INVACARE®

Yes, You Can.®

Invacare® ***Zephyr***

Powerchair
User Manual

CE

How can you get in touch with Invacare®?

If you have any questions or need support, please contact your authorised Invacare® Dealer, who has the necessary know-how and equipment plus the special knowledge concerning your Invacare® product, and can offer you all-round satisfactory service. Should you wish to contact Invacare® directly, you can reach us in Europe at the following addresses and phone numbers.

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Chapter **Page**

1 Introduction

Dear user,

First we would like to thank you for purchasing our product! We hope that you will have a great deal of pleasure with your new power chair.

This operating manual contains important information and notes about:

- **Safety**
- **Operation**
- **Care and maintenance**

Please take care to read the operating manual thoroughly before starting out on your first journey.

This wheelchair has been constructed for a large circle of users with different requirements.

The decision whether the model is suitable for the user may only be taken by medical specialists with appropriate expertise.

Invacare® or their statutory representatives can accept no liability in cases in which the wheelchair has not been adapted to suit the users' handicaps.

Some maintenance and settings can be performed by the user or his/hers attendants. Certain adjustments do however require technical training and may only be carried out by your Invacare® specialist dealer. Damages and errors caused by nonobservance of the operating manual or as a result of incorrect maintenance are excluded from all guarantees.

1.1 Important symbols in this manual

WARNING!

This symbol warns you of danger!

- *Always follow these instructions to avoid injury to the user or damage to the product!*

EXPLOSION HAZARD!

This symbol warns you of an explosion hazard, which, for example, can be caused by excessive tyre pressure in a pneumatic tyre!

- *Always follow the instructions to avoid injury to the user or damage to the product!*

BURN HAZARD!

This symbol warns you of burns due, for example, to leaking battery acid!

- *Always follow the instructions to avoid injury to the user or damage to the product!*

NOTE:
This symbol identifies general information which is intended to simplify working with your product and which refers to special functions.

Requirements:

- This symbol identifies a list of various tools, components and items which you will need in order to carry out certain work.

READ WELL BEFORE OPERATION!
This symbol advises you to read information carefully.

1.2 Important symbols found on the vehicle

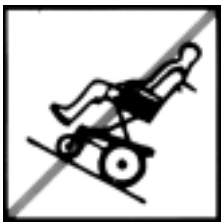
This product has been supplied from an environmentally aware manufacturer that complies with the Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/CE. This product may contain substances that could be harmful to the environment if disposed of in places (landfills) that are not appropriate according to legislation.

- *The 'crossed out wheelie bin' symbol is placed on this product to encourage you to recycle wherever possible.*
- *Please be environmentally responsible and recycle this product through your recycling facility at its end of life.*

If the electric wheelchair is fitted with a table, it is imperative that it is removed and safely stowed when transporting the wheelchair in a vehicle!

1.2.1 Explanation of symbols on lifter warning sticker.

Do not lean out when the lifter is raised!



Do not drive up or down slopes when the lifter is raised!

Do not allow any body parts to get under a raised seat!

Never drive with two people!

Never drive over uneven surfaces when the lifter is raised!

1.3 Type classification and permissible use

This vehicle was designed for persons whose ability to walk is impaired, but who are still physically and mentally able to operate an electric vehicle. It has been classified according to EN 12184 as a **class B mobility product** (for indoor and outdoor areas). It is therefore compact and agile enough for indoor areas, but also able to overcome many obstacles in outdoor areas.

You can find exact information on speed, turning radius, range, safe climbing ability, maximum obstacle height and permissible operating conditions in chapter **"Technical Specifications"** starting from page 163.

Please also pay attention to all safety information in chapter **"Safety Notes"** starting from page 17.

The vehicle was successfully tested according to German and international standards as to its safety. It was also tested successfully according to EN60529 IPX4 as to its resistance to spray water, and is therefore well suited for typical middle European weather conditions. When equipped with an appropriate lighting system, the vehicle is suitable for use on public roads.

1.4 Guarantee

The terms and conditions of the guarantee are part of the general terms and conditions particular to the individual countries in which this product is sold.

1.5 Indications

The use of this mobility product is recommended for the following indications:

The inability or a greatly restricted ability to walk within the scope of the basic requirement to be able to move within one's own four walls. The need to leave the dwelling place in order to get some fresh air during a short walk or to reach those places generally to be found at close distance to the dwelling and where everyday business is carried out.

Provision of electric wheelchairs for interior and exterior areas is advisable if the use of hand-operated wheelchairs is no longer possible on account of the disability, yet proper operation of an electromotive drive unit is still practicable.

1.6 Life expectancy

We estimate a life expectancy of five years for this product, provided it is used in strict accordance with the intended use as set out in this document and all maintenance and service requirements are met. The estimated life expectancy can be exceeded if the product is carefully used and properly maintained, and provided technical and scientific advances do not result in technical limitations. The life expectancy can also be considerably reduced by extreme or incorrect usage. The fact that we estimate a life expectancy for this product does not constitute an additional warranty.

2 Safety Notes

READ WELL BEFORE OPERATION!

2.1 General Safety Notes

Danger of injury if mobility device is used in any other way than the purpose described in this manual!

- *Only ever use the mobility device in accordance with the instructions in this User's Manual (see chapter "Type classification and permissible use" on page 15).*
- *Pay strict attention to the safety information.*

Danger of injury if the mobility device is driven when ability to operate a vehicle is impaired by medication or alcohol!

- *Never drive the mobility device under the influence of medication or alcohol. If necessary, the mobility device must be operated by an attendant who is physically and mentally able.*

Danger of damage or injury if mobility device is accidentally set into motion!

- *Switch the mobility device off before you get in, get out or handle unwieldy objects.*
- *When the drive is disengaged, the brake inside the drive is deactivated. For this reason, pushing the mobility device by an attendant is only recommended on flat surfaces, never on gradients. Never leave your mobility device on a gradient with its motors disengaged. Always re-engage the motors immediately after pushing the mobility device (see chapter "Pushing the wheelchair in freewheel mode" on page 35).*

Danger of injury if the mobility device is switched off while driving, for example by pressing the On/Off Button or disconnecting a cable, due to it coming to an abrupt, sharp stop!

- *If you have to brake in an emergency, simply release the joystick which will bring you to a halt. (refer to the joystick operating manual for more information).*

Danger of injury when transferring mobility device to a vehicle for transport with the occupant seated in it!

- *It is always better to transfer the mobility device to a vehicle without the occupant seated in it.*
- *If the mobility device needs to be loaded up a ramp together with its driver, ensure that the ramp does not exceed the maximum safe slope (see chapter "Technical Specifications" from page 163).*
- *If the mobility device does need to be loaded using a ramp which exceeds the maximum safe slope (see chapter "Technical Specifications" from page 163), then you must use a winch. An attendant can safely monitor and assist the loading process.*
- *As an alternative you can use a platform lift. Ensure that the total weight of the mobility device including the user does not exceed the maximum permissible weight for the platform lift or winch if you are using.*

Danger of injury if maximum permissible load is exceeded!

- *Do not exceed the maximum permissible load (see chapter "Technical Specifications" from page 163).*
- *The mobility device is only designed for use by a single occupant whose maximum weight does not exceed the maximum permissible load of the chair. Never use the mobility device to transport more than one person.*

Danger of injury due to wrong lifting or dropping of heavy components!

- *When maintaining, servicing or lifting any part of your mobility device, take into account the weight of the individual components especially the batteries. Be sure at all times to adopt the correct lifting posture and ask for assistance if necessary.*

Danger of falling out of the mobility device.

- *Do not slide forward on the seat, do not lean forward between your knees, do not lean backwards out over the top of the backrest, for example to reach an object.*
- *If a posture belt is installed, it should be correctly adjusted and used each time you use the mobility device.*
- *When transferring to a different seat, position the mobility device as close as possible to the new seat.*

Danger of injury by moving parts!

- *Make sure that no injury is incurred by moving parts of the mobility device, like wheels or one of the Lifter Modules (if fitted), especially when children are around.*

Danger of fire or breaking down due to electric devices being connected!

- *Do not connect any electric devices to your mobility device that are not expressly certified by Invacare® for this purpose. Have all electrical installations done by your authorised Invacare® Dealer.*

2.2 Safety information with regard to care and maintenance

Danger of accident and loss of guarantee if maintenance is insufficient!

- *For reasons of safety and in order to avoid accidents which result from unnoticed wear, it is important that this electric mobility product undergoes an inspection once every year under normal operating conditions (see inspection plan contained in service instructions).*
- *Under difficult operating conditions such as daily travel on steep slopes, or in the case of use in medical care cases with frequently changing wheelchair users, it would be expedient to carry out intermediate checks on the brakes, accessories and running gear.*
- *If the mobility product is to be operated on public roads, the vehicle driver is responsible for ensuring that it is in an operationally reliable condition. Inadequate or neglected care and maintenance of the mobility product will result in a limitation of the manufacturer's liability.*

2.3 Safety Information on Electromagnetic Interference

This electric vehicle was successfully tested in accordance with International standards as to its compliance with Electromagnetic Interference (EMI) Regulations. However, electromagnetic fields, such as those generated by radio and television transmitters, and cellular phones, can influence the functions of electric vehicles. Also, the electronics used in our vehicles can generate a low level of electromagnetic interference, which however will remain within the tolerance permitted by law. For these reasons we ask you to please observe the following precautions:

WARNING: Danger of malfunction due to electromagnetic interference!

- *Do not switch on or operate portable transceivers or communication devices (such as radio transceivers or cellular phones) when the vehicle is switched on.*
- *Avoid getting near strong radio and television transmitters.*
- *In case the vehicle should be set in motion unintentionally or the brakes are released, switch it off immediately.*
- *Adding electrical accessories and other components or modifying the vehicle in any way can make it susceptible to electromagnetic interference. Keep in mind that there is no sure way to determine the effect such modifications will have on the overall immunity of the electronic system.*
- *Report all occurrences of unintentional movement of the vehicle, or release of the electric brakes to the manufacturer.*

2.4 Safety Information on Driving and Freewheel Mode

Danger of injury if the wheelchair tips over!

- *Inclines and declines can only be travelled up to the maximum safe slope (see chapter "Technical Specifications" from page 163).*
- *Always return the backrest of your seat or the seat tilt to an upright position before ascending slopes. We recommend that you position the seat backrest and the seat tilt (if fitted) slightly to the rear before descending slopes.*
- *Only ever drive downhill at a maximum of 2/3 of the top speed. Avoid abrupt braking or accelerating on gradients.*
- *If at all possible, avoid driving on slippery surfaces (such as snow, gravel, ice etc.) where there is a danger of you losing control over the vehicle, especially on a gradient. If driving on such a surface is inevitable, then always drive slowly and with the utmost caution.*
- *Never attempt to overcome an obstacle when on an uphill or downhill gradient.*
- *Never attempt to drive up or down a flight of steps with your wheelchair.*
- *When overcoming obstacles, always observe the maximum obstacle height (see chapter "Technical Specifications" from page 163 and information about overcoming obstacles in chapter "Taking Obstacles" from page 32).*
- *Avoid shifting your centre of gravity as well as abrupt joystick movements and changes of direction when the wheelchair is in motion.*
- *Never use the wheelchair to transport more than one person.*
- *Do not exceed the overall maximum permissible load or the maximum load per axle (see chapter "Technical Specifications" on page 163).*
- *Note that the wheelchair will brake or accelerate if you change the Driving Mode whilst the wheelchair is in motion.*

Danger of breaking down in adverse weather conditions, i.e. extreme cold, in an isolated area!

- *If you are a user with severely limited mobility, we advise that in the case of adverse weather conditions DO NOT attempt a journey without an accompanying attendant!*

Danger of injury if your foot slides off the footrest and gets caught underneath the wheelchair when it is in motion!

- *Make sure each time before you drive the wheelchair that your feet are squarely and securely in place on the footplates, and that both legrests are properly locked into place.*

Danger of injury if you collide with an obstacle when driving through narrow passages such as doorways and entrances!

- *Drive through narrow passages in the lowest driving mode and with due caution.*

If your electric wheelchair has been fitted with angle-adjustable legrests, there is a danger of personal injury and damage to the wheelchair if you drive the wheelchair with the legrests raised!

