

# *Chairman HD3*

## *Owner's Manual*



US



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# Contents

<b>Safety instructions</b> .....	6
<b>General introduction</b> .....	8
Specially modified wheelchairs .....	8
<b>Design and Functions</b> .....	9
Wheels .....	10
Lighting and reflectors.....	10
Electrical system .....	11
Control panel.....	13
Seat.....	20
<b>Adjustments</b> .....	22
Armrests .....	22
Trunk supports .....	22
Lumbar support.....	22
Leg supports .....	23
Leg support length .....	23
Footplate angle .....	23
Backrest .....	24
Head support.....	24
Calf supports.....	25
Thigh supports .....	25
<b>Accessories</b> .....	26
Tool bag.....	26
<b>Operation</b> .....	27
Driving .....	27
Driving rules .....	30
Releasing the brakes .....	32
Charging the batteries.....	33
<b>Transportation</b> .....	35
Transporting by air .....	37
<b>Repair and maintenance</b> .....	38
Cleaning .....	40
Wheels .....	40
Releasing the brakes .....	40
Batteries .....	40
<b>Repairs</b> .....	41
Changing fuses .....	41
Changing batteries .....	42
Changing an inner tube.....	43
Inflating .....	43
Changing bulbs .....	44
<b>Technical specifications</b> .....	45
Seat.....	45
Data.....	46
Electrical system.....	47
<b>Important information (only for the US market)</b> .....	48

# Safety instructions

## General

A wheelchair is a motor-driven vehicle, so be very careful when using it.

Incorrect use can cause a risk of injury or damage to the chair. To reduce these risks, you should read the operating instructions carefully, especially the safety instructions and warnings.

Any improper modification of the wheelchair and its systems can increase the risk of accidents. Follow the recommendations in the section on Operation, in order to avoid risks when driving.

All modifications to, and interference with, the key systems of the wheelchair should be done by a qualified service engineer. Always contact a qualified service engineer if you are in doubt.

## Warning



**WARNING !**

**Use extreme caution when you see this warning symbol. There is a risk of injury.**

## Passangers

The wheelchair is not intended for carrying passengers, whatever their age.

## Maximum weight of user

The HD3 seat can be used by someone weighing up to 400 lbs.

## Driving

- Do not drive the wheelchair over edges higher than 2.5".
- Observe caution when driving downhill, and always drive slowly.
- Do not drive up or down gradients greater than 12 degrees\*). On steeper gradients, there is a risk that you won't be able to maneuver the chair safely.
- Do not drive the wheelchair where the sideways gradient is more than 6 degrees. There is a risk of tipping.

\*)Dynamic stability according to ISO 7176-2 = 6°

## **Operating the seat lift**

Make sure nothing gets jammed between the chassis and the seat when you are operating the seat lift. The center of gravity is higher when the seat is raised, increasing the risk of tipping. So use the seat lift only on flat ground and not on uneven surfaces.

## **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.

## **Getting into and out of the chair**

The wheelchair must always be switched off when getting into and out of the chair.

## **Releasing the brakes**

Make sure the wheelchair is on a level surface before you release the brakes, so it doesn't roll away.

## **Charging batteries**

Charging should be done in a well-ventilated area, not in a wardrobe or closet. You should not charge the batteries in a bathroom or wet area. Only use a charger with a maximum charging current of 10A (mean value). The chair will not drive while connected to charger.

## **Transportation**

Ensure that the chair is properly secured (see page 35). A chair that is not properly secured can cause injury and damage if it comes loose.

## **Servicing**

Only attempt the servicing and maintenance that the operating instructions say may be done by the user. All other servicing and maintenance should be done by someone with sufficient knowledge to be able to do it correctly.

Always disconnect the negative terminal of the battery before you work on the electrical system of the wheelchair. Take care when using metal objects while working on the battery. A short circuit could easily cause an explosion. Always use protective gloves and glasses.

The recommended air pressure is 29 psi. The tire could explode if you over-inflate it.

# General introduction

The Chairman HD3 is a flexible chair, which is intended for users between 265 and 400 lbs. It has many installation options and can be quickly modified for different requirements.

The seat is made up of modules. The seat frame forms the basic support, and is supplemented with a choice of seats, backrests, armrests and leg supports. The modular system makes it easy to change and reuse the various parts.

In order to get the best possible use from your wheelchair, it is important to use it in the intended way. We therefore advise you to carefully read the operating instructions, especially the safety instructions. Keep the operating instructions with the rest of the things belonging to the chair.

The first thing you should do is to charge the batteries. If you're not sure what to do, read the chapter on Battery charging on pages 33-34. Charging takes about 8 hours.

## Specially modified wheelchairs

If your wheelchair is marked with a "Specially modified product" sticker, it has been modified to your specific needs and wishes. This means that the design and functions could be different from the text in these operating instructions, or the design and functions of other wheelchairs of the same type.

The seat can also contain parts that are unique to your chair. These aren't available as spare parts, and must be made as required. This can affect the repair time of your seat.

## Specifications

All information and specifications given in these operating instructions were applicable when this wheelchair was delivered. As Permobil carries out continual development and improvement, we reserve the right to make changes without prior notice.

