



Invacare® Mistral

Power Wheelchair Operating Instructions



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

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1 Introduction

Dear User,

We thank you for the confidence you have placed in our products and are sure that you will enjoy your new Invacare® Mistral very much.

The advantages at a glance:

- Maximum manoeuvrability in the smallest places.
- Easy transport made possible by easy removal of the batteries and a foldable chassis.
- High-performance motors for an optimum driving behaviour.
- Easy control due to a clearly arranged joystick box.
- Easy maintenance due to a clear construction.

This wheelchair is designed to fit the needs of a wide range of users with different requirements. Whether or not this model is suitable for a particular user is at the sole discretion of specialised medical personnel, who have the appropriate qualifications.

Invacare® and its legal representatives assume no liability in cases where a wheelchair is not suitable for a particular user.

These operating instructions contain important information on the following subjects:

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

Please familiarize yourself well with the operating instructions before making your first ride.

Some of the required maintenance jobs or adjustments can be performed by the user or by an attendant. Certain adjustments, however, require technical training and may only be performed by your specialised Invacare® dealer. Any damage or errors resulting from not complying with the operating instructions, or due to incorrect maintenance are excluded from the warranty.

The information provided in these instructions can be changed without advance notice. Errors excepted. This booklet contains information protected by copyright. It may not be reprinted or reproduced in whole or in part without the prior written consent of Invacare®.

1.1 Important symbols in this manual



WARNING: This symbol warns you of danger!

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



NOTE:

This symbol indicates hints and suggestions which should help make operating the product easier and point out special functions.



REQUIREMENTS:

- This symbol indicates a list of the different tools and other requirements you will need to do certain maintenance work.
-

1.2 Type Classification and Area of Use

This wheelchair has been classified as class B (for indoor and outdoor areas). It has been successfully tested for its safety according to German and international standards. When equipped with an appropriate lighting system, the wheelchair is suitable to be driven on public roads.



WARNING: Danger of injury to occupant and damage to wheelchair if driver is not mentally and physically able to keep full control of the vehicle at all times!

- *If necessary, operation of the Powerchair must be performed by an attendant!*
-

2 Safety Notes

- READ WELL BEFORE OPERATION!

2.1 General Safety Notes



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

- *Adhere strictly to the instructions in this User's Manual!*

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!*

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!*
 - *Be aware that there are only the motor brakes to stop your wheelchair. When the motors are disengaged, these brakes are automatically 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 On/Off Button is pressed while the wheelchair is in motion, 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 the wheelchair is used as a vehicle seat without a special restraining system!

- *Only ever use the wheelchair as a vehicle seat in connection with a Wheelchair Restraint System and with the safety belts of the transporting vehicle! Make sure to follow the instructions and recommendations issued by the Restraint System's manufacturer!*

Danger of injury if maximum permissible load is exceeded!

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

Danger of injury if legrests break due to use as a stepping board!

- *Do not use the legrests as a stepping board when getting in and out of the wheelchair!*
-



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 a Lifter Module, 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



Danger of injury if the wheelchair tips over!

- *Only ever negotiate gradients of up to the maximum defined in the Technical Specifications and only with the backrest and seat tilt 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!*
-



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 The most important parts

1. Push handle
2. Backrest
3. Armrest
4. Joystick box
5. Footrests
6. Disengagement lever
7. Drive motor
8. Battery box
9. Crossbar



4 Getting in and out of the wheelchair

4.1 Removing / inserting armrest

To get in and out from the side, the armrest must be removed.

To remove:

- Loosen clamping lever (1).
- Pull side part (2) out of its receptacle.

To insert:

- Push side part (2) into its receptacle.
- Tighten clamping lever (1).

Insert/Remove Side Part



Danger of injury by stay bars that are not duly fixed. The seat angle can become maladjusted automatically under the effect of jerks caused by abrupt braking or driving movements!

- *When tightening the wing screws, please see to it that these are safely engaged with the recesses of the stay bars!*
-

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 not have sufficient muscle strength, you should by all means 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 elements.**
- **The battery charge is sufficient for the distance intended to be covered.**
- **The seatbelt is in perfect order.**

5.2 Taking Obstacles

Your Invacare® Mistral can climb kerbs and other obstacles of the following heights.