- *To avoid unwanted displacement of the wheelchair centre of gravity to the front (especially when travelling downhill) and in order to avoid damage to the wheelchair, angle-adjustable legrests must always be lowered during normal travelling.*

CAUTION: Danger of tipping! Anti tip wheels (stabilisers) are only effective on firm ground! They sink in on soft ground such as grass, snow or mud if the electrical vehicle rests itself on them. They lose their effect and the electrical vehicle can tip over.

- *Only drive with extreme care on soft ground, especially during uphill and downhill journeys. In the process pay increased attention to the tip stability of the electric vehicle.*

2.5 Safety Information on Wheelchairs with a Lifter

IMPORTANT - IF YOUR WHEELCHAIR IS EQUIPPED WITH A LIFTER:

Danger of injury if the wheelchair tips over!

- *Never exceed the maximum permissible load (see chapter "Technical Specifications" from page **163**)!*
- *Avoid dangerous driving situations when the lifter is in a raised position, such as trying to overcome obstacles like kerbs or driving up or down steep gradients!*
- *Never lean out of the seat when the lifter is raised!*
- *Inspect the lifter module at least once a month to make sure the automatic speed reduction function, which reduces the speed of the wheelchair when the lifter is raised, is working properly (see chapter "Fehler! Verweisquelle konnte nicht gefunden werden." from page Fehler! Textmarke nicht definiert.)! Notify your authorised dealership immediately if it is not working properly!*

Danger of injury by moving parts!

- *Never let objects get caught in the space underneath a raised lifter!*
- *Make sure that neither you nor anyone else is injured by placing hands, feet other body extremities under the raised seat!*

Danger of malfunction of the Lifter Module!

- *Inspect the lifter module at regular intervals to make sure there are no foreign objects or visible damage, and to make sure the electric plugs are firmly inserted into their sockets!*

WARNING: Danger of injuries and damage to the wheelchair can result if the wheelchair is lifted up or carried by the seat! The lifter motor can slip out of its fixation under the seat!!

- *Never attempt to lift the wheelchair by the seat, only by its frame!*

2.6 Safety information on maintenance work and alterations to the wheelchair

WARNING: Danger of injuries and damage to the wheelchair, in case the suspension is adjusted without the immobilisation mechanism of the front anti-tippers being re-adjusted!

- *When the hardness of the suspension is adjusted, the immobilisation mechanism of the front anti-tippers must without fail be checked and, if necessary, also re-adjusted!*

3 Key features

1) Button for disengaging the drive (on the push handle)

2) Hand wheel for adjusting the height of the push handle

3) Knob for adjusting the angle of the armrest (sliding armrest)

4) Joystick box

5) Knurled nuts for adjusting the suspension

6) Drive wheel

7) Legrest

4 Getting in and out of the wheelchair

Important information when side transferring in and out of the wheelchair
In order to side transfer it is necessary for the armrest to either be raised or removed completely depending on the model. A skirtguard can be installed as an option in connection with the parallel sliding armrest. This is attached in the same way as the standard armrest and must also be removed when transferring.

4.1 Remove the standard armrest in order to side transfer

Removing the armrest:

- Disconnect the cable (1) from the remote.
- Disengage the release handle (2).
- Pull the side part out of the holder.

4.2 Raise the parallel sliding armrest / remove the skirtguard (optional)

Swivelling the armrest up

- Swivel the armrest up to access from the side.

Remove the clothes guard (option) for access

- Disengage the release handle (1).
- Pull the skirt guard out of the holder.

Getting into the wheelchair:

- Position your wheelchair as close as possible to your seat. This might have to be done by an attendant.
- Switch your wheelchair off.
- Apply the manual wheel lock of your wheelchair (if existing).
- Detach the skirt guard of your wheelchair or swivel it up.
- Now slide into the wheelchair.

Getting out of the wheelchair:

- Drive your wheelchair as close as possible to your seat.
- Switch your wheelchair off.
- Apply the manual wheel lock of your wheelchair (if existing).
- Detach the skirt guard of your wheelchair or swivel it up.
- Now slide onto your new seat.

NOTE:
If you do not have sufficient muscle strength, you should ask other persons for help. Use a sliding board, if possible.

5 Driving

NOTE
The maximum load capacity that is stated in the technical data only states that the system is designed for this mass in total. However, this does not mean that one can sit a person with this body weight in the wheelchair without restrictions. Attention must be paid to the body proportions, such as height, weight distribution, abdominal girth, leg and calf girth and seat depth. These factors have a strong influence on driving features such as tilt stability and traction. The permissible axle loads in particular must be adhered to (see chapter **"Technical Specifications"** as from page **163**)! It may possibly be necessary to carry out adaptations to the seat system.

5.1 Before driving for the first time...

Before you take your first trip, you should familiarise yourself well with the operation of the vehicle and with all operating elements. Take your time to test all functions and driving modes.

NOTE:
If installed, make sure to properly adjust and use the posture belt each time you use the wheelchair.

Sitting Comfortably = Driving Safely

Before each trip, make sure that:

You are within easy reach of all operating controls.

- **The battery charge is sufficient for the distance intended to be covered.**
- **The posture belt (if installed) is in perfect order.**

The gearless wheelchair has very dynamic performance!
Please observe that gearless motors have very high performance! For this reason a wheelchair with a gearless drive has greater dynamic performance than wheelchairs fitted with conventional motors. The top speed is also higher. Please therefore drive carefully until you have become accustomed to the driving features of the wheelchair.

5.2 Parking and stationary

When parking your vehicle or if your vehicle is stationary for a prolonged period:

- Switch the vehicle's power system off (ON-/OFF key).
- Activate your anti-theft lock, if existing.

5.3 Taking Obstacles

Your powerchair is equipped with an automatic immobilisation system for the front anti-tippers. During normal operation the anti-tippers can move freely, allowing the powerchair to overcome obstacles. As soon as the wheelchair starts to tip over forward and the rear wheels lose contact with the ground, then the immobilisation mechanism locks. The anti-tippers can no longer move and thus prevent the wheelchair from tipping over forward. The anti-tippers should be checked once a week for smoothness of operation and correct functioning. Please see chapter **"**Checking the anti-tippers for smoothness of operation and correct function**"** on page **150.**

Your electric wheelchair can climb obstacles and kerbs of up to 8 cm in height.

CAUTION: Danger of Tipping Over!

- *Never approach obstacles at an angle but at 90 degrees as shown below.*
- *Put your backrest into an upright position before climbing an obstacle.*

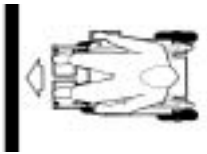
Driving up over an obstacle

- Approach the kerb or obstacle slowly head-on. Shortly before the front wheels or kerb-lifter touch the obstacle, increase the speed and reduce only after also the rear wheels have climbed the obstacle.

Driving down off of an obstacle

- Approach the kerb or obstacle slowly head-on. Before the front wheels touch the obstacle, reduce the speed and keep it until also the rear wheels have climbed the obstacle.

Correct



Incorrect

5.4 Anti-Slip-Regulation

Note
On slippery surfaces the drive tends to buck slightly. This behaviour is caused by the Anti-Slip-Regulation and is entirely normal.

5.5 Driving up and down gradients

For information concerning the maximum safe slope, please see chapter **"Technical Specifications"** starting on page **163**.

WARNING: Danger of tipping over!

- *Only ever drive downhill at a maximum of 2/3 of the top speed. Avoid sudden changes of direction or abrupt braking when driving on slopes.*
- *Always return the backrest of your seat or the seat tilt (if adjustable seat tilt is available) to an upright position before ascending slopes. We recommend that you position the seat backrest or the seat tilt slightly to the rear before descending slopes.*
- *Always lower the lifter (if fitted) to its lowest position before ascending or descending a slope.*
- *Never attempt to ascend or descend a slope on slippery surfaces or where there is a danger of skidding (such as wet pavement, ice etc).*
- *Avoid trying to get out of the vehicle on an incline or a gradient.*
- *Always drive straight in the direction the road or path you are on goes, rather than attempting to zigzag.*
- *Never attempt to turn around on an incline or a slope.*

Braking distance is much longer on a downhill slope than on even terrain!

- *Never drive down a slope that exceeds the maximum safe slope (see chapter "Technical Specifications" on page 163).*

6 Pushing the wheelchair in freewheel mode

The motors of the wheelchair are equipped with automatic brakes, preventing that the wheelchair starts rolling out of control when the joystick box is switched off. When pushing the wheelchair manually whilst freewheeling, the magnetic brakes must be disengaged.

6.1 Electrically disengaging gearless motors

CAUTION! Danger of the wheelchair rolling away!

- *The motor brakes do not function in disengaged condition (push mode)! The pushbutton for disengaging the motors must never be fixed in its pushed-in position using adhesive tape etc!*

Disengaging motors:

- Press key (1). A peep tone will sound for about one second. The motors remain disengaged until a key is pressed (if you cannot hear the peep tone, or the peep tone stops after around one second, there is an error. In this case please contact your dealer.).

Re-engaging motors

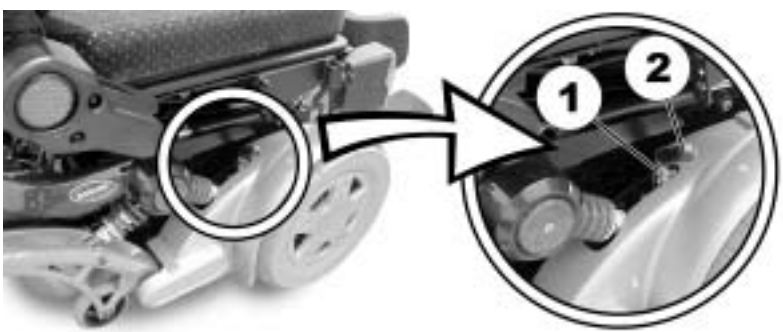
- Release key (1) again. The motors are now re-engaged.

6.2 Manually disengaging gearless motors (emergency disengaging)

Danger of the vehicle running away!

- *When the motors are disengaged (for push operation whilst freewheeling), the electromagnetic motor brakes are deactivated! When the vehicle is parked, the levers for engaging and disengaging the motors must without fail be locked firmly into the "DRIVE" position (electromagnetic motor brakes activated)!*

The levers for disengaging the motors are located behind the drive wheels.



Disengaging the motors:

- Switch off the remote.
- Pull the locking pin (1) out and pull the engaging lever (2) backwards. The motor is disengaged.

Engaging the motors:

- Push the coupling lever (1) to the front. The motor is engaged.

7 The REM 24 SD Remote

7.1 Layout of the remote

Upper side

Controls

1) Immobilizer
2) "Activate / scroll through drive mode" button
3) Horn
4) Left-hand indicator
5) Joystick
6) "Activate adjustment mode" button
7) ON/OFF button
8) Light
9) Right-hand indicator
10) Hazard warning signal flasher

Upper side

Displays

11) Battery charger display
12) Status display (in key symbol)
13) Drive mode display
14) Left-hand indicator display
15) Hazard warning signal flasher display
16) Light display
17) Right-hand indicator display

Underside

1) Charger socket
2) Programming socket

Rear panel

1) Socket for Buddy button 1 (corresponds to "Activate / scroll through drive mode" button).
2) Socket for Buddy button 2 (corresponds to "ON/OFF" button)
3) Socket for Buddy button 3 (corresponds to "Activate / scroll through adjustment mode" button).
4) Socket for bus cable

7.2 ON/OFF diode (status display)

INFORMATION
The ON/OFF diode (in key symbol) also serves as status or error message display. For error codes please see chapter **"Error codes and diagnostic codes"** on page **50.**

7.3 Battery charger display

- All diodes illuminated: **Full range**
- Only red diodes illuminated:
  Reduced range
- Both red diodes flashing:
  Very low range
- Only one red diode flashing:
  Battery on reserve = Charge batteries straight away

Battery charger display

INFORMATION
Protection against total discharge: The electronic system automatically shuts actuation down after a certain travel time on reserve battery and the wheelchair comes to a standstill.

7.4 Activating / deactivating the immobilizer

Activating the immobilizer

- Switch on the remote.
- Use the end of the magnetic key (Invacare® Logo) to move over the sensor area (1) on the remote (key symbol). The horn will sound briefly once. The remote shuts down automatically. The immobilizer is activated.