# Design and Functions

## General

### Overview of the Chairman HD3



*Fig.1. Front view*



*Fig. 2. Rear view*

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

## Wheels

The front wheels of the wheelchair, the drive wheels, have pneumatic tires. The use of solid tire inserts will void warranty. The double rear wheels, the castor wheels, have solid rubber tires.

## Lighting and reflectors

In the standard design, the wheelchair is fitted with front and rear lights, and reflectors at the front, rear and sides.



*Fig. 3. Front lights, indicators and reflectors*



*Fig. 4. Rear lights and reflectors*



*Fig. 5. Side reflectors*

## Electrical system

The batteries are situated under the battery cover in the center of the chassis.



*Fig. 6. Batteries*

## Drive

The wheelchair has a drive unit for each drive wheel. The motors control the speed, turning and braking. A control stick on the control panel sends signals to the electronic unit under the cover at the rear of the chassis. The electronic unit then controls the motors.



*Fig.7. Electric motor  
with drive gear*

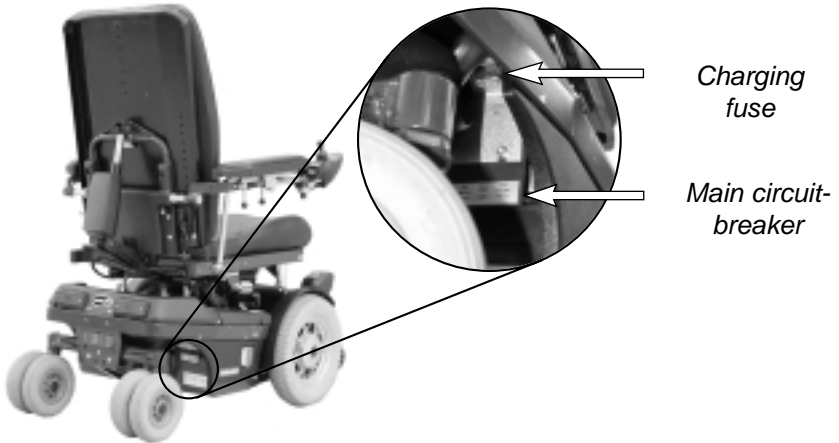
## Main circuit-breaker

You can reset the main circuit-breaker if it trips. It is on the underside of the chassis, over the right, rear wheel, see fig. 8. The main circuit-breaker is protected from dirt and water by a rubber flap, which you can easily fold back.

**NB!** If the circuit breaker trips, it usually means that there is a serious electrical fault. Before you reset the main fuse, check carefully or, call a qualified service technician.

## Charging fuse

The charging fuse is located above the main fuse on the bottom of the chassis by the right rear wheel. See fig. 8.



*Fig.8. Main circuit-breaker and charging fuse*

# Control panel

The control panel of the wheelchair is mounted on the right arm rest and its location can be adjusted to achieve the most comfortable position in connection with maneuvering. The control panel can also be mounted on the left arm rest. 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.

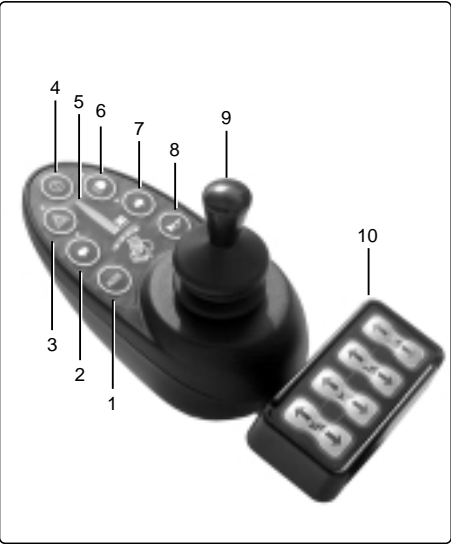


Fig. 9. Control panel

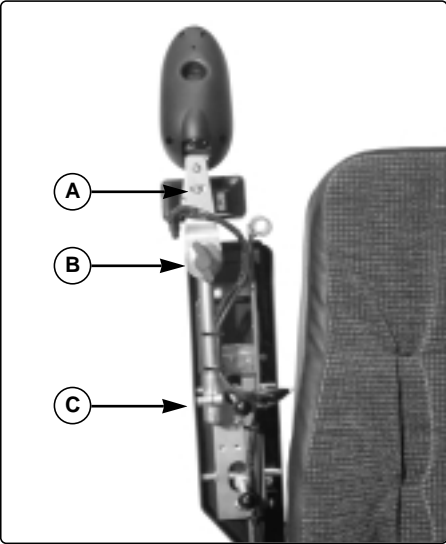


Fig. 10. Adjusting the control panel.

- |                              |                        |
|------------------------------|------------------------|
| 1. Selector                  | 6. Lights              |
| 2. Indicators                | 7. Indicators          |
| 3. Warning light             | 8. Horn                |
| 4. Switch, on/off            | 9. Joystick            |
| 5. Battery voltage indicator | 10. Seat control panel |

## A. Sideways adjustment

Loosen the screws and adjust the control panel to the desired position.

## B. Friction joint

Turn to adjust how light or stiff you want the sideways movement of the panel to be.

## C. Length adjustment

Loosen the screw and adjust the length as required.

## 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. The power can be shut off, if desired.

To unlock the wheelchair, be sure the chair's power is "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.