- Invacare® Mistral without kerb climber 4 cm
- Invacare® Mistral with kerb climber 8 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



5.3 Driving up and down gradients

The Invacare® Mistral has a safe climbing ability of 17%. When travelling uphill or downhill, you should by all means observe the following warnings:



WARNING: Danger of tipping over!

- *Only ever drive downhill at a maximum of 2/3 of the top speed!*
 - *Always return the backrest of your seat or the seat tipper to an upright position before ascending slopes! We recommend that you lean the seat backrest or the seat tipper slightly to the rear before descending slopes!*
 - *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!*
-

5.4 Parking and Standstill

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.

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 disengagement lever is located at the right side of the wheelchair.

Disengage Motors (1)

- Switch off joystick box.
- Pull lever upwards.

Engage Motors (2)

- Press lever downwards.

Lever for engagement and disengagement of the motors



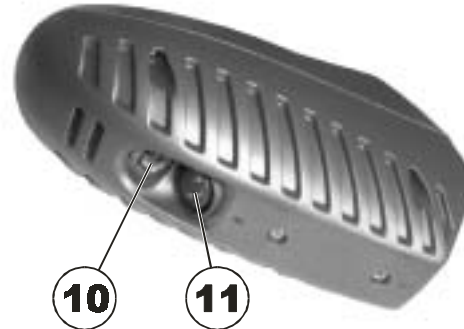
7 The Joystick Box

7.1 Components and controls on the Joystick Box

Top



Bottom



1. Battery charge display
2. ON/OFF-Button
3. ON/OFF-LED / Status Display
4. REDUCE SPEED Button
5. Joystick
6. Interlock (key symbol)
7. INCREASE SPEED Button
8. Driving Speed Display
9. Horn
10. Programming socket
11. Charging socket

7.1.1 Status Display

The ON/OFF LED also serves as an Error Code Display (Status Display). For more information on Error Codes see chap. "Error Codes" on page 28.

7.1.2 Battery Charge Display



All LED's are lit:

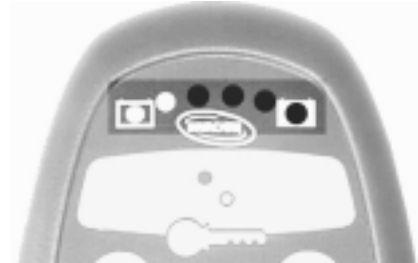
Full range



Yellow and red LED's are lit:

Reduced range:

- Charge batteries after use.



Only red LED's are still lit and / or flashing:

Battery reserve = range very reduced

- Charge Batteries as soon as possible!

7.1.2.1 Deep discharge protection

After driving a certain length of time on battery reserve, the electronic system switches the wheelchair OFF to protect the batteries from deep discharging.

7.1.3 Activating and deactivating the Interlock

- Touch the Interlock Key Symbol on the Joystick Box with the end of the magnetic key, which has the Invacare® logo on it.

The horn beeps once. The Interlock is activated / deactivated.

Interlock



Magnetic key



7.2 Controlling the wheelchair with the Joystick Box

- Switch the Joystick ON (ON/OFF Button)
The LED's on the Joystick Box light up. The wheelchair is ready for use.

In case the wheelchair does not react after being switched ON, check the following:
The Interlock (see chapter "Activating and deactivating the Interlock" on page 25).
The Status Display (see chapter "**Error Codes**" on page 28.)

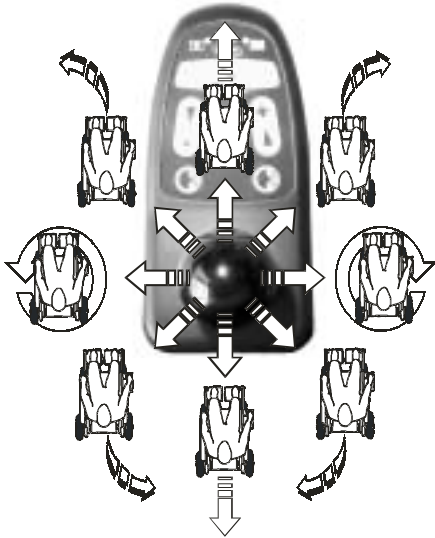
- Select the desired speed using the REDUCE SPEED / INCREASE SPEED Buttons
The Driving Speed Display shows the selected speed: 1 (slow) to 5 (fast).
- Gently move the Joystick in the desired direction (see chapter "How the wheelchair reacts to Joystick" on page 27).