Deactivating the immobilizer

- Switch on the remote. The status display will flash red slowly.
- Use the end of the magnetic key (Invacare® Logo) to move over the sensor area (1) on the remote (key symbol).

Immobilizer

Magnetic key

7.5 Using the Buddy buttons with the remote

What is a Buddy button?
A Buddy button is an additional sensing device that can be used to activate a remote function. The sockets for Buddy buttons are to be found at the rear of the remote.

1) Socket 1 (corresponds to the ""Activate / scroll through drive mode"" button).
2) Socket 2 (corresponds to the "ON/OFF" button)
3) Socket 3 (corresponds to the " Activate / scroll through adjustment mode" button).

7.6 Controlling the wheelchair using the remote

- Switch on the remote (ON/OFF button). The displays on the remote will illuminate. The wheelchair is ready to drive.
- Set the drive level (“drive level“ button see **"Layout of the remote"** on page **38).**
- Speed stage 1 (slow) to 5 (fast) is shown on the drive level display.

Can the electronic system programming be adapted?
The electronic controller is programmed with standard values during manufacture. Your Invacare® dealer can carry out programming tailored to fit your requirements.

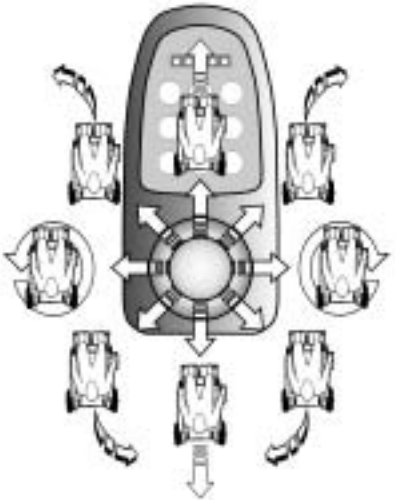
WARNING: Any alteration to the drive programme can influence vehicle handling and the tipping stability of the electric vehicle!

- *Alterations to the drive programme may only be carried out by trained Invacare® dealers!*
- *Invacare® supplies all electric vehicles from the factory with a standard drive programme. Invacare® can only assume a warranty for the safe vehicle handling of the electric vehicle – in particular tipping stability - for this standard drive programme!*

Will the wheelchair not drive after switching on?
Check the drive-away lock (see chapter **"Activating / deactivating the immobilizer "** on page **42**) and the status bar indicator (see chapter **"ON/OFF diode (status display)"** on page **41**.).

7.6.1 How a wheelchair with "Indirect Steering" reacts to joystick movements.

"Indirect Steering" occurs by individually applying power to the drive wheels, and is found on wheelchairs with front, rear and middle wheel drive.



Travel direction

The further the joystick is moved in a particular direction, the more dynamically the wheelchair reacts.

Note:
To brake quickly, simply let go of the joystick. It will then automatically return to the middle position. The wheelchair will brake.

7.7 Operating the electric adjustment options

Electric adjustment options, like electric legrests or an electric backrest, are operated by using the joystick.

7.7.1 Activating adjustment mode

- Press the "activate adjustment mode" button (A). The remote switches to the adjustment mode last used. The driving mode display (B) switches to the appropriate symbol (one of the symbols shown below). The factory setting for controls is to display all symbols, irrespective of whether certain adjustment options are available or not! Your dealer can carry out individual modification of this setting.


Seat tilt


Backrest


Left legrest


Right legrest


Both legrests


Lifter

Information:
When using the REM 24 SD remote it is not necessary – as on previous remote versions – to push the joystick forward in order to access the adjustment mode. It is sufficient to operate the adjustment mode button just once.

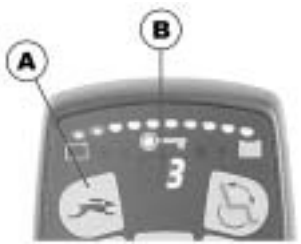
If the remote has been programmed appropriately, further modes can be accessed by repeatedly pressing the adjustment mode button, i.e. light mode or ECU mode (environment control unit). The standard REM 24 SD programming only supports the adjustment function. Please speak to your Invacare dealer if you have any questions in this respect.

7.7.2 Selecting and operating the adjustment option

- Move the joystick to the left or right = Select adjustment option on the submenu (A).
- Move the joystick forward/backward = Operate adjustment option (B).

7.7.3 Changing back to driving mode

- Briefly press the "Activate / scroll through driving mode" button (A). The remote switches back to the driving mode last used. The driving mode display indicates the drive level (B).



7.8 Error diagnosis

In the event that the electronics should show signs of failure, please consult the following troubleshooting guide in order to locate the error.

INFORMATION
Before beginning with the diagnosis, please ensure that the drive electronics are switched on.

If the status display is OFF:
Please check whether the drive electronics are SWITCHED ON.
Please check whether all cables have been connected correctly.
Please ensure that the batteries are not discharged.

If the status display is FLASHING:
Please count the number of flashing sequences and move on to the next section.

If the red diodes on the battery charger display and the status display are FLASHING, Drive mode display shows a horizontal bar:
Battery discharged. Please charge the battery.

7.8.1 Error codes and diagnostic codes

The drive electronics are capable of rectifying some errors automatically. In this case the status display will cease to flash. Please switch the remote on and off several times. Wait approx. 5 seconds each time before switching the remote on again. If this does not rectify the error, locate the error using the flash codes shown below.

FLASH CODE	FAULT	IMMEDIATE MEASURE	FURTHER HELP
1	Module defective.	-	• Contact your dealer or wheelchair provider
2	Lifter raised or lowered too far (seat not at driving height)	• If lifter is raised, lower in stages until the status display stops flashing. If lowered too far, raise lifter in stages until the status display stops flashing. If at all possible, only drive when the seat is at driving height.	• -
	Accessory error.	-	• Contact your dealer or wheelchair provider.
3	Connection on the left motor loose/defective	• Check plug-in connections.	• Contact your dealer or wheelchair provider.
	Left motor defective.	• Check/replace motor	• Contact your dealer or wheelchair provider.
4	Connection on the right motor loose/defective	• Check plug-in connections.	• Contact your dealer or wheelchair provider.

FLASH CODE	FAULT	IMMEDIATE MEASURE	FURTHER HELP
	Right motor defective.	• Check/replace motor	• Contact your dealer or wheelchair provider.
5	Fault/brake fault on left-hand motor. Connection loose/defective or motor defective.	• Check plug-in connections.	• Contact your dealer or wheelchair provider.
	Left motor disengaged (gearless motors)	• Engage motor. Shut electronics down and then switch on again.	• -
	Both motors disengaged (standard motors)	• Engage motors. Shut electronics down and then switch on again.	• -
6	Fault/brake fault on right-hand motor. Connection loose/defective or motor defective.	• Check plug-in connections.	• Contact your dealer or wheelchair provider.
	Right motor disengaged (gearless motors)	• Engage motor. Shut electronics down and then switch on again.	• -
7	Battery totally discharged.	• Charge battery	• Contact your dealer or wheelchair provider.
8	Battery voltage too high.	-	• Contact your dealer or wheelchair provider.
9 or 10	Faulty data transmission between modules.	-	• Contact your dealer or wheelchair provider.

FLASH CODE	FAULT	IMMEDIATE MEASURE	FURTHER HELP
11	Motors overstressed.	• Switch remote off and on again	• -
12	Compatibility problems between the modules.	-	• Contact your dealer or wheelchair provider.

8 Adjusting the wheelchair to the user's seating posture

WARNING: Danger of damage to the wheelchair and of accidents! With some combinations of adjustment options, collisions can occur between the legrest and the chassis or between the foot plates and the ground!This occurs in particular on wheelchairs with a lifter!

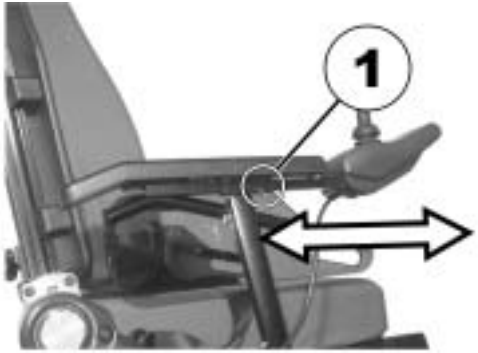
- *When adjusting seat angle, lifter and legrest please ensure that the legrest does not collide with the wheelchair chassis or the foot plates with the ground!*

8.1 Adjusting the armrests and the joystick box

8.1.1 Adapting the remote to the length of the user's arm

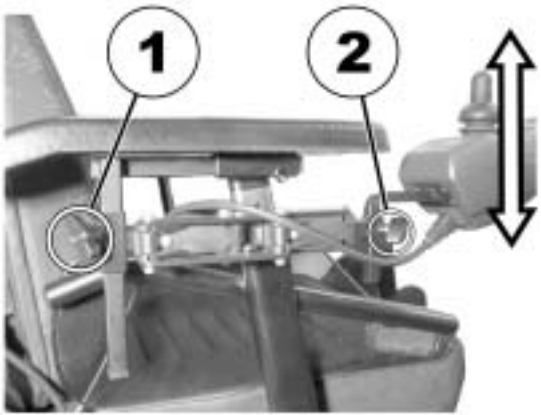
Requirements:
- Allen key 3 mm

- Loosen the socket head screw (1).
- Set remote to the desired length by pushing forward or backward.
- Tighten screw.



8.1.2 Setting the height of the remote

- Loosen one or both of the wing screws (1 and 2) that allow height adjustment of the joystick box.
- Adjust the joystick box to the desired height.
- Re-tighten the screw(s).



8.1.3 Setting the height of the armrests

- Loosen the bolt (1).
- Set the armrest at the desired height.
- Retighten the bolt.

8.1.4 Setting the height of the parallel sliding armrests

Requirements:
- Allen key 2 mm

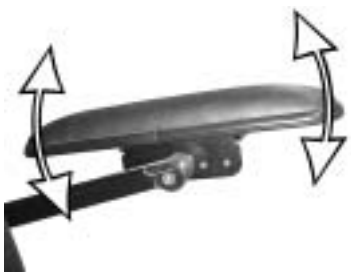
- Use the Allen key to loosen the screws (1) 2 mm on both sides of the spindle.
- Turn the spindle in a clockwise direction (A). The armrest is raised.
- Turn the spindle in an anti-clockwise direction (B). The armrest is lowered.
- Re-tighten the screws.

8.1.5 Adjusting the angle of the armpad on the parallel sliding armrests

Requirements:
- Allen key 4 mm
- Open-end spanner 10 mm

- Loosen the screw (1, on the inner side of the armrest), which allows adjustment of the angle of the armpad, while countering the nut (2, outer side of the armrest) with the open-end spanner, if necessary.

- Adjust the angle of the armpad.
- Re-tighten the screw (1), while countering the nut (2).



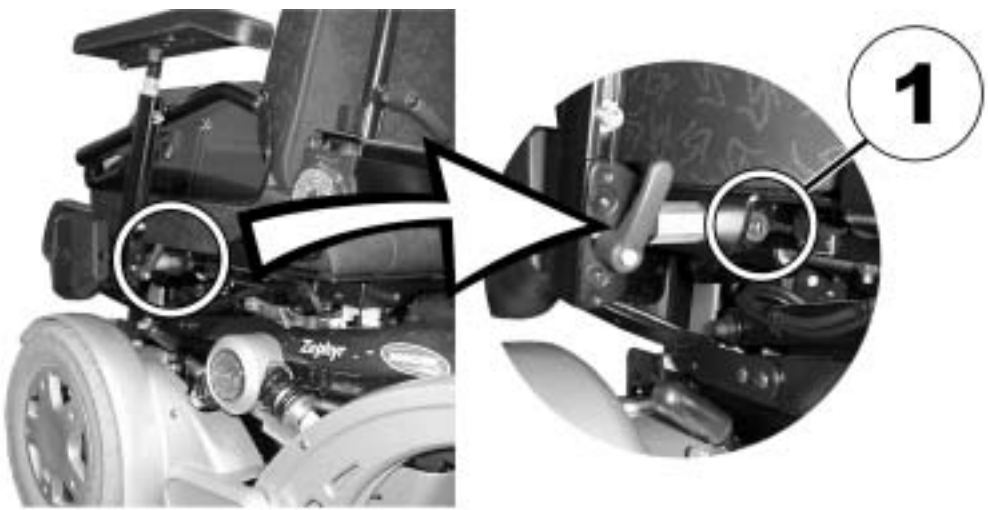
8.1.6 Adjusting the width of the armrests

The distance between the side sections can be adjusted by 5.5 cm on both sides (11 cm in total).