## Switch, on / off

You use this button to turn power on and off. The start button must have been pressed for the chair to operate.



Fig. 11. Panel outlet with security key

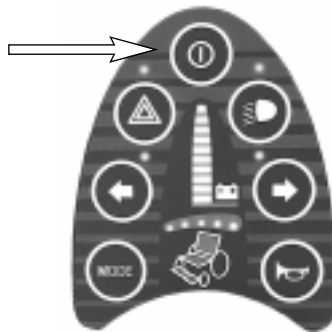


Fig. 12. Start button

## MODE (selector)

You use this switch to activate the speed selector and »Leverman« (see page 19).

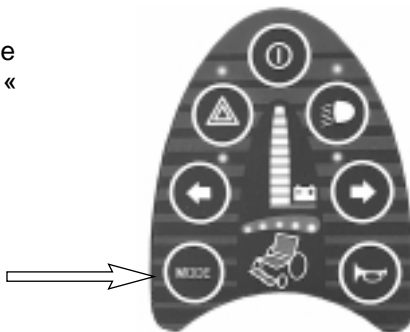


Fig. 13. Mode (selector)

### Battery voltage indicator

The window display on the control panel (fig.14) shows the following indicator lights (from bottom to top) :

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



Fig. 14. 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 also, to attract attention.

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



Fig. 15. Warning signal.

### 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 19.

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

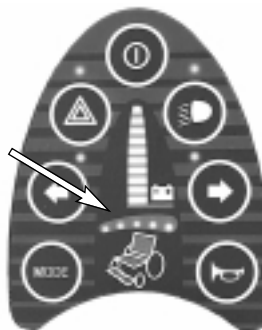


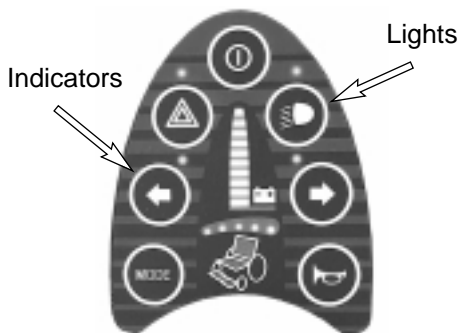
Fig. 16. Speed selector

**Lights**

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

**Indicators**

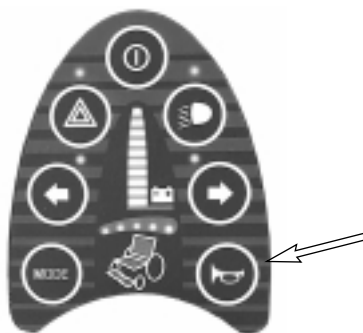
Pressing the right or left arrow activates the chair's indicators.



*Fig.17. Light/indicator switches*

**Warning horn**

Press the button to sound the horn and attract attention.



*Fig.18. 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.19. Joystick*

**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 20. Regulation of 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 21. Regulation of turning*

## Leverman (Joystick manager)

With the help of the Leverman, you can use the joystick to control the speed of the chair (5 positions), seat lift, backrest angle, seat angle and leg support, if your chair is so equipped. These are all the functions that are normally controlled from the push-buttons on the seat control panel.

### Operating the Leverman

1. Switch the start button on the control-panel to "on".
2. Press the MODE button. The battery indicator lights and the speed selector lights flash. Step the speed range up or down by moving the joystick right or left.
3. Press MODE to move through the program. The right footplate lights. Now you can move the leg support out or in by moving the joystick forwards or backwards.
4. Move the joystick to the left twice and the seat lamp will come on. Moving the joystick forwards or backwards will raise or lower the height of the seat.
5. Move the joystick to the right and both the seat and backrest lamps light. This means that seat tilt is active, and can be controlled by moving the joystick forwards or backwards.
6. Move the joystick to the right and the backrest lamp comes on. The backrest angle is stepless, and is adjusted by moving the joystick forwards or backwards.
7. Press the MODE button again. The program ends and the chair is ready to drive.



*Fig.22. Leg support active*



*Fig.23. Seat lift*



*Fig.24. Seat tilt*



*Fig.25. Backrest angle*

## Design and functions of the seat

### Seat

The seat consists of a seat frame, backrest, armrests and leg supports.

The diagram below shows the seat separated from the chassis.



*Fig. 26. HD3-seat*

### Seat

The seat cushions are covered with fabric or leatherette. The seat is available in three widths.

### Backrest including cushion

Backrests and cushions are available in various lengths and widths.

### Armrest

These have adjustable height and angle and can be tilted up. The armrests are covered with fabric or leatherette and are available in various lengths.

### Leg supports with footplate

The leg supports can be angled and are either manually or electrically adjusted. The leg supports can be separated for individual angle adjustment. The footplate can be whole or divided.

## Seat lift

The Chairman HD3 can be fitted with an electrically operated seat lift. An adjuster that you operate from the control panel lets you raise the seat up to 8", so you can make the height comfortable for tables, benches etc. You can't drive the wheelchair when you move the seat lift away from its lowest position.

## Electric Backrest/Seat Adjustment

The Chairman HD3 can be fitted with electric adjustment of the backrest/seat angle, which you do using the seat control panel (see below).

