



*Invacare*<sup>®</sup> **Topan**

---

**Powerchair  
User's Manual**



## 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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# 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 carried out by the user or his 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.

This manual contains copyrighted information. This manual may not be reproduced or reprinted either partly or completely without previous written consent from Invacare® or its statutory representatives. We reserve the right to make any necessary alterations on the grounds of technical improvements.

## 1.1 Important symbols in this manual

---



### **WARNING!**

**This symbol warns you of danger!**

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



### **EXPLOSION HAZARD!**

**This symbol warns you of an explosion hazard, which 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.
-

## 1.2 Important symbols found on the vehicle



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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 wheelee 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.*
-

## 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**" on page **97**.

Please also pay attention to all safety information in chapter "**Safety Notes**" starting from page **15**.

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 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.

## **1.5 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



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

- *Only ever use the wheelchair in accordance with the instructions in this User's Manual!*
- *Pay strict attention to the safety information!*

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

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

**Danger of damage or injury if wheelchair is accidentally set into motion!**

- *Switch the wheelchair 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 wheelchair by an attendant is only recommended on flat surfaces, never on gradients. Never leave your wheelchair on a gradient with its motors disengaged. Always re-engage the motors immediately after pushing the wheelchair.*
-



---

**Danger of injury if the wheelchair 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!*

**Danger of injury when transferring wheelchair to another vehicle for transport with the occupant seated in it!**

- *It is always better to transfer the wheelchair to another vehicle without the occupant seated in it!*
- *In case the wheelchair does need to be transferred to another vehicle over a ramp with the occupant seated in it, always have an attendant stand behind the wheelchair during transfer to ensure it does not tip over backwards!*

**Danger of injury if maximum permissible load is exceeded!**

- *Do not exceed the maximum permissible load (see technical specifications)!*
-



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

- *When maintaining, servicing or lifting any part of your wheelchair, 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 wheelchair.**

- *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 restraining systems are installed (such as seat belts), use them each time you drive the wheelchair.*
- *When changing over to a new seat, position the wheelchair 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 wheelchair, 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 wheelchair that are not expressly certified by Invacare® for this purpose! Have all electrical installations done by your authorised Invacare® Dealer!*
-

## 2.2 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!*
-

## 2.3 Safety Information on Driving and Freewheel Mode

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### **Danger of injury if the wheelchair tips over!**

- *Only ever negotiate gradients up to the maximum tilt-resistant gradient (see Technical Specifications) and only with the backrest and seat tilt (if fitted) in an upright position!*
  - *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!*
  - *Always approach obstacles straight on! Ensure that the front wheels and rear wheels move over the obstacle in one stroke, do not stop halfway! Do not exceed the maximum obstacle height (see Technical Specifications)!*
  - *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 maximum permissible load!*
  - *Note that the wheelchair will brake or accelerate if you change the Driving Mode whilst the wheelchair is in motion!*
-



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**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!*
-

### 3 Key features

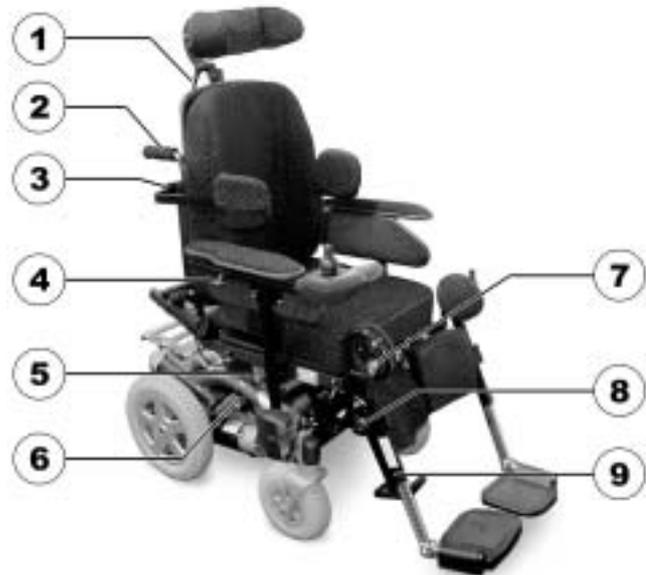
#### 3.1 Topan with Standard Seat

- 1) Push handle
- 2) Wing screw for adjusting the remote to the length of the arm
- 3) Hand wheel and fixation screw adjusting the angle of the backrest
- 4) Declutching lever of the drive motors
- 5) Release lever of the legrest
- 6) Fixation screw for adjusting the length of the legrest



## 3.2 Topan with Laguna Seat

- 1) Clamping lever for adjusting the headrest
- 2) Push handle
- 3) Fixation screw for adjusting the width of the trunk supports
- 4) Fixation screw for adjusting the remote to the length of the arm
- 5) Fixation screw for adjusting the height of the remote
- 6) Declutching lever of the drive motors
- 7) Fixation screw for adjusting the angle of the legrest
- 8) Fixation screw for adjusting the position of the calf support
- 9) Fixation screw for adjusting the length of the legrest



## 4 Getting in and out of the wheelchair



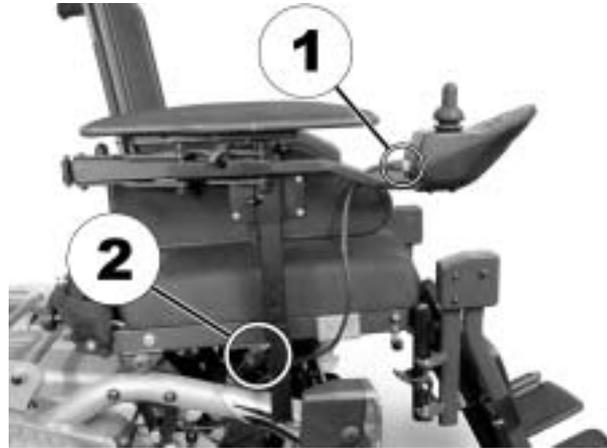
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**Important information for getting into and out of the wheelchair from the side!**  
The armrest must be removed in order to get into or out of the wheelchair from the side.

---

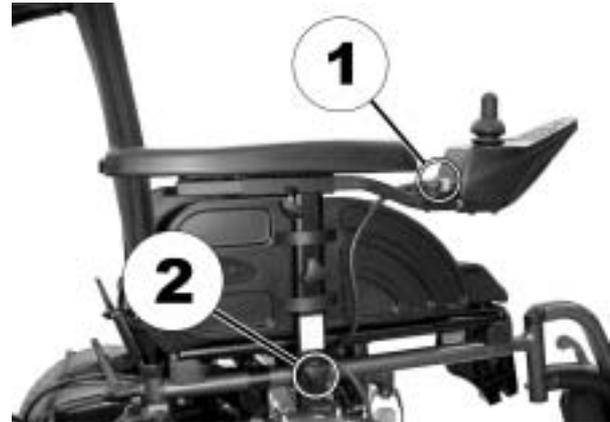
### 4.1 Removing the padded armrest in order to side transfer

- Disconnect the cable (1) from the remote.
- Loosen the wing screw (2).
- Pull the side part out of the holder.