Requirements:
- Allen key 8 mm

Where to find the adjustment screws

The picture below shows the position of the screws (1) that allow an adjustment to the width of the side sections (in the picture only the left side is visible).



Doing the adjustment

- Loosen the screw (1).
- Set the armrest in the desired position.
- Re-tighten the screw.
- Repeat the procedure for the other armrest.

8.2 Manually adjusting the seat tilt

The manual seat angle adjustment has an adjustable range of 0° to 20°.

The seat angle is adjusted by means of a spindle, which is to be found at the front underneath the seat frame.

When adjusting the seat angle it should be ensured that at least 1cm of the threaded bolt always remains inside the spindle and is not completely unscrewed from the spindle.

NOTE
It is easier to adjust the angle of the seat when there is nobody sitting in the wheelchair.

The picture on the right shows the position of the spindle (1) for manual adjustment of the seat angle.

- Loosen the counter nut (1) of spindle.
- Adjust the seat angle by turning the spindle (2).
- Re-tighten the counter nut

8.3 Manually adjusting the backrest

8.3.1 Adjusting the backrest using the gas pressure spring

The lever for adjusting the backrest is located on the opposite side from the Joystick Box under the armrest.

Adjusting angle of the backrest

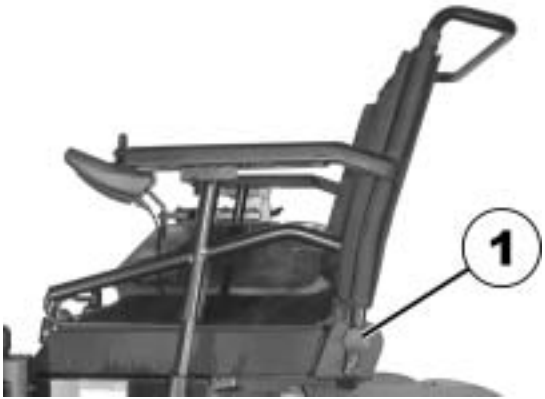
- Pull lever (1) upward.
- Adjust backrest angle by leaning forward or backward.
- Release the lever again. The backrest is locked at the desired angle.

NOTE
If the lever is pulled upwards and inwards at the same time, it will latch into a notch at the top. Push the lever out of the notch to release it, and allow it to be moved down again.

8.3.1.1 Adjust the backrest using the perforated plate

The angle of the backrest has six positions, from -10° to +30°.

- Unscrew the hand screws (1) on both sides.
- The backrest is adjusted by choosing a combination of one of the two bore holes in the backrest frame and one of the six bore holes in the fixing plate.
- Re-position the screws and tighten.



8.3.2 Flex and Contour seats

- Set the angle by turning the hand wheel (1).

8.4 The Lifter

The electric lifter is operated via the remote. Please see chapter **"Operating the electric adjustment options"** on page **46**.

Information regarding operation of the lifter at temperatures of less than 0 °C
Invacare® mobility aids are fitted with safety mechanisms that prevent capacity overload of the electronic components. At operating temperatures below freezing point this can, in particular, lead to the lifter actuator being shut down after approx. 1 second operating time.

The lifter can be raised or lowered gradually by repeatedly operating the joystick. In many cases this generates sufficient heat for the actuator to operate as normal.

Please note – Speed restriction
The lifter is equipped with sensors that reduce the drive speed of the wheelchair as soon as the lifter is raised or lowered above a certain point.

This is in order to guarantee the tilt stability of the wheelchair or in order to avoid damage to the legrests.

When speed restriction is activated an appropriate blinking code is displayed on the remote. Please see chapter **"ON/OFF diode (status display)"** on page **41** and chapter **"Error codes and diagnostic codes"** on page **50**.

In order to revert to normal drive speed move the lifter to drive height: Raise the lifter slowly if the lifter has been lowered. If the lifter has been raised, lower the lifter until the status display stops blinking.

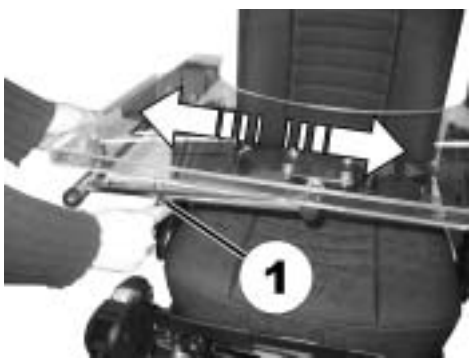
8.5 Adjusting and removing the tray

CAUTION: Injury hazard or material damage if an electric wheelchair which is fitted with a table is transported in a vehicle!

- *If a table is fitted, always remove it before transporting the wheelchair.*

8.5.1 Laterally adjusting the tray

- Loosen the wing-screw (1).
- Adjust the tray towards the left or right.
- Re-tighten wing-screw.



8.5.2 Adjusting the depth of the tray / removing the tray

- Loosen the wing-screw (1).
- Adjust the table to the desired depth (or remove it entirely).
- Re-tighten the screw.

8.5.3 Swinging the tray away to the side

CAUTION! Risk of injury! When the tray is raised it does not lock in place in this position!

- *Do not tilt the tray up and leave it leaning in this position.*
- *Never attempt to drive with the tray tilted up.*
- *Always lower the tray in a controlled manner.*

The tray can be swivelled upwards and pushed to the side as illustrated to enable getting on and off.

8.6 Adjusting the suspension / immobilisation mechanism of the anti-tippers

The Invacare Zephyr can be equipped with three different types of springs. The hardness of the springs should be selected according to the weight of the user. If springs are chosen, which are too hard, then driving comfort wil be lost; with springs that are too soft, the powerchair will tend to wobble.

Types of spring	User weight
1050 (soft)	up to 80 kg
1150 (medium)	from 70 to 100 kg
1250 (hard)	from 90 to 120 kg

8.6.1 Adjusting the suspension

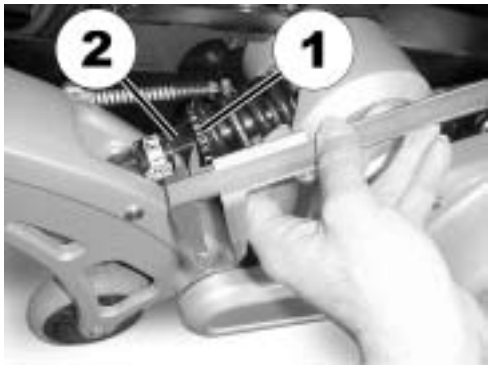
Danger of injuries, in case the suspension is adjusted without the immobilisation mechanism of the front anti-tippers being checked and, if necessary, re-adjusted!

- *Whenever the hardness of the suspension (springs) is adjusted, the immobilisation mechanism of the anti-tippers must without fail be checked for correct width of the gap between the activation bolt and the small metal protrusion of the immobilisation mechanism (see chapter **"Adjusting the Immobilisation mechanism of the anti-tippers"** on page **78**)! If necessary, adjust the width of the gap!*

The hardness of the suspension can be modified by fitting the powerchair with a different type of springs. However, this work should only be performed by an authorised Invacare Dealer!

By turning the knurled nut (1) a fine adjustment the hardness of the springs can be additionally achieved. The clearance (2) between the knurled nut and the end of the thread should always measure between 11 and 20 mm.

The suspension should be adjusted harder in the front than in the rear. The left and right sides should be evenly adjusted.



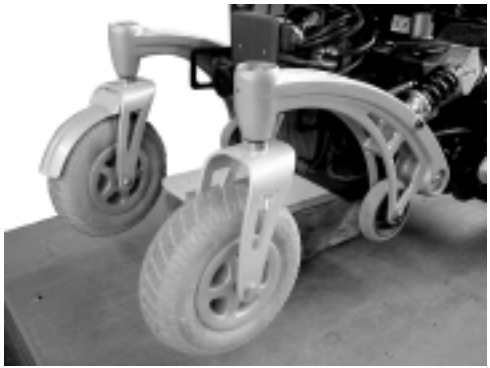
- Take the load off of the spring by propping up the wheelchair.
- Adjust the hardness of the spring by turning the knurled nut (1).
- Repeat the procedure on the other side.

8.6.2 Adjusting the shock absorbers in the rear

Requirements:

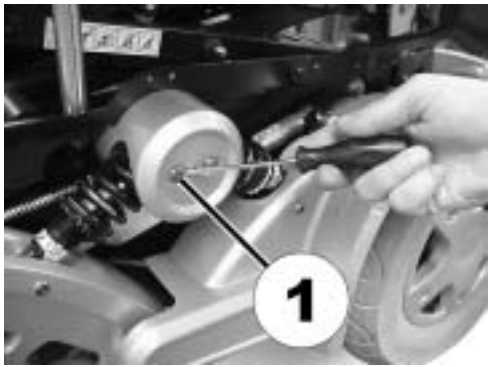
- 1x Allen key 4 mm
- 1x flat screwdriver
- Wooden block, height approximately 13 cm

- Prop up the Powerchair in the rear with the wooden block. The rear wheels must have approximately 1-2 cm ground clearance.



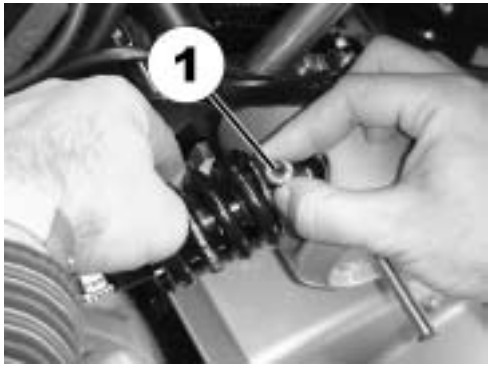
- Use the Allen key to loosen the screw (1) and remove.
- Remove the reflector/protective cap.

- Carefully pry the bolt (1) out, using the screwdriver.



- Pull out the bolt completely.

- Remove the shock absorber from the upper bearing bracket.
- Adjust the suspension by turning the suspension adjustment knob (1): Towards the right = more shock absorption, towards the left = less shock absorption.
- Re-assembly is carried out in reverse order.



8.6.3 Adjusting the shock absorbers in the front

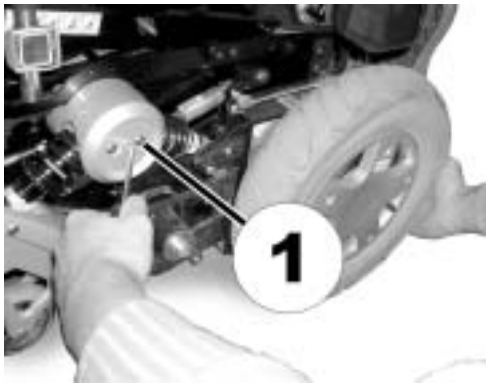
Requirements:

- 1x Allen key 4 mm
- 1x flat screwdriver
- 1x car jack

- Use the car jack to jack up the powerchair on the side, on which the shock absorbers are to be adjusted. The front wheels must have approximately 1-2 cm ground clearance.

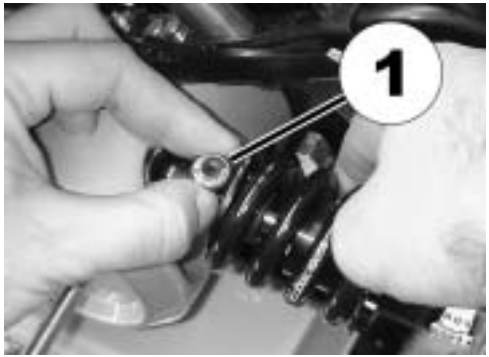
- Use the Allen key to loosen the screw (1) and remove.
- Remove the reflector/protective cap.

- Carefully pry the bolt (1) out, using the screwdriver.



- Pull out the bolt completely.

- Remove the shock absorber from the upper bearing bracket.
- Adjust the suspension by turning the suspension adjustment knob (1): Towards the right = more shock absorption, towards the left = less shock absorption.
- Re-assembly is carried out in reverse order.