## Electric Leg Support

The Chairman HD3 can be fitted with electrically adjustable leg supports, which lets you adjust the angle of the leg supports using the button box (see below).

## Seat control panel

The seat control panel is attached to the right or left-hand armrest behind the control panel. The picture below show the different functions of the seat control panel.

### ***Seat lift, fig. 27:1***

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. 27:2***

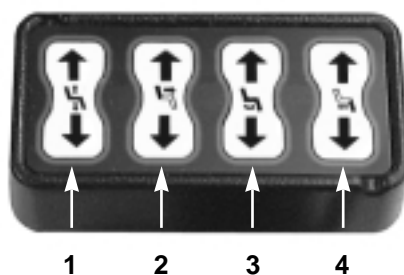
The backrest is tilted forwards when the top part of the backrest angle button is pressed and forwards when the bottom part of the button is pressed.

### ***Seat tilt angle, fig. 27:3***

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. 27:4***

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. 27. Seat control panel*

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

## Adjustments

### Armrest

#### *Adjusting height/angle*

1. Loosen the two nuts (Fig. 28).
2. Adjust to the desired height/angle.
3. Tighten the nuts.

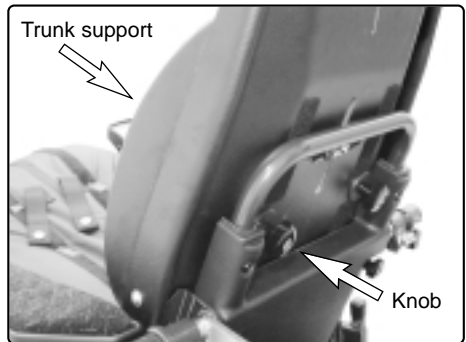


*Fig. 28. Armrest angle*

### Built-in trunk support

#### *Adjusting the height*

1. Loosen the knob (Fig. 29).
2. Adjust by moving the trunk support up or down.
3. Retighten the knob.

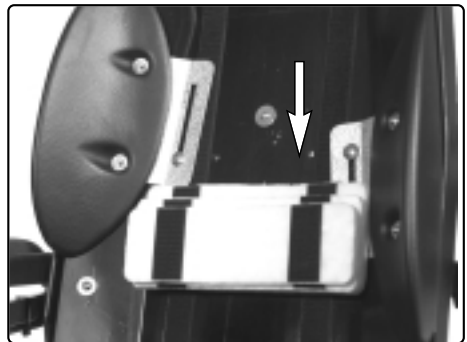


*Fig. 29. Trunk support adjustment*

### Lumbar support

#### *Adjusting height and depth*

1. Remove the back cushion.
2. Adjust the lumbar support as required (Fig. 30).
3. Replace the back cushion.

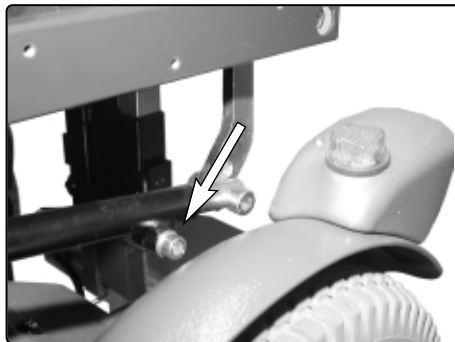


*Fig. 30. Lumbar support adjustment*

## Leg support

### *Adjusting leg support angle*

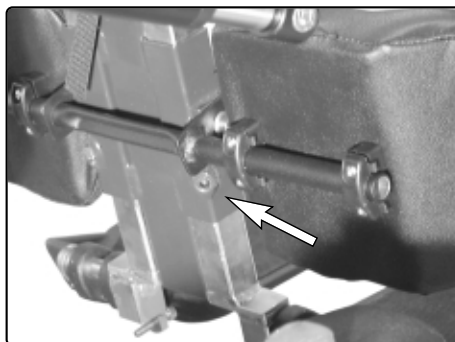
1. If the seat has electric leg supports, you adjust the angle from the seat control panel, see page 21.
2. If the seat has manual leg supports, adjust the angle using the screw (Fig. 31).



*Fig. 31. Manual adjustment of leg support*

### *Adjusting leg support length*

1. Loosen the screw (Fig. 32).
2. Adjust the leg support.
3. Tighten the screw.

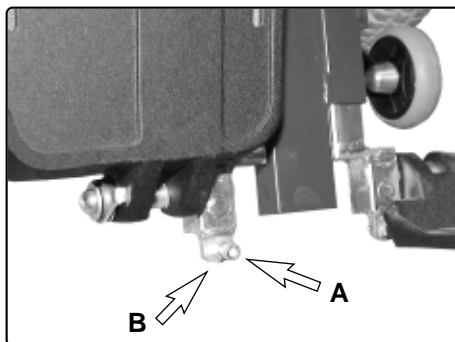


*Fig. 32. Adjusting the leg support length*

## Footplate

### *Adjusting footplate angle*

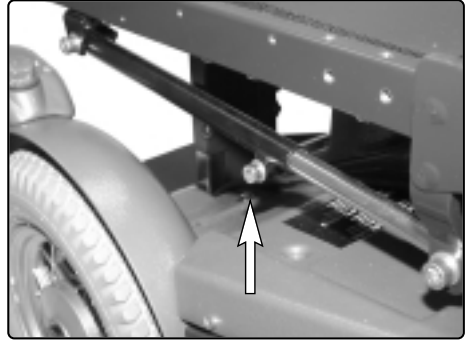
1. Tilt the footplate up.
2. Adjust the footplate angle by turning screw A in or out (Fig. 33).
3. Lock the adjusting screw with nut B.



