release activated.	Reset the brake release.
	Wheelchair locked with the security key.	Unlock the wheelchair. See page 15
Battery voltage indicator on the control panel rapidly blinking and the wheelchair can not be driven.	Fault indicated in the drive electronics.	See pages 46-47. Alt. contact service.
The wheelchair stops while being driven.	The cable connection to the control panel has become loose.	Attach the cable to the control panel.

EVENT	POSSIBLE CAUSE	SOLUTION
<p>The wheelchair can only be driven with reduced speed. <i>Applies for electrical seat lift and seat tilt only.</i></p>	<p>Seat tilt or seat lift raised to high.</p>	<p>Lower seat lift alt. seat tilt. See page 18-19.</p>
<p>The wheelchair will not charge.</p>	<p>Main fuse set in "OFF" position after, for example, changing batteries.</p>	<p>Reset the main fuse. See page 38.</p>
	<p>Triggered charging fuse due to fault in, for example, batteries, charger, charging cables, charging outlet.</p>	<p>Carefully check possible causes before replacing See page 38.</p>

Error signals - Battery voltage indicator

Every time the wheelchair is started up, a check is performed on parts of the wheelchair's electronics. If any faults have arisen in these parts, this is shown on the control panel's battery voltage indicator by one or more blinking lights.

Constant light

Everything is in order. How many lights are lit, depends upon how much voltage there is in the batteries. With fully charged batteries, all lights are lit.

Slowly blinking red lights

The batteries need to be charged immediately.

Rapidly blinking, 1 - 10 lights

Error signals, an error has arisen and the wheelchair can not be driven.

Error signals

The number of blinking lights indicate what the problem could be.

- Note the number of blinking lights.
- Turn off the wheelchair.
- Turn the wheelchair back on again.
- If the error persists, count the number of blinking lights, check possible causes and solutions in the table on the adjoining page.

NB! Possible error signals on the battery voltage indicator are not displayed while the wheelchair is being driven, they only first appear the next time the wheelchair is restarted.



WARNING !

The remedying of errors that are indicated via the battery voltage indicator must be performed by a person with sufficient expertise to be able to perform such in a professional manner. Always contact an authorized serviceman when in doubt.

CAUSE		SOLUTION
High battery voltage	10 Green	Check the battery and the connections between the battery and the control unit.
Failure in brake circuit	9 Green	Check the connections to the magnetic brake.
Fault in electronics	8 Green	Check the contacts to the output stage. If the fault persists, change the output stage.
Fault in the control panel	7 Orange	Make sure the joystick isn't actuated at switch-on, change the control panel.
Charger connected	6 Orange	Remove the charge plug from the charge socket in the wheelchair.
Short circuit right drive motor	5 Orange	Check the drive motor connections and cable.
Open circuit, right drive motor	4 Orange	Check the connection to the right drive motor.
Short circuit left drive motor	3 Red	Check the drive motor connections and cable.
Open circuit, left drive motor	2 Red	Check the connection to the right drive motor.
Low battery voltage	1 Red	Check the condition of the battery. Check the connection between the battery and the control unit.

Example:

Lights 1-6, 3 red and 3 orange, blinking rapidly upon start-up and the wheelchair can not be driven.

Cause:

The battery charger's charging contact is connected to the wheelchair's charging outlet.

Solution:

Finish/abort charging and remove the charging contact from the wheelchair's charging outlet.

CAUTION! It is very important that you read this information regarding the possible effects of electromagnetic interference 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), which is interfering electromagnetic energy (EM) emitted from sources such as radio stations, TV stations, amateur radio (HAM) transmitters, two-way 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 include: 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 vehicle.

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 cassette 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 and TV stations, amateur radio (HAM) transmitters, two-way radios, and cellular phones can affect powered wheelchairs and motorized scooters. Following the warnings listed below should reduced the chance of unintended brake release or powered wheelchair movement which could result in serious injury.

1.

Do not operate hand-held transceivers (transmitters/receivers), 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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