WEAR A BIKE HELMET. A BIKE HELMET CAN PROTECT YOU FROM SEVERE INJURIES. MAKE SURE THE HELMET IS CORRECTLY POSITIONED.

IMPULSE EVO PEDELEC

Original user guide | US

KALKHOFF
MY BIKE

AGE: 16+

This manual contains important safety, performance and service information. Read and understand it before you take the first ride on your PEDELEC, and keep it for reference.
# Bike passport

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<td>E-mail:</td>
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<td>Model:</td>
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<td>Serial number (S/N):</td>
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<td>Color:</td>
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<td>Gearset:</td>
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<td>Purchase date:</td>
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**Stamp and signature of the dealer**

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# Change of holder

## 2. Owner

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**Date/signature**

## 3. Owner

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**Date/signature**

## 4. Owner

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<td>First name:</td>
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<tr>
<td>Zip code, Town/city</td>
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**Date/signature**
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I. Introduction

**WARNING**

There are risks associated with the use of any bike which cannot be predicted or avoided, and which are the sole responsibility of the rider. Because it is impossible to anticipate every situation or condition which can occur while riding, this manual makes no representation about the safe use of the bike under all conditions.

This user guide contains information on how to use, maintain and look after your Impulse Evo pedelec. It also contains important safety and performance information. This manual is not intended as a comprehensive use, service, repair or maintenance manual. Please see your dealer for all service, repairs or maintenance. Your dealer may also be able to refer you to classes, clinics or books on bike use, service, repair safety or maintenance.

**WARNING**

Please see your dealer for all service, repairs or maintenance. This manual is not intended as a comprehensive use, service, repair or maintenance manual. Your dealer may also be able to refer you to classes, clinics or books on bike use, service, repair safety or maintenance.

Make sure the service book 13. Service intervals, Page US-99 is kept carefully up to date and observe the maintenance intervals. If wear and damage are not detected in good time, components may fail. If that happens while you are riding the bike you could be severely injured or killed. If you observe worn, damaged or bent components do not use the bike again until the components are repaired or replaced.

**WARNING**

Before using your pedelec for the first time, carefully read this user guide. Please also read the other items in the information pack II. Component guides, Page US-6. Familiarize yourself with the meaning of the safety information symbols. Should you have queries please contact your dealer III. Dealer, Page US-7. Failure to comply with safety information and instructions can result in death, severe injuries and/or damage to the pedelec. The manufacturer shall not be liable for injury and damage caused by the failure to comply with safety information and instructions.

Make sure your dealer has provided you with all of the documentation that was delivered with the pedelec. Keep this user guide and information pack safe for future use. Please pass on the guides and information pack to other people who will use, maintain or repair this pedelec, otherwise uncertainties can arise that could result in death, severe injuries and/or damage to the pedelec. In case of a conflict between the instructions in this manual and information provided by a component manufacturer, always follow the component manufacturer’s instructions or consult your dealer.

You can download this guide as a PDF file from our website: www.derby-cycle.com/en/downloads/downloads.html. There you will also find links to the websites of the various component manufacturers.
I.I  Explanation of the safety information symbols

⚠️ WARNING
This symbol ⚠️ combined with the signal word "WARNING" indicates a potentially dangerous situation. Failure to comply with this safety warning could result in death or serious injury.

⚠️ CAUTION
This symbol ⚠️ combined with the signal word "CAUTION" indicates a potentially dangerous situation. Failure to comply with this safety instruction can result in minor or moderate injuries.

NOTICE
The signal word "NOTICE" indicates a potential situation that may cause product or component damage. Failure to comply with this safety instruction can result in damage to the pedelec and its components.

⚠️ This symbol indicates helpful tips, useful or important information about the product or its additional uses. It does not indicate hazard or a dangerous or harmful situation.

I.II  The Impulse Evo pedelec

Your Impulse Evo pedelec is an Electrically Power Assisted Cycle (EPAC). When the assist mode is switched on, the electric motor provides assistance as long as you are pedaling. You can control the degree of assistance, which is adjusted using various assist modes ⇒ 5.5 Changing assist mode, Page US-44. The assistance is dependent on the force and speed of your pedaling and the speed you are traveling. The motor assistance stops as soon as you stop pedaling, turn off the assistance or when the battery is discharged or if you reach a speed of 20 mph. Speeds greater than 20 mph may be achieved by pedaling faster.

II. Component guides

In the component guides you will find important information about the use and maintenance of components of your pedelec. They also often contain information about any warranties. If there is no specific user guide included for the particular component you are interested in, look on the manufacturer's website. You will find a list of our component manufacturers at http://www.derby-cycle.com/en/downloads/downloads.html

This symbol indicates helpful tips, useful or important information about the product or its additional uses. It does not indicate hazard or a dangerous or harmful situation.
III. Dealer

Let our dealers advise you. On page 2 you will find a link to our brand home page with all dealers in your area.