NOTE:

The electronic system is programmed at the factory with standard values. Your Invacare® Dealer can individually re-program your wheelchair to better suit your particular needs.

7.2.1 How the wheelchair reacts to Joystick movements



Direction of travel for wheelchairs with rear-wheel drive.



NOTE:

To brake quickly, just let go of the Joystick. It automatically returns to a neutral position, causing the wheelchair to brake.



The farther the Joystick is moved in any direction, the more dynamically the wheelchair reacts.

7.2.2 Error Codes

The electronic system is able to detect and correct some faults automatically. If successful, the Status Display will quit flashing. To perform this test, turn the Joystick Box OFF, wait 5 seconds, and then turn it back ON again. Repeat this procedure a few times, if necessary. If the problem persists, proceed to localise the source of the problem using the following Error Codes:

Error Codes:			
Flash Code:	Meaning:	First Aid:	What to do if the problem persists:
1 Flash	Module defective.	-	<ul style="list-style-type: none">• Contact dealership.
2 Flashes	Accessory failure.	-	<ul style="list-style-type: none">• Contact dealership.
3 Flashes	Lifter raised.	<ul style="list-style-type: none">• Lower Lifter completely.	-
	Right motor fault. Connection is loose or faulty.	<ul style="list-style-type: none">• Check connectors.	<ul style="list-style-type: none">• Contact dealership
4 Flashes	Left motor fault. Connection is loose or faulty.	<ul style="list-style-type: none">• Check connectors.	<ul style="list-style-type: none">• Contact dealership

Flash Code:	Meaning:	First Aid:	What to do if the problem persists:
5 Flashes	General fault / brake fault on right motor. Connection loose or faulty.	<ul style="list-style-type: none"> • Check connectors. 	<ul style="list-style-type: none"> • Contact dealership
	Motors disengaged	<ul style="list-style-type: none"> • Engage motors. Switch Joystick OFF and then back ON again. 	-
6 Flashes	General fault / brake fault on left motor. Connection loose or faulty.	<ul style="list-style-type: none"> • Check connectors. 	<ul style="list-style-type: none"> • Contact dealership
7 Flashes	Batteries deep-discharged.	<ul style="list-style-type: none"> • Charge batteries. 	<ul style="list-style-type: none"> • Contact dealership
8 Flashes	Battery voltage too high.	-	<ul style="list-style-type: none"> • Contact dealership
9 or 10 Flashes	Bad data transfer between modules.	-	<ul style="list-style-type: none"> • Contact dealership
11 Flashes	Motors overloaded.	<ul style="list-style-type: none"> • Switch Joystick OFF and then back ON again. 	-
12 Flashes	Compatibility problems between the modules.	-	<ul style="list-style-type: none"> • Contact dealership

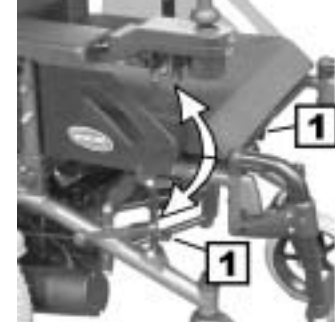
8 Seating systems

8.1 Standard Seat

8.1.1 Adjusting Seat Angle

- Loosen both Allen screws (1) at the stay rods.
- Adjust seat angle by lifting and lowering the seat frame.
- Tighten again both Allen screws (1).

Adjusting Seat Frame



Danger of injury by stay bars that are not duly fixed. The seat angle can become maladjusted automatically under the effect of jerks caused by abrupt braking or driving movements!

- *When tightening the wing screws, please see to it that these are safely engaged with the recesses of the stay bars!*
-

8.1.2 Adjustment of the back inclination by means of a punched plate (optional)

The inclination of the backrest is adjusted by means of the borehole plates, which are attached to the backrest.

The inclination is adjusted by selecting different pairs of holes, allowing for adjustment angles between 0° and 36°, in increments of 4.5° (see illustration).

Position of the Borehole Plate



Adjusting the backrest inclination:

- Remove fastening screws on both sides of the backrest frame using an Allen key.
- Determine the boreholes for the desired inclination by means of the illustration of the plate.
- Tighten the backrest frame through the appropriate boreholes.

Punched Plate



NOTE:

It will be easier to place the screwing if the backrest is being held by a second person.