## 4.2 Removing the ergonomic armrest in order to side transfer

- Disconnect the cable (1) from the remote.
- Release the hand knob (2).
- Pull the side part 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 hand brake of your wheelchair (if existing).
- Detach the side part 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 hand brake of your wheelchair (if existing).
- Detach the side part 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

### 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, use the restraining systems (seat belts) each time you use the vehicle.

---

#### **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 restraining belt (if installed) is in perfect order.

### 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 wheelchair can overcome obstacles and kerbs with the following heights.

- 10 cm



---

### **CAUTION: Danger of Tipping Over!**

- *Never approach obstacles at an angle!*
  - *Put your backrest into an upright position before climbing an obstacle!*
- 

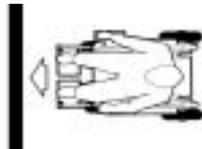
#### **Driving up over an obstacle**

- 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 Driving up and down gradients

Your electric wheelchair has a maximum tilt-resistant climbing ability of 11.4%.



---

### **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!*
  - *If the lifter (if installed) is raised drive mode is only used for positioning and not for regular drive operation! Lower the lifter before ascending 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 tilt-resistant climbing ability!*
-

## 6 Pushing the wheelchair by hand

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, the magnetic brakes must be disengaged.

### 6.1 Disengaging Motors



---

#### **Danger of the vehicle running away!**

- *When the motors are disengaged (for push operation), 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)!*
- 

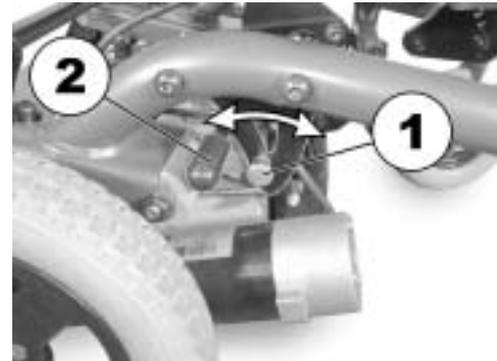
The lever for disengaging the motors is on the rear right side on the wheelchair chassis.

#### **Declutching the motors:**

- Switch off the remote.
- Pull out the locking pin (1). In order to simplify declutching, move the wheelchair forward and backward during declutching. Push the coupling lever (2) to the front. The motors are declutched.

#### **Reclutching the motors:**

- Pull the coupling lever to the rear (2). The motors are reclutched.

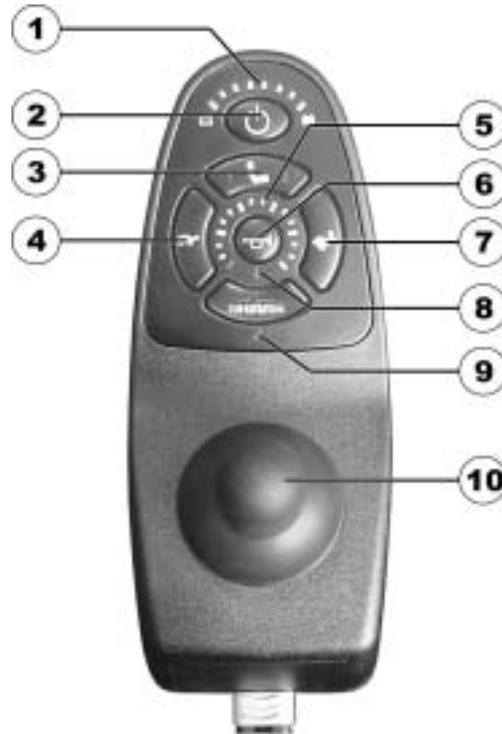


# 7 The Shark II Remote

## 7.1 Assembly of the remote

### Top side (standard)

- 1) Battery charging display
- 2) ON/OFF button
- 3) Activate / connect through / deactivate adjusting mode
- 4) Reduce travel speed
- 5) Travel speed display
- 6) Horn
- 7) Increase travel speed
- 8) LED for "control unit activated for accompanying person"
- 9) Status display
- 10) Joystick



## Top side (including light option)

- 11) Warning indicator
- 12) Left hand indicator
- 13) Light
- 14) Right hand indicator
- 15) LED for "light activated"



## Lower side

- 1) Combined charging socket / programming socket



## 7.2 Battery charging display

- All diodes illuminated: **full range!**
- Only the yellow and red diodes are illuminated:  
**Reduced range! Charge batteries before a longer trip!**
- Only the red diodes are illuminated:  
**Very low range! Charge batteries as soon as possible!**
- Only one red diode flashing:  
**Battery on reserve = Charge batteries immediately!**

**Battery charging display**



---

### **INFORMATION**

Protection against total discharge: after a certain journey time with the battery on reserve the electronic system will automatically shut down actuation and the wheelchair will come to a stop. Total discharge reduces the service life of the batteries considerably.

---



**PLEASE NOTE: Danger of battery destruction! After a certain journey time with the battery on reserve the electronic system will automatically shut down actuation and the wheelchair will come to a stop. By waiting a few minutes the batteries can 'recover' to such a degree that the electronic system can be switched on again. Short continuation of the journey is possible until the wheelchair comes to a stop again. If this procedure is repeated several times the batteries will be destroyed!**

- *Please always ensure that the batteries are charged sufficiently for the planned journey.*
  - *If possible, do not drive until the batteries are empty.*
-

## 7.3 Adjusting speed

The user can adjust the chair's top speed to suit their preferences and environment. The currently selected top speed is shown on the Speedometer and can be adjusted using the "Increase Speed" (1) and "Reduce Speed" (2) buttons.

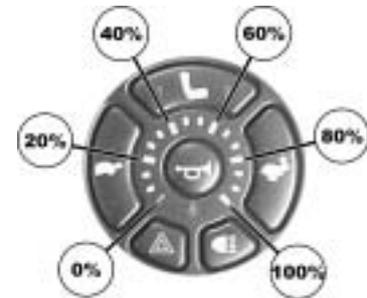


## 7.4 Using the speedometer

Each of the speedometer's 6 large LEDs typically represent 0%, 20%, 40%, 60%, 80% and 100% of the chair's maximum speed.

The Speedometer is used to gauge the relative speed of the chair in comparison to the maximum speed possible. The right-most LED indicates current maximum speed, which can be adjusted using the Increase (Decrease) Speed button.

If the bottom, left-most GREEN LED is flashing SHARK is in SPEED LIMIT mode, which limits the drive speed to a pre-programmed value, typically when a seat is raised or tilted and driving too fast may be dangerous.



## 7.5 “5 Speed” and “VSP” modes

Shark II supports 2 modes of top speed adjustment – “5 Speed” and “VSP” modes.