*Fig. 33. Adjusting the footplate angle*

**Backrest***Adjusting the backrest angle*

1. If your seat has an electric backrest, adjust the angle with the seat control panel, see page 21.
2. If your seat has a manual backrest, adjust the angle using the screw (Fig. 34).
3. Tighten the screw firmly after adjustment.



*Fig. 34. Manual adjustment of the backrest*

**Head support, adjustment***Adjusting height*

1. Loosen the knob.
2. Set the desired height.
3. Tighten the knob.



*Fig. 35. Adjusting height*

*Adjusting forwards/backwards*

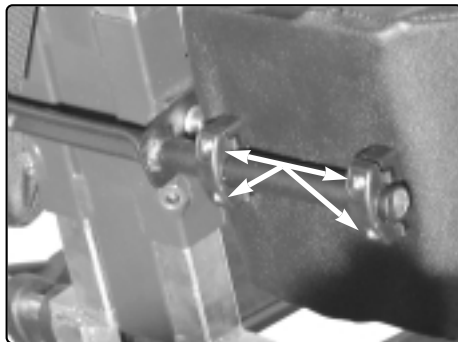
1. Loosen the clamping bar.
2. Adjust as required.
3. Tighten the clamping bar.



*Fig. 36. Adjusting angle*

**Calf support***Setting width/angle*

1. Loosen the four screws on the rear of the calf support (Fig. 37).
2. Adjust to a suitable width and height.
3. Tighten the screws.



*Fig. 37. Calf support adjustment*

**Thigh support****1. Length**

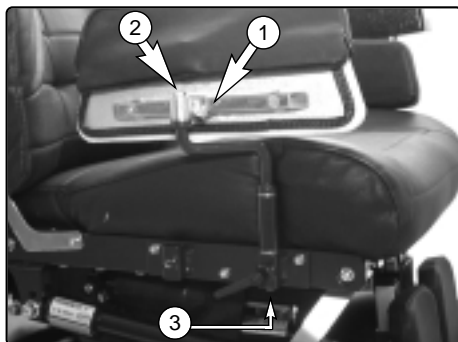
Open the zipper on the thigh support, loosen the screw (38:1), adjust to the desired position and tighten the screw. Zip the cover closed

**2. Thigh support angle**

Loosen the screw (38:2), set an appropriate angle and tighten the screw.

**3. Width adjustment**

Loosen the screw (38:2), adjust the width and tighten the screw.



*Fig. 38. Thigh support adjustment*

# Accessories

We are continually developing accessories for Permobil electric wheelchairs. Contact your nearest Permobil retailer for more information about which accessories are available for your wheelchair.

## Tool bag

A toolbar is supplied with the wheelchair, with the following tools:



Fig 39. Tool bag

Tool	Area of use
1. Screwdriver	General maintenance/removing covers
2. 13 mm open-ended spanner	General maintenance, changing batteries
3. Protective glasses	Work on the battery
4. Seat lift crank	Raising the seat
5. Hexagon keys	General maintenance, adjustment of the seat
6. Security key	Lock/Unlock the wheelchair

# Handling

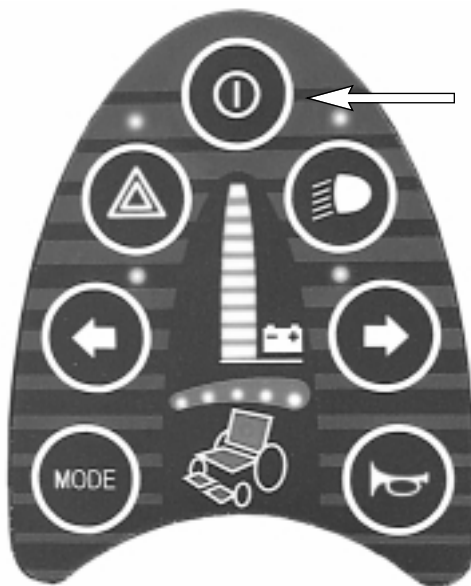
## General

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 2.5 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.

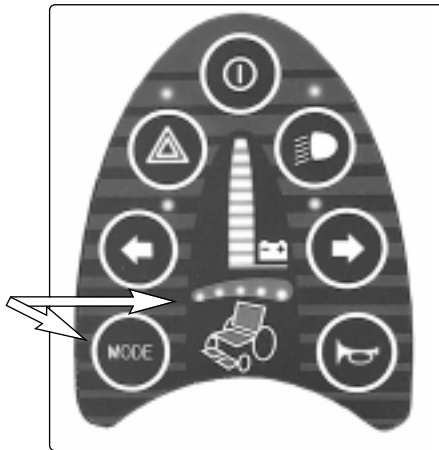
## Driving

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



*Fig. 40. 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.



Increase speed = Step to the right.  
Reduce speed = Step to the left.