8.2 Armrests / side parts

8.2.1 Adjusting height of armrest

- Loosen wing screw (1).
- Push armrest to the desired height.
- Retighten the wing screw.

Adjustment of Armrest Height



8.2.2 Adjusting width of side parts

- Loosen clamping lever (1).
- Pull side parts (2) out until the desired width is reached.
- Retighten the clamping lever.



8.3 Adjusting Headrest

8.3.1 Adjusting Height of Headrest

- Loosen clamping lever (1).
- Push headrest to the desired height.
- Tighten clamping lever.

Height Adjustment



8.3.2 Adjusting Headrest Angle

- Loosen clamping lever (2).
- Swivel headrest into the desired position.
- Tighten clamping lever.

Adjustment of Position



9 Footrests and Legrests

9.1 "Standard 80" Footrest

9.1.1 General

The angle (80°) of the footrest in relation to the seating surface is fixed. The length of the footrest is adjustable.

The adjustment of the footrest is performed with the corresponding tools.

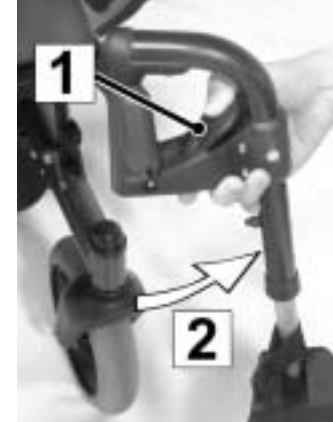
"Standard 80" Footrest



9.1.2 Removing Footrest

- Unlock footrest by pressing or pulling the catch lever (1).
- Swivel footrest outward by approx. 90° (2).

Unlocking Footrest



- Pull footrest upward from its receptacle.

Removing Footrest



9.1.3 Adjusting Length of Footrest



Tools:

1x Wrench; 10 mm

1x Allen key; 5 mm

- Loosen fastening screw using the 4 mm Allen key and 10 mm wrench, and remove.
- Adjust footrest to the desired height and align holes.
- Insert fastening screws into the holes.
- Screw off self-locking nut.
- Tighten fastening screw using the Allen key and the spanner.



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. 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 that the motors deliver their 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. By switching the Joystick Box off and back on again, the error code is cancelled and the electronics are switched back on.

10.1.1 The main fuse

The entire electric system of the wheelchair is protected against overload by two master fuses. The master fuses are either directly mounted to the positive poles of the batteries or to the lower side of the battery lid. They can be replaced only after dismantling the battery lid.



NOTE

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

10.2 Batteries

10.2.1 What you need to know about batteries

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

New batteries should always be once fully charged 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:

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 for 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 greatly 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.

10.2.2 Charging the batteries

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



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!*

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

- *Protect the battery charger from water!*

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

- *Do not use the battery charger it has fallen on the ground or been 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!*
-

The charging socket is on the bottom of the Joystick Box.

Connecting the charger

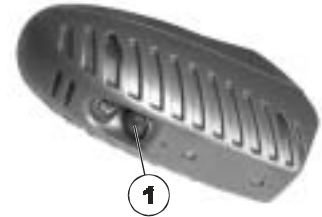
Proceed in the following order:

- Connect the battery charger to the Joystick Box.
- Connect the battery charger to the mains power supply and switch on.

Disconnecting the charger

Proceed in the following order:

- Disconnect the battery charger from the mains power supply.
- Disconnect the battery charger 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!

- *Batteries may only be removed and 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!*
-

10.2.3.1 Removing the batteries



Requirements:

- Wrench 10 mm
 - Wrench 13 mm
 - Wrench 19 mm
-

**NOTE**

The removal of the batteries from the battery box is described in detail in chapter "Removing the Batteries" on page 54.

- Open battery carrying strap (1).
- Detach the cover of the battery.

- Loosen battery clamp (1) of the blue cable at the negative pole of the battery by means of a wrench and remove cable.
- Loosen the battery clamp (1) of the red cable at the positive pole of the battery by means of a wrench and remove cable.



10.2.3.2 Connecting the New Batteries

- Fasten battery clamp (2) of the red cable to the positive pole of the battery and tighten by means of a wrench.
- Fasten battery clamp (2) of the blue cable to the negative pole of the battery and fasten by means of a wrench.



- Lash down carrying strap as shown in the photo.
- Secure the cover by tightening the tensioning strap.



10.2.3.3 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®.