In the “5 Speed” mode pressing the Increase Speed and Decrease Speed buttons steps between one of the 5 top speeds 20% to 100%.

In the “VSP” mode a quick single press of the Increase Speed and Decrease Speed buttons also steps between one of the 5 speeds 20% to 100%. However, pressing and holding the Increase Speed (Decrease Speed) Button ramps the top Speed up (down) in fine steps, allowing practically any top speed to be selected. This can be particularly useful for matching the chair speed to the walking speed of an accompanying pedestrian.

VSP is an extremely powerful feature, allowing both fast stepping between fixed top speeds by using quick presses or finer control using long presses. The VSP feature can be enabled or disabled. Users can toggle between the “VSP” and “5 Speed” Modes by holding down both the Increase Speed and Decrease Speed Buttons for approximately 2 seconds while the unit is powered up. The control unit will beep when the mode has been changed.

## 7.6 Status display

The status display serves to display error messages. For error codes see chapter "**Error Codes and Diagnostic Codes**" on page 42.

## 7.7 Activate/de-activate the immobiliser

### Activate the immobiliser

- Whilst the remote is switched on, press and hold the ON/OFF button (1) for 4 seconds. The remote will switch off immediately. After 4 seconds the battery charging display will illuminate briefly and the horn will be heard twice. The immobiliser is activated.

### Activate



### De-activate the immobiliser

- Whilst the immobiliser is activated, switch on the remote using the ON/OFF button (1). The diodes of the battery charging display will illuminate briefly once from left to right. A slow countdown will then be displayed from right to left.
- Press the horn button (2) twice before the countdown is completed. You have about 10 seconds to do this. The immobiliser is de-activated.

### Deactivate



## 7.8 Using the remote to control the wheelchair

- Switch on the remote (ON/OFF button). The displays on the remote will illuminate. The wheelchair is ready to start.
- Set the travel speed (buttons for adjusting travel speed - see section on "**Assembly of the remote**" on page 30).



### **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 wheelchair!**

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



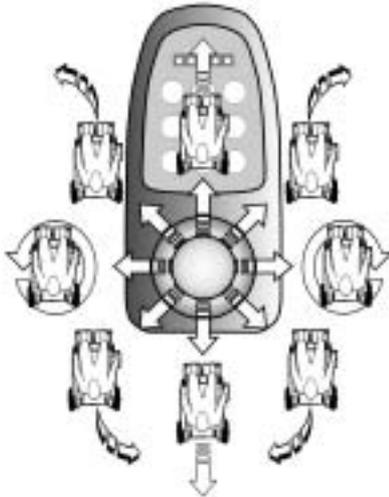
### **Will the wheelchair not drive after switching on?**

Check the drive-away lock (see chapter "**Activate/de-activate the immobiliser**" on page 35) and the status bar indicator (see chapter "**Battery charging display**" on page 32.).

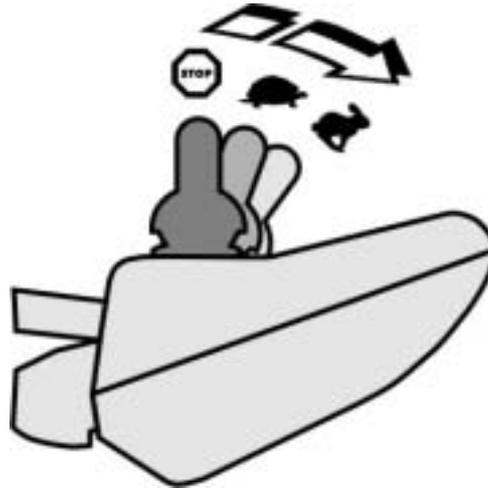
---

## 7.8.1 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:

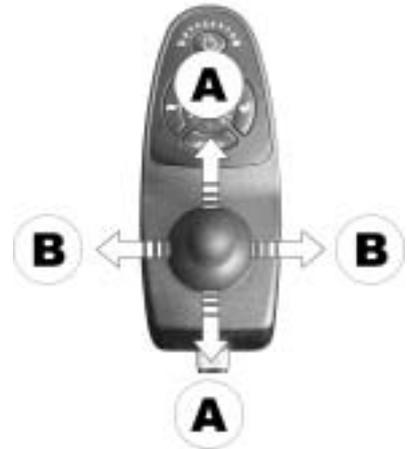
To brake quickly, simply let go of the joystick. It will then automatically return to the middle position. The wheelchair will brake.

---

## 7.8.2 Operating the electric adjustment options

Electric adjustment options are operated using the joystick.

- Press the adjustment mode button once in order to activate the first adjustment option. Press the adjustment mode button twice in order to activate the second adjustment option.
- Move the joystick to the left or right = change adjustment option (B).
- Move the joystick forward or backward = operate selected adjustment option (A). How far the joystick is moved in any direction determines the motion speed of the actuator.
- Press the adjustment mode button in order to return to drive mode.



## 7.9 Control unit for an accompanying person (option)

The control unit for an accompanying person enables the control of the wheelchair to be handled by an accompanying person.

### 7.9.1 Layout of the remote

- 1) Joystick
- 2) Change over control unit to accompanying person/occupant
- 3) Activate/connect through/deactive adjustment mode
- 4) Set travel speed

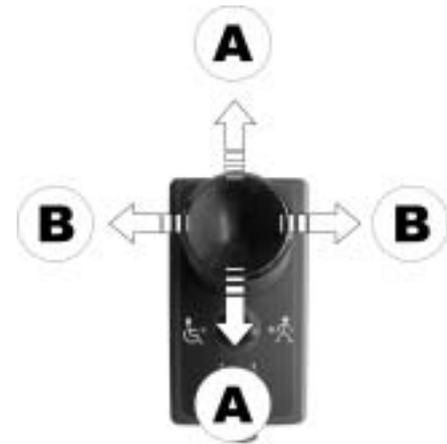


## 7.9.2 Operating the electric adjustment options

Electric adjustment options are operated by means of the joystick.

The control unit must be switched over to 'accompanying person' for the adjustment options to be operated via the control unit for the accompanying person.

- Press the adjustment mode button. Adjustment mode is activated.
- Move the joystick forward or backward = Operate adjustment option (A).
- Move the joystick to the left or right = Change adjustment option (B).
- Press the adjustment mode button again to return to drive mode.



## 7.10 Error diagnosis

If the electronic system shows a failure, please use the following guide to locate the fault.



---

**NOTE:**

Ensure that the drive electronics system is switched on before starting any diagnosis.