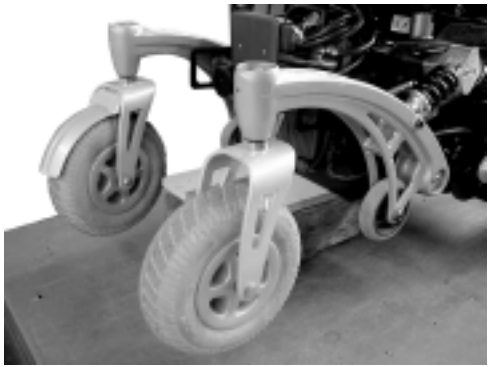
8.6.4 Adjusting the Immobilisation mechanism of the anti-tippers

Requirements:

- Allen key or metal pin with up to 4 mm diameter
- Flat screwdriver, shaft length of approximately 20 cm
- Feeler gauge 0.60 mm
- Wooden block, height approximately 13 cm

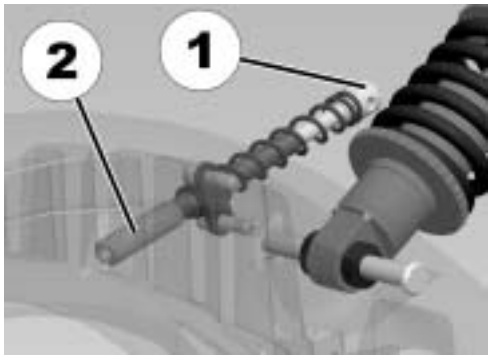
- Remove the rear cowling.

- Prop up the Powerchair in the rear with the wooden block. The rear wheels must have approximately 1-2 cm ground clearance.

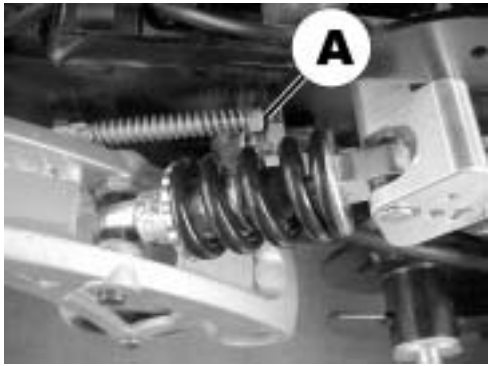


- The activation device (1) of the immobilisation mechanism is located on each side between the rocker arm and the battery box.

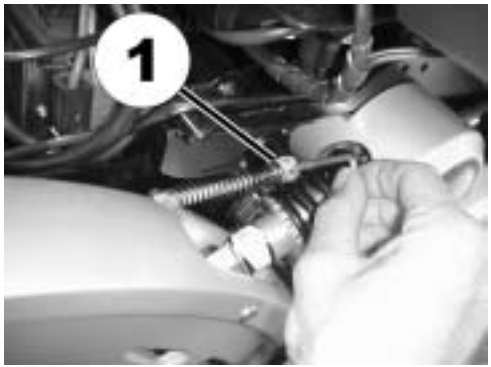
- The activation device comprises a spring loaded bolt (1) and a elongated nut (2) with a slot in its end for inserting a flat screwdriver.



- Check the width of the gap (A) with the feeler gauge. The clearance between the bolt and the activation device of the immobilisation mechanism should be 0.6 mm.
- Pull the anti-tipper upwards on the side that is to be checked. The anti-tipper must lock immediately and completely. In case it does not lock, then the immobilisation mechanism must be adjusted as follows.



- Counter the bolt (1) with the metal pin to prevent it from turning.



- Insert the screwdriver into the slot in the adjustment nut.

- Adjust the width of the gap by turning the nut.
- Check the width of the gap with the feeler gauge.
- Pull the anti-tipper upwards again on the side that is to be adjusted. The anti-tipper must lock immediately and completely.

In case the anti-tipper does not lock up when the rear wheel loses contact with the ground, even after multiple attempts to adjust it, then the wheelchair must immediately be taken to an authorised Invacare Dealer for maintenance!

- Repeat the procedure on the other side.

9 Adjusting footrests and legrests

9.1 Centre-mounted legrests

9.1.1 Electric legrest

The electric legrest is operated via the remote. Please see chapter **"Operating the electric adjustment options"** on page **46**.

The electric legrest can be lowered completely to assist getting out of the wheelchair. To do so, move your seat into the correct position by lowering the lifter or by means of a negative seat angle (tilted slightly to the front).

9.1.1.1 Lowering the electric legrest completely to assist getting out of the wheelchair

Warning! Misuse may destroy the legrest.

- *Please read and carefully follow the instructions below.*

Getting in/out of the wheelchair

- Set the lifter and tilt to a comfortable position.
- Put your feet on the footplate and pull the lever (1). The footplates will move smoothly down to the floor.
- Now you can get in/out of the wheelchair.

Lifting up the footplates

- You are sitting in the wheelchair.
- Put your feet beside the footplates.

- Pull the lever (1). The footplates rise up automatically.
- Let go the lever (1) and put your feet on the footplates.

Warning! Danger of damage to the legrest!

- *Always make sure that the footplates are fully raised to the uppermost position before adjusting the angle of the legrest!*
- *Disregarding this advice will cause damage to your legrest.*

Adjusting the legrest

- Now you can adjust the angle of the legrest.

9.1.2 Adjustable legrest

9.1.2.1 Adjusting the angle

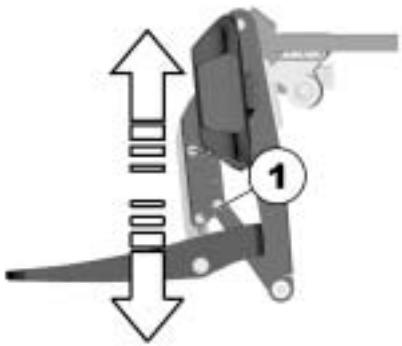
Prerequisites:
- 1x 10 mm open-ended spanner

- Use the open-ended spanner to loosen the counternut (1).
- Move the legrest to the desired position by turning the spindle (2).
- Tighten the counternut.

9.1.2.2 Adjusting the length of the legrest

Prerequisites:
- 1x 5 mm socket head spanner

- Use the socket head spanner to loosen the fastening screws (1).
- Slide the foot support to the desired height.
- Tighten the fastening screws.



9.1.2.3 Adjusting the calf plate to the calf width of the user

The calf plate of the legrest can be adapted to the user's calf width by bending apart or together.

- Bending the calf plate to the desired width.

9.1.2.4 Adjusting the angle of the foot plate

Prerequisites:
- 1x 5 mm socket head spanner

- Fold up the foot plates in order to access the adjusting screws.
- Use the socket head spanner to adjust the adjusting screws (1).
- Fold the foot plate down again.

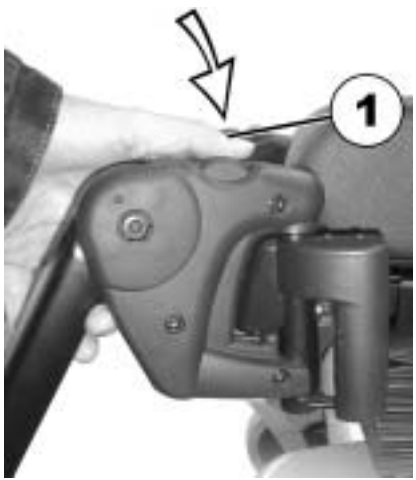
9.2 Laterally mounted legrests

9.2.1 Standard footrest with pre-set angle

9.2.1.1 Swivelling the footrest outward and/or removing

The small unlocking button is located on the upper section of the footrest. When the footrest is unlocked, it can be swivelled inward or outward when getting into the wheelchair as well as being removed completely.

- Press the unlocking button (1) and swivel the footrest outward.
- Remove the footrest in an upward direction.



9.2.1.2 Setting the angle

PLEASE NOTE: Danger of injury due to incorrect adjustment of the footrests and legrests.

- *Before and during every journey it is imperative to ensure that neither the legrests nor the steering wheels contact the ground!*

Pre-requisites:

- 1x 6 mm Allen key

- Loosen the screw (1) using the Allen key.
- If the footrest cannot be moved after loosening the screw, position a metal pin in the designated borehole (2) and use a hammer to knock on this lightly. The clamping mechanism in the interior of the footrest will be released by this. Repeat the procedure from the other side of the footrest if necessary.

- Loosen the screw (1) using the Allen key.
- Set the desired angle.
- Re-tighten the screw.

9.2.1.3 Setting the end stop of the footrest

Pre-requisites:

- 1x 6 mm Allen key
- 1x 10 mm open-ended spanner

The end position of the footrest is determined by means of a rubber stop (1).

The rubber stop can be screwed in or out (A) or pushed up or down (B).

- Use the Allen key to loosen the screw (1) and swivel the footrest upward in order to access the rubber stop.

- Use the open-ended spanner to loosen the counternut (1).

- Move the rubber stop to the desired position
- Re-tighten the counternut

- Move the footrest to the desired position.
- Re-tighten the screw.

9.2.1.4 Adjusting the length of the footrest

PLEASE NOTE: Danger of injury due to incorrect adjustment of the footrests and legrests.

- *Before and during every journey it is imperative to ensure that neither the legrests nor the steering wheels contact the ground!*

Pre-requisites:

- 1x 5 mm Allen key

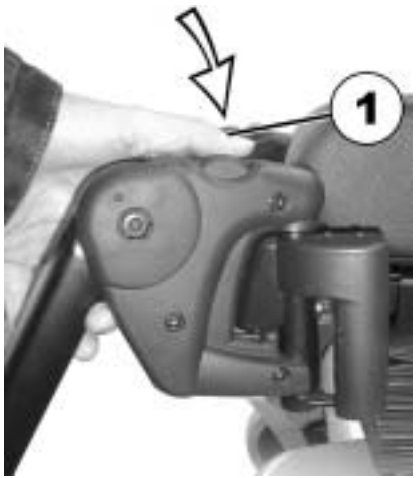
- Use the spanner to loosen the screw (1).
- Adjust to the desired length.
- Re-tighten the screw.

9.2.2 Manually height adjustable legrest 90° - 0°

9.2.2.1 Swivelling the legrest outward and/or removing

The small unlocking button is located on the upper section of the legrest. When the legrest is unlocked, it can be swivelled inward or outward when getting into wheelchair as well as being removed completely.

- Press the unlocking button (1) and swivel the legrest outward.
- Remove the legrest in an upward direction.



9.2.2.2 Setting the angle

PLEASE NOTE: Danger of injury due to incorrect adjustment of the footrests and legrests.

- *Before and during every journey it is imperative to ensure that neither the legrests nor the steering wheels contact the ground!*

- Disengage the release handle (1).
- Adjust to the desired angle.
- Re-tighten the release handle.

9.2.2.3 Setting the end stop of the legrest

Pre-requisites:
- 1x 10 mm open-ended spanner

The end position of the legrest is determined by means of a rubber stop (A).

The rubber stop can be screwed in or out (A) or pushed up or down (B).

- Disengage the release handle (1) and swivel the legrest upward in order to access the rubber stop.

- Use the open-ended spanner to loosen the counternut (1).

- Move the rubber stop to the desired position
- Re-tighten the counternut

- Move the footrest to the desired position.
- Re-tighten the release handle.

9.2.2.4 Adjusting the length of the legrest

PLEASE NOTE: Danger of injury due to incorrect adjustment of the footrests and legrests.

- *Before and during every journey it is imperative to ensure that neither the legrests nor the steering wheels contact the ground!*

Pre-requisites:

- 1x 6 mm Allen key

- Use the spanner to loosen the screw (1).
- Adjust to the desired length.
- Re-tighten the screw.

9.2.2.5 Adjusting the depth of the calf plate

The depth of the calf plate can be adjusted via the holding plate. The holding plate hole combinations allow 5 different depth settings.

Pre-requisites:
- 1x 10 mm open-ended spanner

- Use the open-ended wrench to loosen the nut (1) and remove.
- Adjust to the desired depth. Please observe that the round holes are intended for the calf plate retaining screw and the oblong holes for the aglet without thread.
- Screw the nut back on and tighten.

9.2.2.6 Adjusting the height of the calf plate

Pre-requisites:
- 1x 4 mm Allen key

- Use the Allen key to loosen the screws (1).
- Adjust to the desired position.
- Re-tighten the screws.