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 scrubbing agents.
- Do not subject the electronic components to any direct contact with water.
- Do not use high-pressure cleaning devices.

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

Maintenance Jobs	When Delivered	Weekly	Monthly
Electronics / Electrical System:			
- 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		
Cleaning:			
- Clean all parts carefully.	When necessary		

Once a year you should have your wheelchair inspected and serviced by your authorised dealer. If the wheelchair is serviced at regular intervals, damaged or worn parts can be located and replaced in time, thus preserving it in good working order. A complete checklist of necessary maintenance work can be found in the Service Manual, which can be obtained from Invacare®.

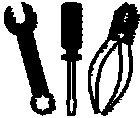
12 Repair Instructions

12.1 Repairing a flat tyre



WARNING: Danger of the wheelchair running away!

- Engage the motors!
- Prevent the wheelchair from rolling away when jacking it up by placing wedges under the wheels!



Tools:

- Allen key, 5 mm

Removing the rear wheel

- Loosen the screws that hold the wheel (1).
- Jack up the wheelchair.
- Remove the screws (1).
- Remove wheel from hub.
- Repair flat tyre.
- Replace wheel on hub.
- Replace screws and tighten.
- Make sure the wheel is mounted on the same side and turning in the same direction as was before disassembly.

Remove wheel



Repairing a flat

- Remove valve cap.
- Let the air out of the tyre by pressing the pin in the centre of the valve.
- Remove screws that hold the rim together.
- Remove the tyre and the inner tube from the wheel.
- Repair the inner tube, or replace with a new one.
- Place the inner tube in the tyre.
- Fill the inner tube with a little bit of air.
- Position the rim-halves from both sides of the tyre.
- Replace the screws and tighten.
- Pump up the tyre to the pressure specified in the technical data.



13 Transport

The preparations for transport are to be performed in the following order:

- Remove legrests.
- Remove kerb climber (available as an option and not always mounted).
- Remove the backrest crossbar
- Detach all connection cables.
- Remove batteries.
- Remove battery box.
- The battery box can also be removed without taking out the batteries. However, due to the heavy weight of the component, this should be done by two persons only.
- Remove cushion of the seat.
- Fold wheelchair and ship.

The assembly of the wheelchair is to be done analogously in reverse order.

13.1 Removing Legrests



NOTE:

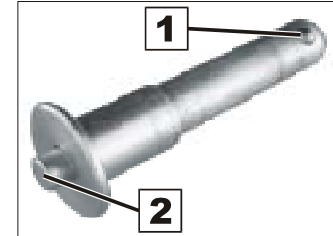
The disassembly of the legrests depends on their design. For further information see chap. "Removing Footrest" on page 35.

13.2 Removal of the kerb climber

The kerb climber is mounted by means of plug-in shafts.

The plug-in shafts are equipped with locking balls 1) which prevent that the plug-in shaft slips out of its receptacle.

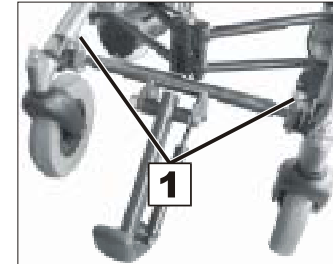
The locking balls are released by pressing down the release button (2). This will make possible the quick attachment and removal of the kerb climber.



Removal of the kerb climber:

- Press down the button (1) for the release of the locking ball and pull plug-in shafts from their receptacles. Remove the kerb climber from the receptacles.

Removal of kerb climber



13.3 Removing the Batteries



Caution! Danger of bruising due to the heavy weight of the battery box!

- *The battery box should be lifted by two persons only.*
 - *Do not reach under the battery box.*
-
- Disconnect cable from socket on battery box lid.



- Unfasten belt that holds battery box lid.



- Remove battery box lid by pulling it towards the rear out of the wheelchair.



- Disconnect battery cables from batteries.



- Remove batteries from battery box.



13.4 Removing Battery Box

- Unfasten the belt that holds the battery box.



- Pull battery box out of the frame.



13.5 Removing the Headrest

To remove the headrest:

- Loosen the clamping lever (1).
- Pull the headrest from its support (2).