---

**If the status display is OFF:**

**Check whether the drive electronics system is SWITCHED ON.**

**Check whether all cables are correctly connected.**

**Ensure that the batteries are not discharged.**

**If the battery charge display diodes are FLASHING:**

**Count the number of flashes and then proceed to the next section.**

## 7.11 Error Codes and Diagnostic Codes

| FLASH CODE | FAULT                                 | EFFECT        | Comments                                                                                                                                                                                                                                                                                                                                                                                          |
|------------|---------------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1          | User error or drive motors overloaded | Stops driving | <ul style="list-style-type: none"> <li>• Ensure that the joystick is in the neutral central position (simply release the joystick) and switch on again.</li> <li>• Drive motors overloaded. Shut electronics down and then switch on again. If the driving power is still reduced, wait a few minutes.</li> </ul>                                                                                 |
| 2          | Battery error                         | Stops driving | <ul style="list-style-type: none"> <li>• Check battery and supply cable.</li> <li>• Charge batteries. If you switch the wheelchair off for a few minutes, the batteries can often recharge to such an extent that a short run is still possible. However, you should only do this in an emergency, as this causes the batteries to discharge excessively.</li> <li>• Replace batteries</li> </ul> |
| 3          | Fault on left-hand motor (M2)         | Stops driving | <ul style="list-style-type: none"> <li>• Check motor cable and connecting plugs.</li> <li>• Check motor.</li> </ul>                                                                                                                                                                                                                                                                               |
| 4          | Fault on right-hand motor (M1)        | Stops driving | <ul style="list-style-type: none"> <li>• Check motor cable and connecting plugs.</li> <li>• Check motor.</li> </ul>                                                                                                                                                                                                                                                                               |
| 5          | Error on left-hand (M2) wheel lock    | Stops driving | <ul style="list-style-type: none"> <li>• Check cable and connecting plugs.</li> <li>• Check brake.</li> </ul>                                                                                                                                                                                                                                                                                     |
| 6          | Error on right-hand (M1) wheel lock   | Stops driving | <ul style="list-style-type: none"> <li>• Check cable and connecting plugs.</li> <li>• Check brake.</li> </ul>                                                                                                                                                                                                                                                                                     |

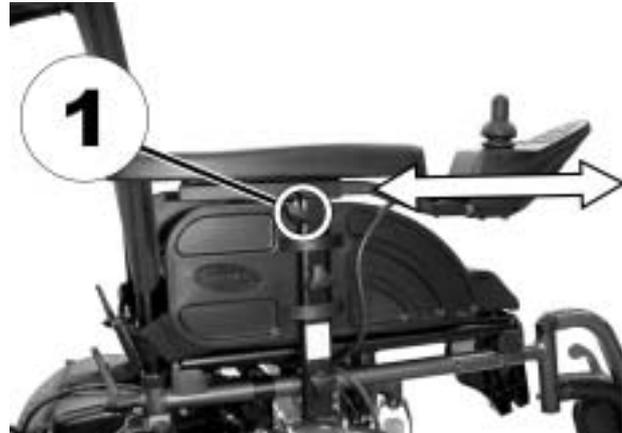
| <b>FLASH CODE</b> | <b>FAULT</b>                        | <b>EFFECT</b> | <b>Comments</b>                                                                                                                                              |
|-------------------|-------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>7</b>          | Error in Shark remote               | Stops driving | <ul style="list-style-type: none"> <li>• Check remote bus cable and all connecting plugs.</li> <li>• Replace remote.</li> </ul>                              |
| <b>8</b>          | Error in Shark power module         | Stops driving | <ul style="list-style-type: none"> <li>• Check all cables and connecting plugs in the Shark system.</li> <li>• Replace power module</li> </ul>               |
| <b>9</b>          | Communication error in Shark system | Stops driving | <ul style="list-style-type: none"> <li>• Check all cables and connecting plugs in the Shark system.</li> <li>• Replace remote.</li> </ul>                    |
| <b>10</b>         | Unknown error                       | Varying       | <ul style="list-style-type: none"> <li>• Check all cables and connecting plugs.</li> <li>• Talk to your dealer.</li> </ul>                                   |
| <b>11</b>         | Incompatible remote                 | Stops driving | <ul style="list-style-type: none"> <li>• The wrong remote type is connected. Ensure that the power module type code matches the remote type code.</li> </ul> |

## 8 Adjusting the wheelchair to the user's seating posture

### 8.1 Adjusting the armrests and the joystick box

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

- Loosen the wing screw (1).
- Set the remote to the desired length by pushing forward or backward.
- Re-tighten the screw.



## 8.1.2 Adjusting the height of the remote (option)



---

### Pre-requisites:

- 1x 4 mm Allen key
- 

- Use the Allen key to loosen the fastening screw (1) of the skirt guard.
- Use the Allen key to loosen the fastening screw (2) of the remote fixation.
- Adjust remote and skirt guard to the desired height.
- Re-tighten the screws.



### 8.1.3 Adjusting the height of the armrest

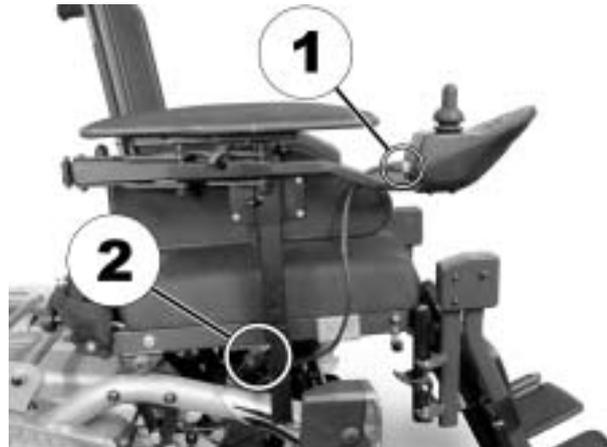


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**Pre-requisites:**

- 1x Phillips screwdriver
- 

- Disconnect the cable (1) from the remote.
- Loosen the wing screw (2).
- Pull the side part out of the holder.



The stop screw (1) of the side part has six different positions.

- Loosen and remove the stop screw (1) of the side part, using the Phillips screwdriver.
- Position the stop screw to the desired height and re-tighten.



### 8.1.4 Setting the width of the side sections

The distance between the side sections can be adjusted by 1.5 cm on both sides (3 cm in total).

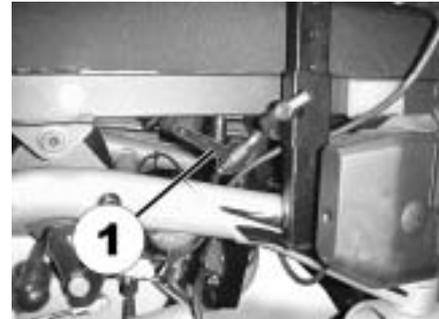
#### **Where to find the clamping levers?**

The picture below shows the position of the clamping levers (1) that enable adjustment of the width of the armrests.



### Doing the adjustment

- Loosen the clamping lever (1).
- Set the armrest to the desired position.
- Re-tighten the clamping lever.
- Check that the armrest is fastened firmly.
- Repeat the procedure for the other armrest.



## 8.2 Adjusting the backrest

### 8.2.1 Adjusting the backrest electrically

The angle of the electrically adjustable backrest is continuously adjustable between  $-2^{\circ}$  and  $+30^{\circ}$ . The actuator is controlled via the remote. Please see chapter "**Operating the electric adjustment options**" on page 38.