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

*Fig. 41. Speed selector*

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



*Fig. 42. 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.

**NB!** The wheelchair can't be driven if the seat is raised. You can only drive if the seat is in its lowest position. Raising the seat lift raises the center of gravity and increases the risk of tipping.

## 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. 43. Steering*

## Driving rules

### High edges



**WARNING !**

**Do not drive the wheelchair over edges higher than 2.5".**



*Fig. 44. High edges*

### Downward slopes

When driving downhill you should drive slowly and with great care. **Take extra care when driving downhill on uneven surfaces (e.g. grass, gravel, sand, ice and snow).**



**WARNING !**

**Do not drive down slopes steeper than 12 degrees\*).**



*Fig. 45. Driving downhill*

\*)Dynamic stability according to ISO 7176-2 = 6°

### Upward slopes

When driving on slopes with an angle greater than 12°, there is a risk that you won't be able to control the wheelchair safely.



**WARNING !**

**Do not drive up slopes steeper than 12 degrees.**



*Fig. 46. Driving uphill*

### Driving on sideways slopes



**WARNING !**

**Do not drive the wheelchair on sideways slopes greater than 6 degrees. There is risk of tipping.**



*Fig. 47. Driving on sideways slopes*

## Releasing the brakes



**WARNING !**

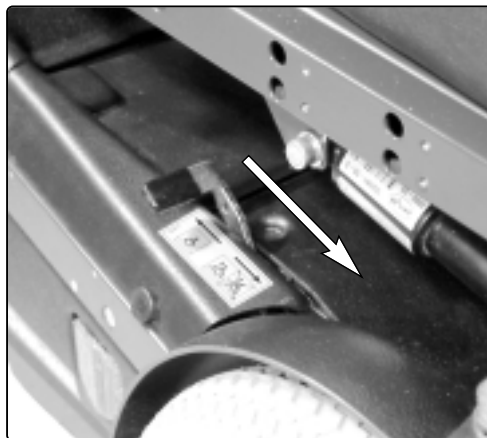
**To avoid the wheelchair rolling away, make sure it is on a level surface before you release the brakes.**

You can release the brakes to let you move the chair by hand.

1. Shut down the wheelchair by switching off the main switch.
2. Move the lever (Fig. 48) forwards. You can now move the chair manually.

**IMPORTANT!** Reset the brakes after moving the chair, by returning the lever to its original position. When the brakes are released, the wheelchair can not be driven.

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. 48. Releasing the brakes*

## Charging the batteries



**WARNING !**

Charging should take place in a well-ventilated area, not in a wardrobe or closet. Charging should not be carried out in a bathroom or wet area.



**WARNING !**

Take care when using metal objects while working on the battery. A short circuit could easily cause an explosion. Always use protective gloves and glasses.



**WARNING !**

**Only use a charger with a maximum charging current of 10A (mean value).**  
(The effective value of the charging current must not exceed 12 A.)



*Fig. 49. Lester Electrical's Dual mode charger*

**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. 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 power cable to the outlet. Turn of charger first, then, after connecting, turn on charger.
2. Connect the connection cable from the charger to the charging socket on the wheelchair, which is under the rubber shield on the rear of the left side of the cover.

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

***Description and Use of Battery Charger, see supplied Instruction Manual.***



*Fig. 50. Connecting the charger*

## Transportation

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, station wagon 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 people in the vehicle and serious damage to the vehicle and the wheelchair.**



*Fig. 51. Front fastening loops*



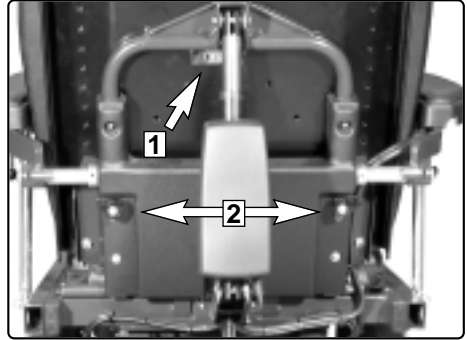
*Fig. 52. Rear fastening loops*

## Transportation

To make transporting the seat easier, you can fold the backrest forwards and remove the head support.

### Folding the backrest forwards

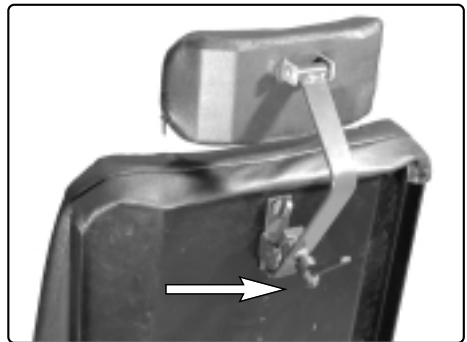
1. Release the pin, Fig. 53:1.
2. Loosen the knobs on the right and left sides of the backrest, Fig. 53:2.
3. Lift up the backrest and fixing plate and fold the backrest forwards.



*Fig. 53. Backrest clamps*

### Removing the head support

Unscrew the clamping bar (Fig. 54) and then move the head support to the right to remove it.