9.2.2.7 Unlocking and swivelling the calf plate backward when alighting

- Press the calf plate straight down.

- Unlock the legrest and swivel outward. The calf plate swivels backward on its own.

- Lift leg over the heel strap and place on the ground.

9.2.2.8 Adjusting the angle adjustable foot plate

Pre-requisites:
- 1x 5 mm Allen key

- Use the Allen key to loosen both set screws on the foot plate.
- Adjust to the desired angle.
- Re-tighten the screws.

9.2.2.9 Adjusting the angle and depth adjustable foot plate

Pre-requisites:
- 1x 5 mm Allen key

- Use the Allen key to loosen the set screw on the foot plate (1).
- Adjust the foot plate to the desired angle or depth.
- Re-tighten the screw.

9.2.3 Manually height adjustable legrest 80° - 0° with ergonomic length adjustment

9.2.3.1 Swivelling the legrest outward and/or removing

The small unlocking button is located on the upper section of the legrest. When the legrest is unlocked, it can be swivelled inward or outward when getting into wheelchair as well as being removed completely.

- Press the unlocking button(1) and swivel the legrest outward.
- Remove the legrest in an upward direction.

9.2.3.2 Setting the angle

PLEASE NOTE: Danger of crushing!
- *Do not reach inside the swivelling range of the legrest!*

PLEASE NOTE: Danger of injury due to incorrect adjustment of the footrests and legrests.
- *Before and during every journey it is imperative to ensure that neither the legrests nor the steering wheels contact the ground!*

- Raising: Pull the legrest upward until the desired angle has been achieved.

- Lowering: Keep the legrest in the foot plate area, pull the lateral adjusting lever (1) and lower the legrest slowly.

9.2.3.3 Adjusting the length of the legrest

PLEASE NOTE: Danger of injury due to incorrect adjustment of the footrests and legrests.

- *Before and during every journey it is imperative to ensure that neither the legrests nor the steering wheels contact the ground!*

Pre-requisites:

- 1x 5 mm Allen key

- Use the spanner to loosen the screw (1).
- Adjust to the desired length.
- Re-tighten the screw.

9.2.3.4 Adjusting the depth of the calf plate

The depth of the calf plate can be adjusted via the holding plate. The holding plate hole combinations allow 5 different depth settings.

Pre-requisites:
- 1x 10 mm open-ended spanner

- Use the open-ended wrench to loosen the nut (1) and remove.
- Adjust to the desired depth. Please observe that the round holes are intended for the calf plate retaining screw and the oblong holes for the aglet without thread.
- Screw the nut back on and tighten.

9.2.3.5 Adjusting the height of the calf plate

Pre-requisites:
- 1x 4 mm Allen key

- Use the Allen key to loosen the screws (1).
- Adjust to the desired position.
- Re-tighten the screws.

9.2.3.6 Unlocking and swivelling the calf plate backward when alighting

- Press the calf plate straight down.

- Unlock the legrest and swivel outward. The calf plate swivels backward on its own.

- Lift leg over the heel strap and place on the ground.

9.2.3.7 Adjusting the angle adjustable foot plate

Pre-requisites:
- 1x 5 mm Allen key

- Use the Allen key to loosen both set screws on the foot plate.
- Adjust to the desired angle.
- Re-tighten the screws.

9.2.3.8 Adjusting the angle and depth adjustable foot plate

Pre-requisites:
- 1x 5 mm Allen key

- Use the Allen key to loosen the set screw on the foot plate (1).
- Adjust the foot plate to the desired angle or depth.
- Re-tighten the screw.

9.2.4 Electrically height adjustable legrest 80° - 0° with ergonomic length adjustment

9.2.4.1 Swivelling the legrest outward and/or removing

The small unlocking button is located on the upper section of the legrest. When the legrest is unlocked, it can be swivelled inward or outward when getting into wheelchair as well as being removed completely.

- Press the unlocking button (1) and swivel the legrest outward.
- Remove the legrest in an upward direction.

9.2.4.2 Setting the angle

PLEASE NOTE: Danger of crushing!

- *Do not reach inside the swivelling range of the legrest!*

PLEASE NOTE: Danger of injury due to incorrect adjustment of the footrests and legrests.

- *Before and during every journey it is imperative to ensure that neither the legrests nor the steering wheels contact the ground!*

The electrically height adjustable legrest is operated via the remote. Please see chapter **"Operating the electric adjustment options"** on page **46.**

9.2.4.3 Adjusting the length of the legrest

PLEASE NOTE: Danger of injury due to incorrect adjustment of the footrests and legrests.

- *Before and during every journey it is imperative to ensure that neither the legrests nor the steering wheels contact the ground!*

Pre-requisites:

- 1x 10 mm open-ended spanner

- Use the spanner to loosen the screw (1).
- Adjust to the desired length.
- Re-tighten the screw.

9.2.4.4 Adjusting the depth of the calf plate

The depth of the calf plate can be adjusted via the holding plate. The holding plate hole combinations allow 5 different depth settings.

Pre-requisites:
- 1x 10 mm open-ended spanner

- Use the open-ended wrench to loosen the nut (1) and remove.
- Adjust to the desired depth. Please observe that the round holes are intended for the calf plate retaining screw and the oblong holes for the aglet without thread.
- Screw the nut back on and tighten.

9.2.4.5 Adjusting the height of the calf plate

Pre-requisites:
- 1x 4 mm Allen key

- Use the Allen key to loosen the screws (1).
- Adjust to the desired position.
- Re-tighten the screws.

9.2.4.6 Unlocking and swivelling the calf plate backward when alighting

- Press the calf plate straight down.

- Unlock the legrest and swivel outward. The calf plate swivels backward on its own.

- Lift leg over the heel strap and place on the ground.

9.2.4.7 Adjusting the angle adjustable foot plate

Pre-requisites:
- 1x 5 mm Allen key

- Use the Allen key to loosen both set screws on the foot plate.
- Adjust to the desired angle.
- Re-tighten the screws.

9.2.4.8 Adjusting the angle and depth adjustable foot plate

Pre-requisites:
- 1x 5 mm Allen key

- Use the Allen key to loosen the set screw on the foot plate (1).
- Adjust the foot plate to the desired angle or depth.
- Re-tighten the screw.

10 Electrical System

10.1 Electronics Protection System

The vehicle's electronics are equipped with an overload-protection system.

If the motors are put under considerable strain for a longer period of time (for example, when driving up a steep hill) and especially when the ambient temperature is high, then the electronic system could overheat. In this case the vehicle's power is reduced gradually until it finally comes to a halt. The Status Display shows a corresponding error code (see chapter **"Error codes and diagnostic codes"** on page **50**). By switching the power supply off and back on again, the error code is cancelled and the electronics are switched back on. It will take approximately five minutes until the electronics have cooled down enough for the motors to restore full power again.

When the motors are stalled by an insurmountable obstacle, such as a high kerb, and the vehicle driver allows the motors to strain against this hindrance for more than 20 seconds without moving, then the electronics will automatically switch off to prevent the motors from being damaged. The Status Display shows a corresponding error code (see chapter **"Error codes and diagnostic codes"** on page **50**). By switching off and back on again, the error code is cancelled and the electronics are switched back on.

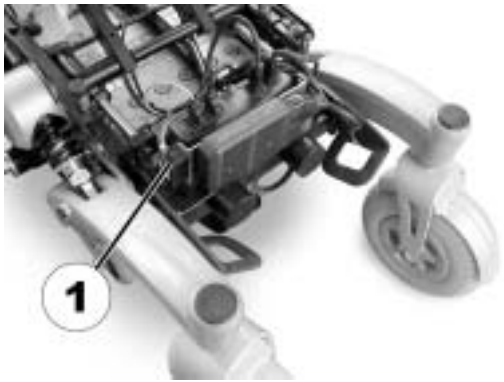
10.1.1 The main fuse

NOTE
A defective main fuse may be replaced only after checking the entire electric system. An Invacare® specialised dealer must perform the replacement. You can find information on the fuse type in chapter **"Technical Specifications"** starting on page **163**.

The entire electric system of the wheelchair is protected by the main fuse against overloading.

The main fuse is located under the rear centre cowling, just to the left of the power module.

To access the main fuse, first the rear cowling must be removed.



10.2 Batteries

10.2.1 What you need to know about batteries

Power is supplied by two 12V batteries. The batteries are maintenance-free and only need regular charging.

New batteries should always be fully charged once before their first use. New batteries will be at their full capacity after having run through approx. 10 - 20 charging cycles. How fast the batteries will be discharged will depend on many circumstances, such as ambient temperature, condition of the surface of the road, tyre pressure, weight of the driver, way of driving and utilisation of lighting, etc.

NOTE

The batteries supplied with your electric vehicle are not hazardous goods. This classification is based on the German *GGVS Hazardous Goods Road Transport Ordinances*, and the *IATA/DGR Hazardous Goods Rail Transport / Air Transport Ordinances.* Batteries may be transported without restrictions, whether by road, rail or by air. Individual transport companies have, however, guidelines which can possibly restrict or forbid certain transport procedures. Please ask the transport company regarding each individual case.
Pay attention to the Battery Charge Indicator! Make sure to charge the batteries when the Battery Charge Indicator shows that battery charge is low. We recommend charging the batteries after each trip, as well as each night over night. Depending on the level of discharge, it can take up to 12 hours until the batteries are fully charged again.
Protect your charger from sources of heat such as heaters and direct sunlight. If the battery charger overheats, charging current will be reduced and the charging process delayed.
To avoid damaging the batteries, never allow them to be fully discharged. Do not drive on heavily discharged batteries if it is not absolutely necessary, as this will strain the batteries unduly and shorten their life expectancy.
In case your vehicle is not used for a longer period of time, then the batteries must be charged at least once a month to maintain a full charge. Alternatively, the vehicle can stay connected to the charger. The batteries cannot be overcharged with the specified charger.
Please use only charging devices in Class 2. This class of chargers may be left unattended during charging. All charging devices which are supplied by Invacare® comply with these requirements.

10.2.2 Charging the batteries

- Make sure you read and understand the battery charger's User's Manual, if supplied, as well as the safety notes on the front and rear panels of the charger!

WARNING: Danger of explosion and destruction of batteries if the wrong battery charger is used!

- *Only ever use the battery charger supplied with your vehicle, or a charger that has been approved by Invacare®.*

Danger of electric shock and damage to the battery charger if it is allowed to get wet!

- *Protect the battery charger from water.*
- *Always charge in a dry environment.*

Danger of short circuit and electric shock if the battery charger has been damaged!

- *Do not use the battery charger if it has been dropped or damaged.*

Danger of fire and electric shock if a damaged extension cable is used!

- *Only ever use an extension cable if it is absolutely necessary. In case you must use one, make sure it is in good condition.*

Charging the batteries

- Switch off the wheelchair at the Joystick Box.
- Connect the battery charger to the Joystick Box - the charging socket is located on the bottom of the Joystick Box (1).
- Connect battery charger to the mains outlet and switch on if necessary.
- After charging is complete, first disconnect the battery charger from the mains supply, then disconnect from the Joystick Box.

10.2.3 Removing and fitting batteries

WARNING:

Danger of injury if the batteries are not handled correctly during assembly and maintenance work!

- *New batteries should be installed by authorised technicians!*
- *Observe the warnings on the batteries!*
- *Take into account the heavy weight of the batteries!*
- *Only ever use the battery type defined in the technical specifications (see "**Technical Specifications**" on page **163**)!*

Danger of fire and burns if battery terminals are short-circuited!

- *DO NOT short-circuit battery terminals with a tool!*

WARNING:

Corrosion and burns from acid leakage if batteries are damaged!

- *Remove clothes that have been soiled by acid immediately.*

After contact with skin:

- *Immediately wash affected area with lots of water.*

After contact with eyes:

- *Immediately rinse eyes under running water for several minutes; consult a physician.*

10.2.3.1 Removing the batteries

CAUTION: Risk of fire and burns if battery poles are bridged!

- *When replacing the batteries the battery poles MUST NOT come into contact with metal parts of the wheelchair causing bridging.*
- *Be sure to replace the battery pole caps after the batteries have been replaced.*

WARNING: Risk of fire and burns due to damage to the battery cables!