## 8.2.2 Adjusting the backrest manually

The angle of the manually adjustable backrest is continuously adjustable between +2° and +22°.

---

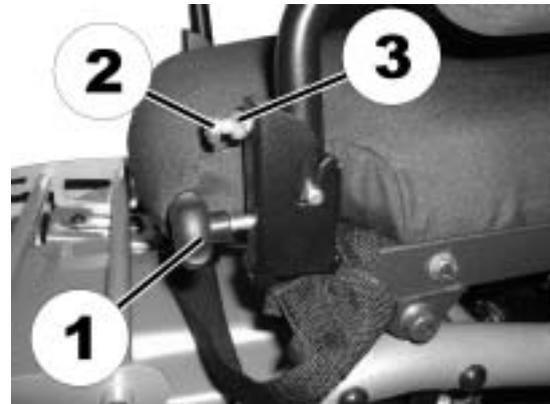


### Pre-requisites:

- 1x Open-end spanner 13 mm
  - 1x Phillips screwdriver
- 

The angle of the manually adjustable backrest is adjusted on both sides by means of a knurled adjustment screw (1) and a limiting screw (2), which is fitted with a counter nut (3).

- Loosen the knurled screws (1) on both sides.
- Loosen the counter nut (3) of the limiting screw (2), using the open-end spanner 13 mm.
- Adjust the limiting screws (2) evenly on both sides to the desired backrest angle, using the Phillips screwdriver.
- Tighten the counter nut (3).
- Re-tighten the knurled screws.



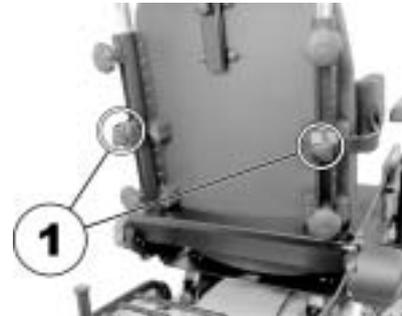
## 8.3 Adjusting the trunk supports

The trunk supports can be adjusted in three different ways:

- Width
- Height
- Depth

### 8.3.1 Adjusting the width

- Loosen the knurled screws (1).
- Set the trunk supports to the desired position.
- Re-tighten the knurled screws.



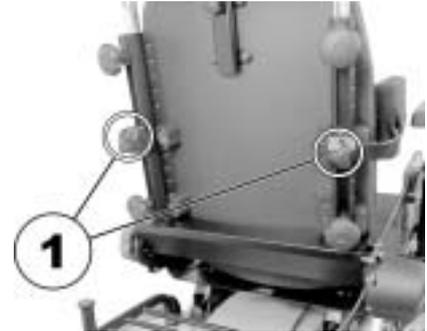
## 8.3.2 Adjusting the height



---

### Requirements:

- Allen key 5 mm
- 
- Loosen the Allen screw of the height adjustment (1).
  - Set the trunk supports to the desired height.
  - Re-tighten the screws.



### 8.3.3 Adjusting the depth



---

**Requirements:**

- Allen key 5 mm
- 
- Loosen the screws (1) that allows the support pads to slide forwards and backwards.
  - Adjust the supports to the desired position.
  - Re-tighten the screws.



## 8.4 Adjusting the headrest

- Loosen the clamping lever (1,2 or 3).
- Adjust the headrest to the required position.
- Retighten clamping lever.



## 8.5 Legrests

### 8.5.1 Modifying the seat depth in the front by adjusting the position of the legrest support brackets

The seat depth in the front can be modified by adjusting the position of the legrest support brackets. Adjusting the position of the legrest support brackets is the same for all types of legrests.

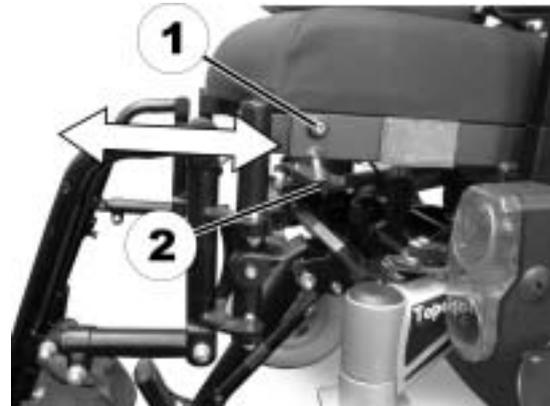


---

#### Pre-requisites:

- 1x Allen key 4 mm
- 

- Loosen the grub screw (1), using the Allen key.
- Release the wing screw (2).
- Set the position of the legrest support bracket to the desired depth.
- Re-tighten the screws.



## 8.5.2 Standard / Junior / Mini Legrests

### 8.5.2.1 Adjusting the length of the legrest



---

**WARNING: Danger of injury and danger of damage to the wheelchair if the legrests do not have sufficient ground clearance!**

- *Always make sure the legrests have sufficient ground clearance when adjusting the length, keeping in mind that the necessary ground clearance is increased when overcoming obstacles!*
- 



#### **Pre-requisites:**

- 1x Open-ended spanner 13 mm
- 

- Remove the plastic cover cap from the adjustment screw (1).
- Loosen the screw, using the open-ended spanner 13 mm.
- Set the legrest to the desired length. Take care not to rotate the lower part of the legrest in its support tube.
- Re-tighten the screws.
- Re-position the plastic cover cap.



## 8.5.3 Angle adjustable legrest

### 8.5.3.1 Adjusting the angle of the legrest



---

**Pre-requisites:**

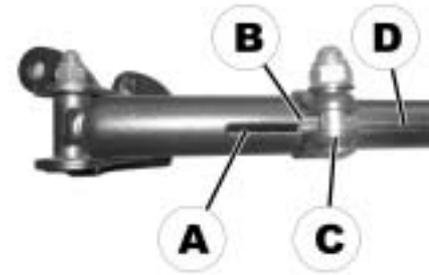
- 1x open-ended spanner 13 mm
  - 1x open-ended spanner 10 mm
  - 1x Allen key 4 mm
- 

- Loosen the fixation screws (1) of the pivotal points of the angle adjustment, using the open-ended spanner 10 mm and the Allen key 4 mm.
- Loosen the clamping screw (2) of the angle adjustment, using the open-ended spanner 13 mm.

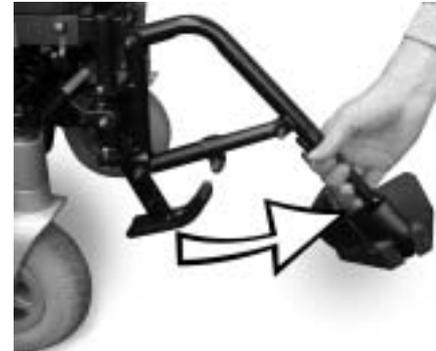


On the underside of the legrest hanger there is a slit (A) in the outer tube, which allows visual inspection.