*Fig. 54. Clamping bar*

## 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 42 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 airplane 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 !**

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*Any inappropriate modifications to the wheelchair and its various systems may increase 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.*

---

# Maintenance



**WARNING !**

**During all work on the electrical system of the wheelchair, the connection to the positive pole of the battery must always be removed.**



**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.**

## General

- Batteries discharge themselves and must be kept 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.

## **Upholstery washing instructions**

Refer to the label on the cushion. The cover may be removed if desired for easier washing.

## **Checking belts**

Check the condition of the belts regularly for damage and wear.

## **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. Check to see if chair actually goes in and out of freewheel by pushing the chair.

## **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 entirely on regular charging.

# 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 instructions.

**NB!** First switch off the power on the maneuvering panel before switching the power off at the circuit breaker.

### Main circuit breaker

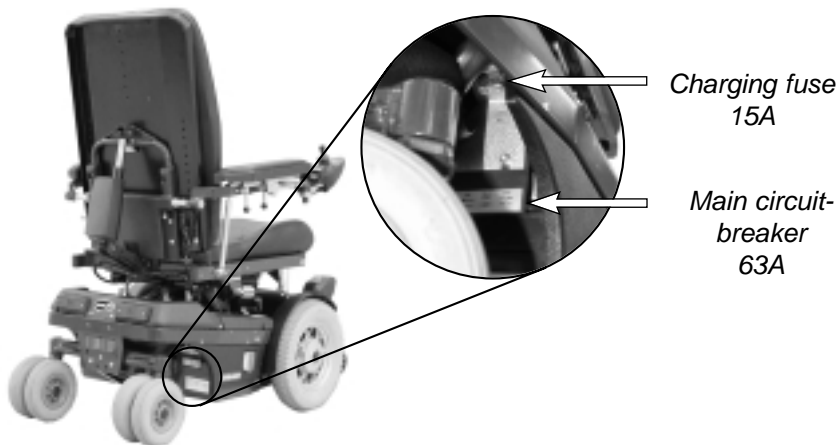
You don't normally need to change the main fuse, as you can reset it when it trips. You reset it by switching it to the "ON" position. The main fuse is under the chassis, over the right, rear wheel, see Fig. 55.

**NB!** If the circuit breaker trips, it usually means that there is a serious electrical fault. Before you reset the main fuse, check carefully or, call a qualified service technician.

### Charging fuse

The charging fuse is next to the main circuit-breaker, see Fig. 55.

**NB!** The wheelchair should be inoperative when you change the charging fuse.



*Fig.55. Main circuit-breaker and charging fuse*

## Changing the batteries

1. Position the wheelchair on a level surface.

### 2. Electric seat lift

Move the seat lift to the highest position. If the batteries are dead the seat must be raised manually. This can be done by removing the seat cushion and the plastic plug in the middle of the seat plate, loosen the rear cover and disconnect the seatlift cable. Use the accompanying seat lift wrench and crank the seat up, see Fig. 56.

### Fixed seat post

Unscrew the screw on the seat column bracket, see Fig. 57:2. Remove the seatcushion and the plastic plug in the middle of the seat plate. Use the accompanying seat lift wrench and crank the seat up, see Fig. 56.

3. Switch off the power using the main power switch.
4. Remove the battery covers and the rear cover.

**NB!** Be careful when removing the rear cover because the wiring for the rear light is both affixed to it and connected to the internal electrics.

5. Remove the battery connections. Do the positive poles first.
6. Remove the batteries.
7. Install two new batteries. The batteries must be positioned with the poles facing the rear, see Fig. 57.
8. Reconnect the battery connections. Do the negative poles first.
9. Reconnect the seatlift cable, see Fig. 56.
10. Replace the covers.

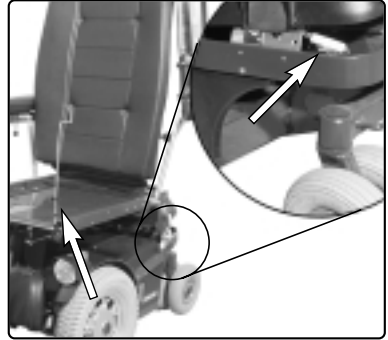
### 11. Electric seat lift

Lower the seat.

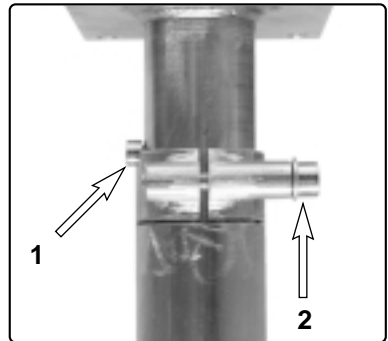
### Fixed seat post

Lower the seat using the seat lift. Turn the seat into the correct position so that positioning screw (56:1) drops into its groove and tighten the screw on the seat column bracket (56:2). Torque: 11 ft.lb.

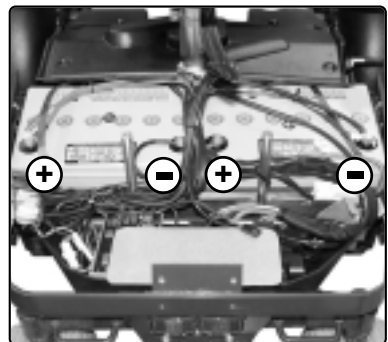
12. Replace the plastic plug and the seat cushion.