- *The battery cables and other cables are positioned in a cable duct above the batteries. The cable duct protects the cables against crushing and other damage. It may not be removed.*

Requirements:

- 6mm Allen key
- 5 mm Allen key
- Needle-nosed pliers

PLEASE NOTE:
If your wheelchair is fitted with a lifter the seat unit must be pulled upward in order to access the batteries. This work should be carried out by at least two people.

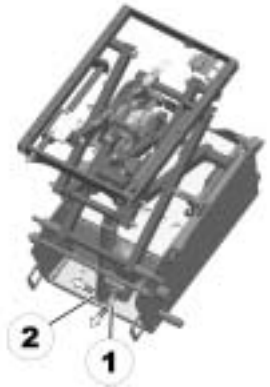
If a lifter is available the seat unit must be pulled in an upward direction. To do this the piston head on the actuator must be released and pulled out of its guideway in the lifter unit.

- Pull the actuator piston head forward in order to release the piston head, at the same time pulling the lifter upward until the engaging mechanism (1) is heard to lock in place.

- Use the Allen key 6 mm to loosen the screws (1) on both sides and remove.

- Pull cover to the front and remove.

- Remove the locking clip (1) using the needle-nosed pliers and pull out the retaining pin of the actuator or spindle retainer (on manual seat angle adjustment) (2).



- Use the Allen key 5 mm to loosen the screws (1) on both sides and remove.
- Pull the holding plate to the front and remove.

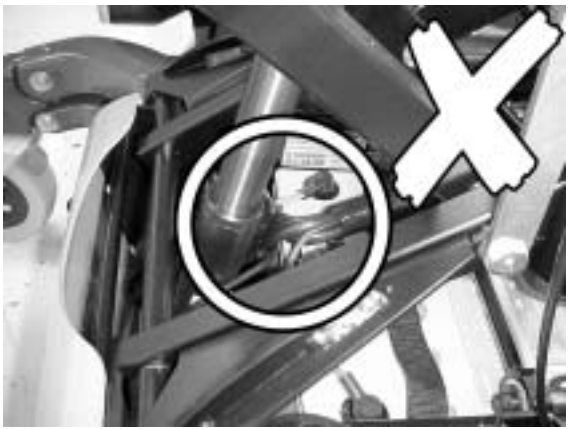
- Pull out the actuator or spindle (on manual seat angle adjustment) (1) to the front.

- Release and remove the battery cable on the battery poles.

- Remove batteries by pulling to the front.

NOTE
Installation of new batteries is carried out in reverse order.

When installing new batteries, make sure there are no cables between the front batteries and the actuator of lifter! They could get damaged when the lifter is operated!



WRONG!

RIGHT!

Releasing the lifter locking mechanism

- If lifter is fitted raise the piston rod of the actuator carefully on the remote until the piston head (1) interlocks in the retainer track (2). The lifter is now supported by the actuator.

- The engaging mechanism (1) must be released for unlocking. For this purpose pull the seat firmly upward. Press the engaging mechanism to the rear. The seat can be lowered again.

10.2.3.2 How to handle damaged batteries correctly

WARNING:

Corrosion and burns from acid leakage if batteries are damaged!

- *Remove clothes that have been soiled by acid immediately.*

After contact with skin:

- *Immediately wash affected area with lots of water.*

After contact with eyes:

- *Immediately rinse eyes under running water for several minutes; consult a physician.*

- Always wear safety goggles and appropriate safety clothing when handling damaged batteries.
- Place damaged batteries in an acid-resistant receptacle immediately after removing them.
- Only ever transport damaged batteries in an appropriate acid-resistant receptacle.
- Wash all objects that have come into contact with acid with lots of water.

Disposing of dead or damaged batteries correctly

Dead or damaged batteries can be given back to your dealer or directly to Invacare®.

11 Care and maintenance

NOTE:
Have your vehicle checked once a year by an authorised Invacare® dealer in order to maintain it's driving safety and roadworthiness.

Cleaning the vehicle

When cleaning the vehicle, pay attention to the following points:

- Only use a damp cloth and gentle detergent.
- Do not use any abrasive or scouring liquids.
- Do not subject the electronic components to any direct contact with water.
- Do not use high-pressure cleaning devices.

Disinfection

Spray or wipe disinfection using a tested and recognised product is permitted. A list of the current permitted disinfectants is available from the Robert Koch Institute at http://www.rki.de.

Maintenance Jobs	On delivery	Weekly	Monthly
Seat and backrest padding:			
- Check for perfect condition.			✓
Side part and armrest:			
- Are all fixing elements installed?	✓	✓	
- Can armrests / side panels be removed and installed without too much physical effort?		✓	
- Are armrests secured in their positions?		✓	
Legrests:			
- Do legrests lock into place without any problem (only applies to detachable legrests)?			✓
- Do the various adjustment functions work without any problem?			✓
Tyres:			
- Check tyres for specified air pressure (see Technical Specifications).	✓	✓	
Anti-tippers			
- Check the anti-tippers for smooth running.		✓	
Anti-tipper blocking mechanism			
- Check the anti-tipper blocking mechanism for correct functioning.		✓	
Front wheel forks / Front wheels			
- Front wheels must be running smoothly.		✓	
- Check fork bearing for tight fitting.			✓
Rear wheels:			
- Test wheel for tight fitting on the axle drive shaft.			✓

- Rear wheels must rotate without wobbling			✓
Electronics / Electrical System:			
- Check all plug connections for condition and tight fit.			✓
- Have batteries been fully charged before daily operation?	Before every trip		
- Are all fixings tight and secure?			
- Are all lighting system bulbs in working order?	Before every trip		
Cleaning:			
- Clean all parts carefully.	When necessary		

To ensure driving safety and roadworthiness, you should have your wheelchair inspected and serviced by your authorised dealer once a year. A complete checklist of necessary maintenance work can be found in the Workshop Manual, which can be obtained from Invacare®.

12 Maintenance- and repair work

The following are instructions on maintenance and repairs that can be performed by the user. For the specifications of spare parts please see "**Technical Specifications**" on page **163**, or consult the Service Manual, available from Invacare® (in this connection please see the addresses and phone numbers in section "**How can you get in touch with Invacare®?**" on page **2**). In case you require assistance, please contact your Invacare® Dealer.

12.1 Repairing a flat tyre

WARNING: Danger of damage or injury if the vehicle is accidentally set into motion during repairs!

- *Switch the power off (ON/OFF Button)!*
- *Engage the motors!*
- *Secure the vehicle against rolling away by placing wedges under the wheels!*

CAUTION: Risk of damage to the vehicle! Collisions can be caused if shim rings are removed from the drive wheels during installation work!

- *Shim rings are frequently placed between the drive shaft and the wheel hub to compensate tolerances. Collisions can be caused if these shim rings are removed and not re-installed! Please install all shim rings in exactly the same positions they were in before dismantling.*

12.1.1 Repairing punctures (drive wheel with GB motor and pneumatic tyres)

EXPLOSION HAZARD!

The wheel will explode if you do not let the air out of the tyre before removing the wheel!

- *Always let the air out of the tyre before removing it (press in the pin in the middle of the valve)!*

Injury hazard!If the wheel has been insufficiently tightened during assembly, it can become loosened during driving!

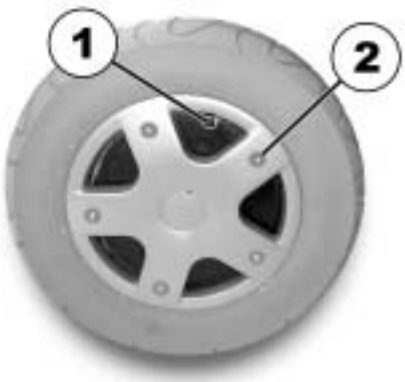
- *When reassembling the drive wheels, tighten the Allen screws at a torque of 25 Nm!*

Requirements:

- Open-ended spanner 6 mm.
- Torque wrench
- Repair kit for tyre repair **or** a new inner tube.
- Talcum powder
- Screw blocker Loctite (e.g. Loctite 243)

Disassembly

- Block up the vehicle (place wooden blocks under frame).
- Unscrew valve cap.
- Depressurise tyre by pressing in the pin in the valve (1).
- Unscrew 5 screws (2).
- Remove the wheel rim halves.
- Remove the inner tube from the tyre.



NOTE:
If the old inner tube is to be repaired and re-used, and has become wet during repair, you can make replacement easier by sprinkling the inner tube with a little talcum powder.

NOTE:
Ensure that the tyre is replaced on the same side and in the same travel direction as it was previously mounted.

- Repair inner tube and replace, or insert new.
- Replace the inner tube in the tyre.
- Insert the wheel rim halves once again.
- Insert the screws and tighten slightly.
- Pump a little air into the inner tube.
- Tighten the screws to 25 Nm.
- Ensure that the tyre outer is seated correctly.
- Pump the wheel up to its prescribed air pressure (see **"Technical Specifications"** on page **163**
- Check that the tyre is seated correctly once again.
- Screw the valve cap back on.

12.1.2 Repairing a flat tyre at the front (tyre type 280/250-4)

Requirements:

- Allen key 5 mm
- Open-end spanner 13 mm
- Repair kit for inner tube tyres **or** a new inner tube
- Talcum powder

Removing the wheel

- Jack up the vehicle (place a wooden wedge under the frame).
- Loosen and remove the screw (1) using the Allen key on one side and the open-ended spanner on the other side (for countering).
- Pull the wheel from the fork

NOTE
Installation is carried out in reverse order. Please ensure that the wheel is re-fitted on the same side and in the same running direction as removed.

Repairing a flat tyre

- Remove the valve cap.
- Exhaust the air from the tyre by pressing the spring pin in the valve.
- Loosen and remove the 5 Allen screws (1).
- Remove the tyre with the inner tube from the rim halves.
- Repair the tube and re-fit or fit new tube

NOTE
If the old tube is to be repaired and re-fitted and has become wet during repair work, powdering the hose with some talcum powder can simplify the fitting procedure.

- Re-insert the rim halves into the tyre from the outside.
- Pump a little air into the inner tube.
- Re-position the Allen screws and screw rim together tightly. Make sure the inner tube does not get pinched between the rims halves!
- Check the exact fit of the tyre.
- Inflate the tyre to the prescribed air pressure.
- Re-check the exact fit of the tyre.
- Screw on the valve cap.
- Refit the wheel.

12.2 Checking the anti-tippers for smoothness of operation and correct function

When testing the function of the anti-tippers, it makes no differnce whether the user is seated in the wheelchair or not.

Smoothness of operation

- Lift up the anti-tipper (1) and release it again. If it can be pulled up without difficulty and it then returns by itself to its original lower position, then it is functioning smoothly.
- In case the anti-tipper does return to its original position by itself, then the wheelchair must be checked immediately by an authorised Invacare Dealer!
- In case the anti-tipper jams when pulled upwards, then the immobilisation mechanism needs to be be adjusted. Please see chapter "**Adjusting the Immobilisation mechanism of the anti-tippers**" on page **78**.
- Repeat the procedure on the other side.

Correct function

- Have a second person lift the wheelchair up slightly in the rear, so that the rear wheels have approximately 1 cm ground clearance.
- Pull the anti-tipper (1) upwards. The anti-tipper must lock immediately and completely.
- In case the anti-tipper can be pulled upwards, then the immobilisation mechanism needs to be adjusted. Please see chapter "**Adjusting the Immobilisation mechanism of the anti-tippers**" on page **78**.
- Repeat the procedure on the other side.

13 Transport

CAUTION: Injury hazard or material damage if an electric wheelchair which is fitted with a table is transported in a vehicle!

- *If a table is fitted, always remove it before transporting the wheelchair.*

13.1 Transferring the wheelchair to a vehicle

WARNING: Danger of tipping over, if the wheelchair is transferred to a vehicle using a ramp that exceeds the maximum safe slope, or if the backrest is not in an upright position during transfer!

- *If the wheelchair has to be transferred to a vehicle using a ramp that exceeds the maximum safe slope (see chapter "Technical Specifications" starting on page 163), then a winch must be used. An attendant can then safely oversee and assist the transfer process.*
- *If no winch is installed, then the wheelchair must not be transferred to a vehicle using a ramp that exceeds the maximum safe slope.*
- *Alternatively, a tail lift installed in the vehicle may be used.*
- *Only ever transfer the wheelchair to a vehicle with the backrest in an upright position. Ensure that the total weight of the mobility aid including the user does not exceed the highest permissible weight for the platform lift.*
- *Only ever run the wheelchair with the seat back in the upright position, seat lifter lowered and the seat tilting in the upright position into the transport vehicle (please refer to chapter "Driving up and down gradients" on page 34).*

- Drive or push your wheelchair into the transport vehicle using a suitable ramp.