When adjusting the angle, the inner tube (D) should only ever be pulled out so far that its end is flush with the edge (B) of the clamp (C).



- Adjust legrest to the desired angle.
- Check the remaining length of the inner tube in the outer tube through the slit for visual inspection.
- Re-tighten all screws.



### 8.5.3.2 Adjusting the length of the legrest



---

**WARNING: Danger of injury and danger of damage to the wheelchair if the legrests do not have sufficient ground clearance!**

- *Always make sure the legrests have sufficient ground clearance when adjusting the length, keeping in mind that the necessary ground clearance is increased when overcoming obstacles!*
- 



#### **Pre-requisites:**

- 1x Open-ended spanner 13 mm
- 
- Loosen the screw (1) using the 13 mm open-ended spanner.
  - Set the legrest to the desired length. Take care not to rotate the lower part of the legrest in its support tube.
  - Re-tighten the screw.



## 8.5.4 Manually height adjustable legrest

### 8.5.4.1 Adjusting the angle of the legrest

- To raise the legrest, slowly pull it upwards.



- To lower the legrest, press the lever (1) down and adjust the legrest to the desired position.



#### 8.5.4.2 Adjusting the length of the legrest



---

**WARNING: Danger of injury and danger of damage to the wheelchair if the legrests do not have sufficient ground clearance!**

- *Always make sure the legrests have sufficient ground clearance when adjusting the length, keeping in mind that the necessary ground clearance is increased when overcoming obstacles!*
- 



#### **Pre-requisites:**

- 1x Open-ended spanner 13 mm
- 
- Loosen the nut (1) using the 13 mm open-ended spanner.
  - Set the legrest to the desired length. Take care not to rotate the lower part of the legrest in its support tube.
  - Re-tighten the nut.



### 8.5.4.3 Adjusting the height of the swing-away calf plate



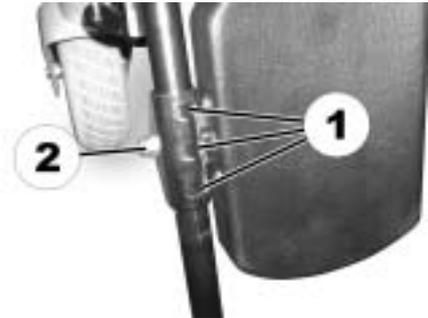
---

**Pre-requisites:**

- 1x Open-ended spanner 13 mm
- 

The calf support has three height adjustments (1).

- Use the open-ended spanner to loosen the nut (2).
- Set the calf support to the desired height.
- Re-tighten the nut.



## 8.5.5 Electrically height adjustable legrest

### 8.5.5.1 Adjusting the angle of the legrest

The electrically height adjustable legrests are operated via the remote. Please see chapter "Operating the electric adjustment options" on page 38.

### 8.5.5.2 Adjusting the length of the legrest



---

**WARNING: Danger of injury and danger of damage to the wheelchair if the legrests do not have sufficient ground clearance!**

- *Always make sure the legrests have sufficient ground clearance when adjusting the length, keeping in mind that the necessary ground clearance is increased when overcoming obstacles!*
-

- Loosen the wing screw (1).
- Set the legrest to the desired length.
- Re-tighten the wing screw.



### 8.5.5.3 Adjusting the height of the swing-away calf plate



---

**Pre-requisites:**

- 1x Phillips screwdriver
- 

The height adjustment the calf support is infinitely variable.

- Loosen the screws (1) using the Phillips screwdriver.
- Set the calf support to the desired height.
- Re-tighten the screws.



## 8.5.6 REA Legrest

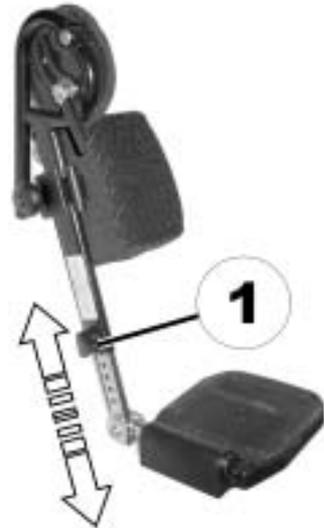
### 8.5.6.1 Adjusting the angle of the legrest

- To adjust the angle of the legrest, pull the lever (1) outward and rotate approximately half a turn counterclockwise to release the clamping screw.
- Adjust legrest to the desired angle.
- Tighten the clamping screw again using the lever, then press the lever back flush with the legrest.



### 8.5.6.2 Adjusting the length of the legrest

- Loosen the wing screw (1).
- Set the legrest to the desired length.
- Re-tighten the wing screw.



### 8.5.6.3 Adjusting the height of the swing-away calf plate

The height adjustment the calf support is infinitely variable.

- Loosen the clamping screw (1).
- Set the calf support at the desired height.
- Re-tighten the screw.



#### 8.5.6.4 Adjusting the position of the swing-away calf support

The calf support has three depth adjustments (1).

- Loosen and remove the fixation screws (1) of the calf pad..



- Use the Allen key 5 mm to loosen and remove the lateral fixation screw (1) of the calf support.
- Set the calf support to the desired depth.
- Re-position and tighten the screw.
- Re-position the calf pad and fasten with the screws.



## 9 Electrical System

### 9.1 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 42). 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 42). By switching off and back on again, the error code is cancelled and the electronics are switched back on.

## 9.1.1 The main fuse



---

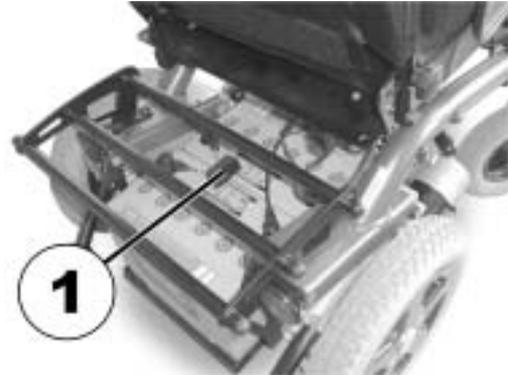
### NOTE

A defective main fuse may be replaced only after checking the entire electric system. An Invacare® specialised dealer must perform the replacement.

---

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

The main fuse is to be found underneath the battery cover (1).



## **9.2 Batteries**

### **9.2.1 What you need to know about batteries**

Power is supplied by two 12V gel 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

Gel batteries 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*. Gel 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® and comply with these requirements.

---

## 9.2.2 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 electric wheelchair on the remote.
- Connect the charging device to the remote. The charging socket is to be found on the underside of the remote (1).
- Connect the charging device to the power supply and switch on if necessary.
- After charging first disconnect the charging device from the power supply and then remove the plug connection from the remote.