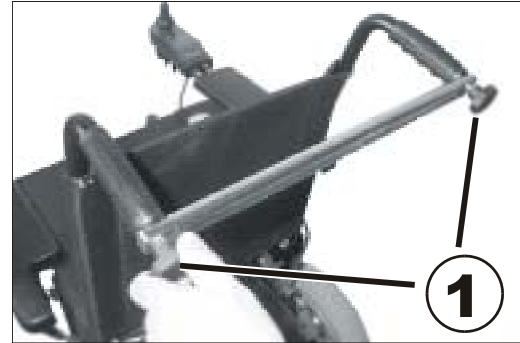
Removing Headrest



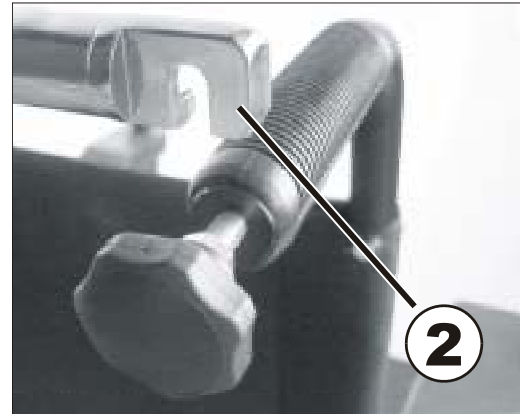
13.6 Loosening the backrest cross-bar

Loosen the crossbar

- Loosen the thumbscrews at both ends of the crossbar (1).



- Unhook the crossbar on the right side and swing away.



13.7 Folding the Wheelchair

Step 1



- Remove seat cushion.

Step 2



- Lean wheelchair to one side.
- Pull seat plate up by its front and rear edges.

Step 3



- Push together.

13.8 Unfolding the Wheelchair



WARNING: Danger of injury!

- *When pushing the seat down, make sure not to get your fingers caught between the two seat panels!*
- To unfold, lift the wheelchair slightly from one side and open by pressing apart the backrest handles and the armrests.
- Hold the seat plate downward by its front and back edges until it has completely reached its lower position.
- Place seat cushion on top of the seat.

Pressing Down Seat Plate



13.9 Reassembling the Wheelchair



NOTE:

The assembly of the wheelchair is performed in reverse order in relation to the disassembly.



CAUTION: Danger of injury if the battery box is not safely locked into place!

- *After the assembly of the wheelchair, it must be ensured that the retaining bolts that keep the battery case in place, are safely locked! To make sure, shake and pull at the battery box!*

14 Technical Specifications

Electric System	
Batteries	<ul style="list-style-type: none"> • 31 AH, MU-1SLD G • 50 AH, M22NF SLD G
Battery master fuse	<ul style="list-style-type: none"> • 2x 50 A (1x per Battery)
Weight	
Empty weight	<ul style="list-style-type: none"> • approx. 64 kg (with 31 Ah batteries) • approx. 80 kg (with 50 Ah batteries)
Max. additional weight (Payload)	<ul style="list-style-type: none"> • 120 kg
Driving properties	
Travelling range as per ISO 7176	<ul style="list-style-type: none"> • 31 Ah = approx. 20 km • 50 Ah = approx. 30 km
<p>Note: The travelling range of a wheelchair depends largely on external conditions, such as charging status of the batteries, ambient temperature, local topography, condition of the surface of the road, tyre pressure, driver's weight, way of driving and utilization of the battery for lighting, servos etc.</p>	
Travelling speed	<ul style="list-style-type: none"> • 6 km/h
Climbing ability	<ul style="list-style-type: none"> • max. 17%
Maximum obstacle height	<ul style="list-style-type: none"> • with kerb climber = max. 8 cm • without kerb climber = max. 4 cm
Dimensions	
Height	<ul style="list-style-type: none"> • approx. 92 cm
Width	<ul style="list-style-type: none"> • approx. 62 cm
Length	<ul style="list-style-type: none"> • approx. 108 cm
Tyres	
Tyre pressure (rear)	<ul style="list-style-type: none"> • 2,5 bar (40 psi)

15 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>1st Annual Inspection</u>
Stamp of authorised Dealer / Date / Signature	Stamp of authorised Dealer / Date / Signature
<u>2nd Annual Inspection</u>	<u>3rd Annual Inspection</u>
Stamp of authorised Dealer / Date / Signature	Stamp of authorised Dealer / Date / Signature
<u>4th Annual Inspection</u>	<u>5th Annual Inspection</u>
Stamp of authorised Dealer / Date / Signature	Stamp of authorised Dealer / Date / Signature



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