13.2 Use of the wheelchair as a seat in a vehicle

Please note
In order to use a wheelchair as a motor vehicle seat, it needs to be equipped with attachment points to enable anchoring in the motor vehicle. These accessories may be included in the standard scope of wheelchair order and delivery in some countries (UK for example), but may also be obtained from Invacare® as an option in other countries.

This electric wheelchair complies with the requirements of ISO 7176-19:2001 and may be used as a vehicle seat in connection with an anchoring system that has been checked and approved in accordance with ISO 10542. The wheelchair has undergone a crash test in which it was anchored in the transporting vehicle's direction of travel. Other configurations were not tested. The crash test dummy was secured using pelvic and upper body safety belts. Both types of safety belt should be used in order to minimise the risk of injuries to head or upper body. It is imperative that the wheelchair is inspected by an authorised dealer before being used again after being involved in a crash. Alterations to the wheelchair anchoring points may not be carried out without the manufacturer's permission.

Caution: There is a danger of injury if the wheelchair is not properly secured during use as a vehicle seat!

- *If possible, the user should always leave the wheelchair to use a vehicle seat and the safety belts provided with the vehicle.*
- *The wheelchair should always be anchored facing in the transport vehicle's intended direction of travel.*
- *The wheelchair must always be secured in accordance with the wheelchair and anchoring system manufacturers' operating manual.*
- *Always remove and secure any accessory parts fixed to the wheelchair such as chin controls or tables.*
- *If your wheelchair is equipped with an angle adjustable backrest, then it must be placed in an upright position.*
- *Fully lower elevated legrests, if fitted.*
- *Fully lower the seat lifter, if fitted.*

WARNING: Danger of injury exists if a powerchair that is not equipped spill-proof batteries is transported in a vehicle!

- *Only ever use spill-proof gel batteries!*

13.2.1 How the wheelchair is anchored in a vehicle for use as a vehicle seat

The electric wheelchair is fitted with four anchoring points, which are labelled with the symbol shown on the right. Snap hooks or belt loops can be used for fixation.

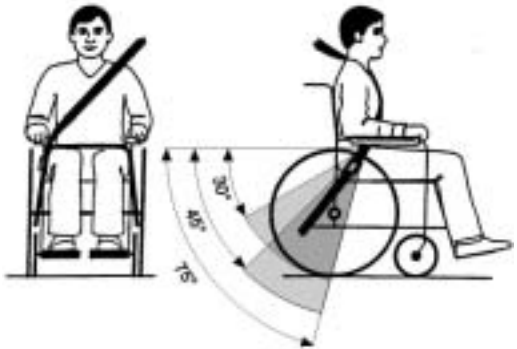
- Secure the wheelchair in the front (1) (only left side visible in the picture) and rear (2) with the anchoring system belts.
- Secure the wheelchair by tensioning the belts in accordance with the manufacturer's anchoring system operating manual.

13.2.2 How the user is secured within the wheelchair

CAUTION: There is a danger of injury if the user is not properly secured within the wheelchair!

- *Even if the wheelchair is fitted with a postural belt, this is no substitute for a proper safety belt which complies with ISO 10542 in the transport vehicle. Always use the safety belt installed in the transport vehicle.*
- *Safety belts must be in contact with the user's body. They must not be held at a distance from the user's body using parts of the wheelchair such as armrests or wheels. Refer to the illustration on page 158.*
- *Safety belts must be pulled as tightly as possible without causing the user discomfort. Refer to the illustration on page 158.*
- *Safety belts must not be positioned while twisted.*
- *Ensure that the third seatbelt anchorage point is not fixed directly to the vehicle floor, but to one of the vehicle uprights.*

Seat belts may not be held at a distance from the user's body using parts of the wheelchair such as armrests or wheels.

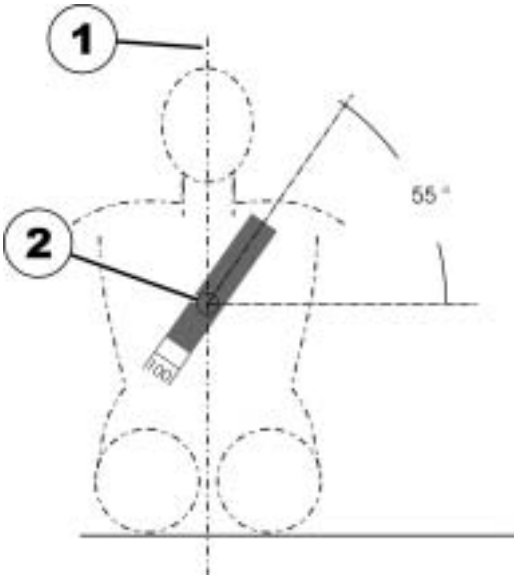


The pelvic belt should be positioned in the area between the user's pelvis and thighs so that it is unobstructed and not too loose. The ideal angle of the pelvic belt to the horizontal is between 45° and 75°. The maximum permissible angle is between 30° and 75°. The angle should never be less than 30°!

The safety belt installed in the transporting vehicle should be applied as shown in the illustration at right.

1) Centre line of the body

2) Centre of the sternum



13.3 Securing the wheelchair for transport without passengers

CAUTION: Injury hazard!

- *If you are unable to fasten your electric wheelchair securely in a transport vehicle, we recommend that you do not transport it!*

- Before transporting your wheelchair, make sure the motors are engaged and that the Joystick Box is switched off.
- We urgently recommend securing the wheelchair to the floor of the transporting vehicle.

14 Refurbishment

The product is suitable for refurbishment. Actions to be carried out:

- Cleaning and disinfection. Please see chapter **"Care** and maintenance**"** on page **141**.
- Inspection according to service plan. Please consult service instructions, available from Invacare®.
- Adaptation to the user. Please see chapter **"Adjusting the wheelchair to the user's seating posture"** on page **53**.

15 Disposal

- The equipment wrapping is potentially recyclable.
- The metal parts are used for scrap metal recycling.
- The plastic parts are used for plastic recycling.
- Electric components and printed circuit boards are disposed of as electronic scrap.
- Exhausted or damaged batteries can be returned to your medical equipment supplier or Invacare®.
- Disposal must be carried out in accordance with the respective national legal provisions.
- Ask your city or district council for details of the local waste management companies.

16 Technical Specifications

Permissible Operating and Storage Conditions	
Temperature range for operation according to ISO 7176-9:	• -25 … +50 °C
Temperature range for storage according to ISO 7176-9:	• -40 … +65 °C

Electrical System	
Motors	• 2 x 500 W
Batteries	• 2 x 12V / 60 Ah, spill-proof / gel
Main fuse	• 80 A

Charging device	
Output current	• 8A ± 8%
Output voltage	• 24V nominal (12 cells)
Input voltage	• 200 – 250V nominal
Ambient temperature (during operation)	• -25° ... +50°C
Storage temperature	• -40° ... +65°C

Drive wheel tyres	
Tyre type	• 3.00 - 8 pneumatic or puncture proof
Tyre pressure	• 2.8 bars

Front castor tyres	
Tyre type	• 2.50 - -2.80/4 pneumatic or puncture proof

Front castor tyres	
Tyre pressure	• 2.8 bars

Driving Characteristics	
Speed	• 6/9 km/h
Max. tilt-resistant climbing power	• 11% (9°)
Max. surmountable obstacle height	• 8 cm
Turning radius	• 74 cm
Range according to ISO 7176 ***	• 50 km

Dimensions	Standard	Kontur	Flex
Total height	• 94	• 105	• 98
Width of the drive unit	• 63 cm	• 63 cm	• 63 cm
Overall width of the seat (with standard armrests)	-	-	-
Seat width 39 cm	• 60 cm	• 60 cm	• 60 cm
Seat width 43 cm	• 64 cm	• 64 cm	• 64 cm
Seat width 48 cm	• 69 cm	• 69 cm	• 69 cm
Overall width of the seat (with parallel sliding armrests)	-	-	-
Seat width 39 cm	• 64 cm	• 64 cm	• 64 cm
Seat width 43 cm	• 68 cm	• 68 cm	• 68 cm
Seat width 48 cm	• 73 cm	• 73 cm	• 73 cm
Overall length (including standard legrests)	• 134 cm	• 134 cm	• 134 cm
Seat height without lifter	• 47 cm • 49 cm	• 47 cm • 49 cm	• 47 cm • 49 cm

Dimensions	Standard	Kontur	Flex
Seat height with Lifter	• 43 ... 73 cm • 50 ... 80 cm	• 43 ... 73 cm • 50 ... 80 cm	• 43 ... 73 cm • 50 ... 80 cm
Seat width (adjustable range of the armrests in brackets)	• 43 cm (44 - 48 cm**)	• 48 cm (49 - 53 cm**) • 43 cm (44 - 48 cm**)	• 38 cm (39) • 43 (44 - 48 cm**) • 48 (49 - 53 cm**)
Seat depth	• 41 / 46 / 51cm	• 41 / 46 / 51cm	• 41 / 46 / 51cm
Backrest height ****	• 48 / 54 cm	• 64 cm	• 55 cm
Seat cushion thickness	• 5 cm	• 7 cm	• 7 cm
Backrest angle	• -10°, 0°, +7.5°, +15°, +22.5°, +30°	• -10° ... +45° (electric)	• -10°...+45°
Armrest height (standard armrest)	• 25-35 cm	• 25-35 cm	• 25-35 cm
Armrest height (travelling armrest)	• 29-39 cm	• 29-39 cm	• 29-39 cm
Length of legrest • Short (for a calf length of 32-38 cm) • Medium (for a calf length of 38-44 cm) • Long (for a calf length of 44-50 cm)	 • 29,5 - 35,5 cm • 35,5 - 41,5 cm • 41,5 - 47,5 cm	 • 29,5 - 35,5 cm • 35,5 - 41,5 cm • 41,5 - 47,5 cm	 • 29,5 - 35,5 cm • 35,5 - 41,5 cm • 41,5 - 47,5 cm
Seat angle, electric adjustment (wheelchair without lifter)	• 0° ... +15°	• 0° ... +15°	• 0° ... +15°
Seat angle, manual adjustment (wheelchair without lifter)	• 0° ... +15°	• 0° ... +15°	• 0° ... +15°

Dimensions	Standard	Kontur	Flex
Seat angle, electric adjustment (wheelchair equipped with lifter)	• 0° ... +35° • -10 ... +35°	• 0° ... +35° • -10 ... +35°	• 0° ... +35° • -10 ... +35°

Weight	Without lifter	With lifter
Empty weight (with standard seat and gearless motors) *****	• 165 kg	• 189 kg

Payload	Seat depth 38, 41 cm	Seat depth 43 cm	Seat depth 46, 51 cm
Max. load	• 100 kg	• 110	• 120

Axle loads	
Max. load per axle in the front	• 230 kg
Max. load per axle in the rear	• 120 kg

* Approximately.

** Width adjustable via side section adjustment.

*** Remark: the range of an electric wheelchair is strongly dependent on external factors such as charge state of the batteries, ambient temperature, local topography, condition of the road surface, tyre pressure, weight of the driver, manner of driving and the use of the batteries for lighting, servos etc.

**** Measured without seat cushion

***** The actual kerb weight depends on the fittings your mobility aid has been supplied with. Every Invacare® mobility aid is weighed when leaving the works. Please refer to the nameplate for the kerb weight (including batteries) measured.

17 Inspections Performed

It is confirmed by stamp and signature that all jobs listed in the inspection schedule of the Service and Repair Instructions have been properly performed. The list of the inspection jobs to be performed can be found in the Service Manual which is available through Invacare®.

Delivery Inspection	1st Annual Inspection
Stamp of authorised Dealer / Date / Signature	Stamp of authorised Dealer / Date / Signature
2nd Annual Inspection	3rd Annual Inspection
Stamp of authorised Dealer / Date / Signature	Stamp of authorised Dealer / Date / Signature
4th Annual Inspection	5th Annual Inspection
Stamp of authorised Dealer / Date / Signature	Stamp of authorised Dealer / Date / Signature

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