### 9.2.3 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!*

**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!*
-

### 9.2.3.1 Removing the batteries



---

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

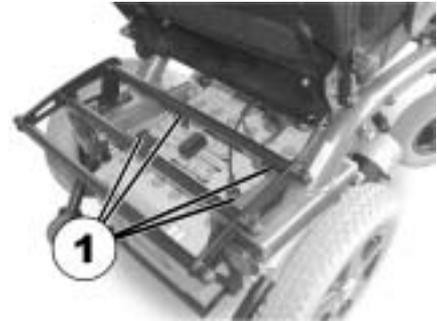
- *When replacing the batteries the battery poles MUST NOT come into contact with metal parts of the wheelchair causing bridging.*
  - *Be sure to replace the battery pole caps after the batteries have been replaced.*
- 

**Pre-requisites:**

- 11 mm open-ended spanner
- 
- Remove the battery cover.



- Pull the battery pole caps (1) upward and push back in order to reach the battery poles.
- Use the open-ended spanner to loosen the battery pole clamps.
- Remove the batteries to the rear.



### 9.2.3.2 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!*
- 



#### **Requirements:**

- Safety goggles
  - Acid-resistant gloves
  - Acid-resistant receptacle for transportation
- 

- Always wear 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®.

## 10 Care and maintenance

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**NOTE:**

Have your vehicle checked once a year by an authorised Invacare® dealer in order to maintain its 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>.

| <b>Maintenance Jobs</b>                                                                  | When Delivered | Weekly | Monthly |
|------------------------------------------------------------------------------------------|----------------|--------|---------|
| <b>Seat and backrest padding:</b>                                                        |                |        |         |
| - Check for perfect condition.                                                           |                |        | ✓       |
| <b>Side part and armrest:</b>                                                            |                |        |         |
| - Are all fastening elements installed?                                                  | ✓              | ✓      |         |
| - Can armrests / side parts be removed and installed without too much physical effort?   |                | ✓      |         |
| - Are armrests secured in their positions?                                               |                | ✓      |         |
| <b>Legrests:</b>                                                                         |                |        |         |
| - Do legrests lock into place without any problem? (Only applies to detachable legrests) |                |        | ✓       |
| - Do the different adjustment functions work without any problem?                        |                |        | ✓       |
| <b>Tyres:</b>                                                                            |                |        |         |
| - Have tyres checked for specified air pressure (2,5 bar).                               | ✓              | ✓      |         |
| <b>Front wheel forks / Front wheels</b>                                                  |                |        |         |
| - Front wheels must be running smoothly.                                                 |                | ✓      |         |
| - Check fork bearing for firm seat.                                                      |                |        | ✓       |
| <b>Rear wheels:</b>                                                                      |                |        |         |
| - Test wheel for firm seat on the axle drive shaft.                                      |                |        | ✓       |
| - Rear wheels must turn without wobbling                                                 |                |        | ✓       |

| <b>Maintenance Jobs</b>                                                           | When Delivered    | Weekly | Monthly |
|-----------------------------------------------------------------------------------|-------------------|--------|---------|
| <b>Electronics / Electrical System:</b>                                           |                   |        |         |
| - Check all plug connections for condition and firm seat.                         |                   |        | ✓       |
| - Have all batteries been fully charged before the daily operation?               | Before every trip |        |         |
| - Are all holders, screws firmly fixed, tight and safe?                           |                   |        | ✓       |
| - Are all electric bulbs of the lighting system (if applicable) in working order? | Before each trip  |        |         |
| <b>Cleaning:</b>                                                                  |                   |        |         |
| - Clean all parts carefully.                                                      | When necessary    |        |         |

**Have your vehicle inspected and serviced once a year by your authorised dealer. A complete checklist of necessary maintenance work can be found in the Service Manual, which can be obtained from Invacare®.**

# 11 Repair Instructions

The following are instructions on repairs that can be performed by the user. For the specifications of spare parts please see "**Technical Specifications**" on page **97**, 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.

## 11.1 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!*
-

## 11.1.1 Repairing a flat tyre (pneumatic tyres type 3.00-8")



---

### Requirements:

- Allen key 5 mm
  - Repair kit for inner tubes **or** an new inner tube.
  - Talcum powder
- 

### Remove the wheel

- Jack the vehicle up and place a block of wood underneath it to prop it up.
- Remove the countersunk screw (1).
- Remove the wheel from the axle.



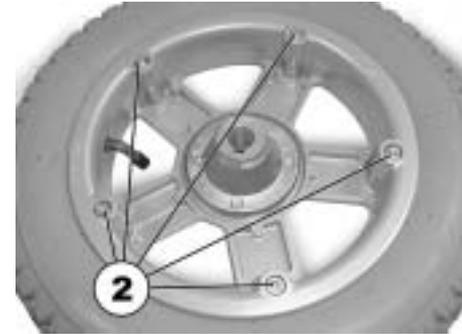
### NOTE

Re-assembly is done in reverse order. Make sure that the wheel is put back on the same side it was on, and that it runs in the same direction it did before it was removed.

---

### Repair the flat tyre.

- Remove the valve cap.
- Let the air out of the tyre completely by pressing the pin in the centre of the valve in.
- Remove the 5 cylinder head screws (back of the wheel, 2).
- Remove the rim halves from the tyre.
- Remove the inner tube from the tyre.
- Repair the inner tube and re-fit, or replace it with a new one.



---

#### NOTE

In case the old inner tube is to be repaired and used again, and it happens to get wet during repair, then it is easier to re-fit it if you powder it lightly with talcum powder.

---

- Re-fit the rim halves back into the tyre.
- Pump up the tyre a little.
- Re-position the cylinder head screws in the rim and tighten them firmly. Make sure the inner tube does not get pinched between the rims halves!
- Check to make sure that the tyre is squarely in place on the rim.
- Pump up the tyre to the recommended tyre pressure.
- Check to make sure that the tyre is still squarely and snugly in place on the rim.
- Screw the valve cap back on.
- Refit the wheel.

## 12 Transport

### 12.1 Transferring the wheelchair to another vehicle



---

**WARNING:** Danger of tipping over, if the wheelchair is transferred to another vehicle with the user seated in it!

- *If the wheelchair has to be transferred to another vehicle over a ramp, then it must be secured against tipping over by an attendant standing behind it during the transfer process!*
- 
- Drive or push your wheelchair into the transport vehicle using a suitable ramp.

## 12.2 Using the wheelchair as a vehicle seat

---



### **Please note**

In order to use a wheelchair as a motor vehicle seat, it needs to be equipped with special accessories (attachment points) to enable anchoring in the motor vehicle. These accessories are not included in the standard scope of wheelchair delivery, but can, however, be obtained from Invacare.