*Fig.56. Manual raising/ lowering of the seat.*



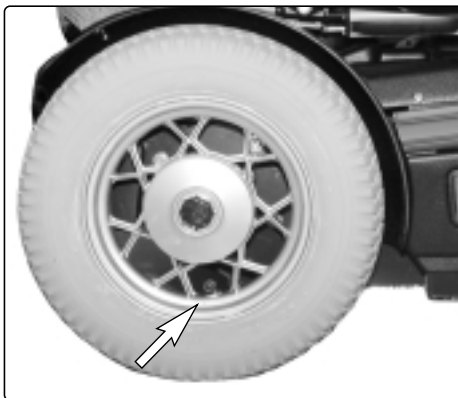
*Fig.57. Fixed seat post.*



*Fig.58. Battery connections*

## 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. 59. Filling valve*

## Filling with air



**WARNING !**

**The recommended air pressure is 29 psi. Overfilling entails the risk of explosion.**

Low air pressure in the tyres produces abnormal wear and reduces the range. Therefore, check regularly that the front tires have a pressure of 29 psi.

1. Unscrew and remove the plastic caps on the air valves on the drive wheels.
2. Connect the compressed air nozzle to the air valve and adjust the tire pressure to the prescribed level.

Changing bulbs

Front lights

- 1. Unscrew the two Allen screws (Fig.60:1) on the top of the lamp-cover.
- 2. Pull the reflector forwards.
- 3. Unscrew the two Phillips screws on the rear of the lamp holder and remove the reflector.
- 4. Change the bulb.

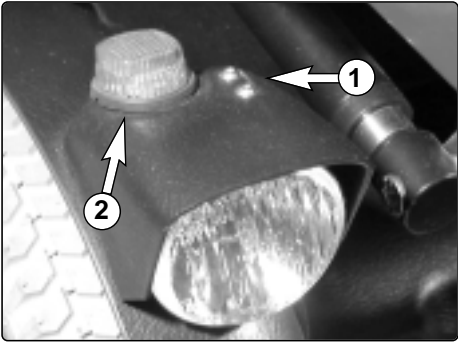


Fig. 60. Front light

Front indicators

- 1. Turn the indicator glass (Fig. 60:2) 90° counterclockwise.
- 2. Lift the indicator glass straight up (do not screw).
- 3. Change the bulb.

Bulbs	Socket type	Power
Head lamps	R10/E10	24V/3W
Front indicators	13256	24V/3W
Rear lights	SP36	24V/3W
Rear indicators	SP36	24V/3W

Rear lights and indicators

- 1. The rear indicator bulb (upper bulb) and rear light bulb (lower bulb) can be changed after you have loosened the screws on the glass of the rear light (Fig. 61).

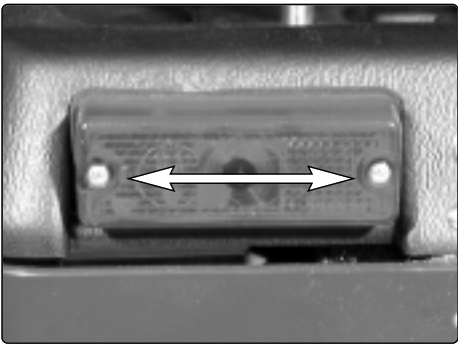
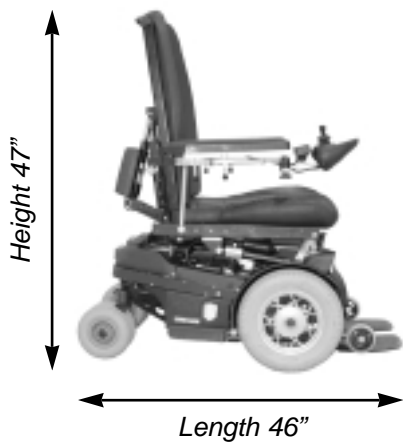


Fig. 61. Rear light

# *Technical specifications*



*Smallest transportation size= length 36", width 28", height 35"*

**Specifications and performance**

Length .....	44"
Width .....	28"
Transport length .....	36"
Seat height .....	22"
Seat height with electric seat lift .....	22" - 30"
Weight including batteries.....	320 lbs
Battery capacity .....	2x73 Ah
Charging time .....	ca. 8 h.
Driving range.....	18 - 25 miles
Maximum speed .....	4 mph
Stopping distance .....	47"
Turning circle 180° .....	26"
Obstacle ability .....	2.5"
Max weight of user .....	397 lbs
Air pressure of front tyres .....	29 psi
Seat width .....	19"/21"/23"
Seat depth.....	17" - 21"
Backrest height .....	28"
Armrest height.....	7" - 12"
Distance between armrests .....	18"/20"/22"
Distance between seat cushion and footplate ....	14" - 20"
Adjustable backrest angle.....	90°-127° manual/electric
Adjustable footrest angle .....	90°-175° manual/electric

**Electrical system**

**Electronics**

PM80 Pilot+

**Control panel**

JSM-L 7key Pilot+

**Batteries**

Recommended battery type ..... Group 24, Gel  
Battery capacity ..... 2x73Ah  
Charging time ..... 8 hours

**Fuses**

Charging fuse ..... 15A  
Main fuse ..... 63A

***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 reduce 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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