---

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 (for example Unwin® or equivalent). 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 seatbelts. Both types of seatbelt 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!**

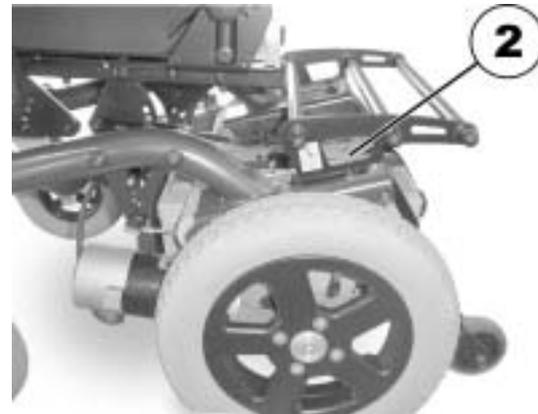
- *If possible, the user should always leave the wheelchair to use a vehicle seat and the seatbelts provided with the vehicle!*
  - *The wheelchair should always be anchored facing in the transport vehicle's direction of travel if possible!*
  - *Please only use anchoring systems that have been checked and approved in accordance with ISO 10542!*
  - *The wheelchair must always be secured in the anchoring system in accordance with the manufacturer's operating manual!*
  - *Always remove and secure any accessory parts fixed to the wheelchair such as chin controls or tables!*
-

## 12.2.1 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.



- Fasten the wheelchair at the front (1) and rear (2) using the belts on the anchoring system.
- Secure the wheelchair by tightening the belts according to the operating instructions issued by the manufacturer of the anchoring system.



## 12.2.2 How the user is secured within the wheelchair

---

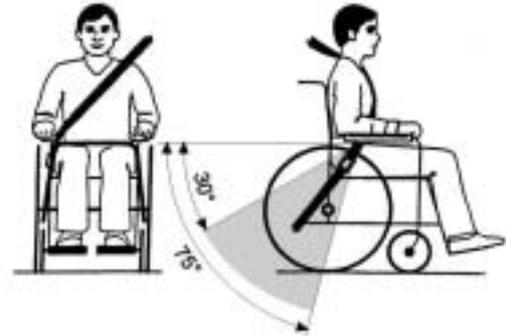


**Caution: there is a danger of injury if the user is not properly secured within the wheelchair!**

- *Even if the wheelchair is fitted with a securing belt, this is no substitute for a proper seatbelt in a travelling vehicle! It is imperative that a seatbelt tested to ISO 7176/19-2001 standards is used!*
  - *Seatbelts 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!*
  - *Seatbelts must be pulled as tightly as possible without causing the user discomfort!*
  - *Seatbelts must not be positioned while twisted!*
-



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 pelvic belt should be placed at an angle of between 30° and 75° to the horizontal.

## 12.3 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.

## 13 Refurbishment

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

- Cleaning and disinfection. Please see chapter "**Care and maintenance**" on page **82**.
- 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 **44**.

## 14 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.
- 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.

# 15 Technical Specifications

| <b>Permissible Operating and Storage Conditions</b>      |                                                                    |
|----------------------------------------------------------|--------------------------------------------------------------------|
| Temperature range for operation according to ISO 7176-9: | <ul style="list-style-type: none"> <li>• -25 ... +50 °C</li> </ul> |
| Temperature range for storage according to ISO 7176-9:   | <ul style="list-style-type: none"> <li>• -40 ... +65 °C</li> </ul> |

| <b>Electrical System</b> |                                                                       |
|--------------------------|-----------------------------------------------------------------------|
| Motors                   | <ul style="list-style-type: none"> <li>• 2 x 220 W</li> </ul>         |
| Batteries                | <ul style="list-style-type: none"> <li>• 2 x 12V, 60/20 Ah</li> </ul> |
| Main fuse                | <ul style="list-style-type: none"> <li>• 50 A</li> </ul>              |

| <b>Charging device</b>                 |                        |
|----------------------------------------|------------------------|
| 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         |

| <b>Drive wheel tyres</b> |                                                               |
|--------------------------|---------------------------------------------------------------|
| Tyre type                | <ul style="list-style-type: none"> <li>• 12.5x2.25</li> </ul> |
| Tyre pressure            | <ul style="list-style-type: none"> <li>• 2.8 bars</li> </ul>  |

| <b>Front castor tyres</b> |                                                                    |
|---------------------------|--------------------------------------------------------------------|
| Tyre type                 | <ul style="list-style-type: none"> <li>• 2.80/2.50-4</li> </ul>    |
| Tyre pressure             | <ul style="list-style-type: none"> <li>• puncture proof</li> </ul> |

| <b>Driving Characteristics</b>     |          |
|------------------------------------|----------|
| Speed                              | • 8 km/h |
| Max. tilt-resistant climbing power | • 11,4%  |
| Max. surmountable obstacle height  | • 10 cm  |
| Turning radius                     | • 83 cm  |
| Range according to ISO 7176 ***    | • 30 km  |

| <b>Dimensions</b>                                         |                                                |
|-----------------------------------------------------------|------------------------------------------------|
| Max. Overall height                                       | • 106 cm                                       |
| Width of the drive unit                                   | • 63 cm                                        |
| Overall width of the seat (with standard armrests)        | • 56...70 cm                                   |
| Overall length (including standard legrests)              | • 103 cm                                       |
| Seat height****                                           | • 45 cm (47)                                   |
| Seat width (adjustable range of the armrests in brackets) | • 33 ... 37 cm (38 ... 42 cm / 43 ... 47 cm**) |
| Seat depth                                                | • 30, 33, 35, 38, 44, 48 cm                    |
| Backrest height ****                                      | • 45 (55) cm                                   |
| Seat cushion thickness                                    | • 7 (10) cm                                    |
| Backrest angle (manual)                                   | • 7 (10) cm                                    |
| Backrest angle (electric)                                 | • 0° ... +30°                                  |
| Armrest height                                            | • 19 ... 32 cm                                 |
| Length of legrest                                         | • 31 ... 48 cm                                 |
| Seat angle                                                | • -3° ... +20°                                 |

| <b>Weight</b>                   |          |
|---------------------------------|----------|
| Empty weight                    | • 124 kg |
| Max. load                       | • 130 kg |
| Max. load per axle in the front | • 142 kg |
| Max. load per axle in the rear  | • 153 kg |

\*\* 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

# 16 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®.

|                                               |                                               |
|-----------------------------------------------|-----------------------------------------------|
| <u>Delivery Inspection</u>                    | <u>1<sup>st</sup> Annual Inspection</u>       |
|                                               |                                               |
| Stamp of authorised Dealer / Date / Signature | Stamp of authorised Dealer / Date / Signature |
| <u>2<sup>nd</sup> Annual Inspection</u>       | <u>3<sup>rd</sup> Annual Inspection</u>       |
|                                               |                                               |
| Stamp of authorised Dealer / Date / Signature | Stamp of authorised Dealer / Date / Signature |
| <u>4<sup>th</sup> Annual Inspection</u>       | <u>5<sup>th</sup> Annual Inspection</u>       |
|                                               |                                               |
| Stamp of authorised Dealer / Date / Signature | Stamp of authorised Dealer / Date / Signature |

Order No. of this Manual: 1496912.DOC  
Release Date: 24.11.06

**English**