IV. Legal regulations

**WARNING**

Follow all applicable federal, state and local traffic regulations, otherwise you run the risk of a serious accident. Before using your pedelec abroad, find out about the regulations applicable in that country.

**Wear a bike helmet.** You should always wear a suitable bike helmet for your own safety. A bike helmet can protect you from severe injuries. Make sure the helmet is correctly positioned.

**Only those above the age of 16 should ride the pedelec.** Young people may have problems controlling the speed. This could lead to serious falls and accidents.

Check whether a driver’s license is needed (and which license) to ride your pedelec.

Check local laws/ordinances for laws regarding use of children trailers and cycletrailers on pedelecs. Discuss with a dealer whether trailers may be attached to your bike model.

**Never ride your bike while under the influence of alcohol or drugs.**
### IV. I Reflectors

Bikes shall be equipped with reflective devices to permit recognition and identification under illumination from motor vehicle headlamps. In the USA, the requirements for reflectors are regulated in the “16 CFR 1512.16 - Requirements for reflectors”. The following table provides an overview of the required reflectors, as well as a small selection of characteristics which these reflectors should have. For additional information, please see “16 CFR 1512.16 - Requirements for reflectors”.

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front reflector</td>
<td>1</td>
<td>Colorless</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Front-facing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The optical axis of the reflector shall be directed forward within 5° of the horizontal-vertical alignment of the bike when the wheels are tracking in a straight line.</td>
</tr>
<tr>
<td>Rear reflector</td>
<td>1</td>
<td>Red light</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rear-facing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The optical axis of the reflector shall be directed rearward within 5° of the horizontal-vertical alignment of the bicycle when the wheels are traveling in a straight line.</td>
</tr>
<tr>
<td>Pedal reflector</td>
<td>2 per pedal</td>
<td>Colorless or amber</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Front and rear surfaces of the pedal</td>
</tr>
</tbody>
</table>

### IV. II Lighting

In Germany the requirements for lighting on bikes is regulated in Section 67 of the Road Traffic Licensing Regulation (StVZO) and in the Technical Requirements for vehicle parts. Lighting includes both battery and dynamo-powered lights.

<table>
<thead>
<tr>
<th>Light type</th>
<th>Number</th>
<th>Position</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front light</td>
<td>1</td>
<td>Front</td>
<td>White light</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The illuminance must be at least 10 lux at the center of the beam at a distance of 10 meters.</td>
</tr>
<tr>
<td>Rear light</td>
<td>1</td>
<td>Back</td>
<td>Red light</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The lowest point of the illuminating surface must not be lower than 9.75 inches above the road surface.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A standlight function is also permitted</td>
</tr>
</tbody>
</table>

The illuminance at the center of the beam must be at least 10 lux at a distance of 10 meters.
IV.II • Replacement bulbs

The replacement bulbs you will need depend on the type of lighting fitted on your bike. The table below tells you what type of bulb you will need:

<table>
<thead>
<tr>
<th>Type</th>
<th>Power supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front light (LED, incandescent)</td>
<td>6 V 2.4 W</td>
</tr>
<tr>
<td>Front light halogen</td>
<td>6 V 2.4 W</td>
</tr>
<tr>
<td>Rear light</td>
<td>6 V 0.6 W</td>
</tr>
<tr>
<td>Rear light with standlight function</td>
<td>6 V 0.6 W</td>
</tr>
<tr>
<td>Lighting with LED lamps</td>
<td>LED lamps are not replaceable</td>
</tr>
<tr>
<td>Hub dynamo</td>
<td>6 V 3 W</td>
</tr>
</tbody>
</table>

IV.II • Disposal

Follow all applicable federal, state and local regulations regarding the disposal of the drive system, display, control unit, battery and charger. Otherwise you may be committing an offense and run the risk of a fine or penalty.

Do not dispose of the display, control unit, pedelec battery and charger in the household waste. Hand them in at the designated place (e.g. recycling center, bike dealer). Electronic devices contain valuable materials that can be reused, protecting natural resources. Bring your batteries to a drop-off location (www.call2recycle.org).

V. • Intended purpose

V.I • Pedelec

This bike is designed and equipped for use on public roads and paved paths. It can also be used on easy terrain. The manufacturer and dealer accept no liability for damage resulting from any use beyond this definition and/or failure to comply with the safety information and instructions in the user guide. This applies particularly to off-road use, overloading and failure to properly rectify faults. Intended use also includes conformance with the specified operating, service and repair conditions in the user guides and service part. Fluctuations in the consumption and power of the battery and a reduction of capacity with increasing age ⇒ 7.3.1.2 Capacity, Page US-73 are common and technically unavoidable, and as such, do not constitute material defects.
V.II E-mountain bike

This bike is not designed and equipped for use on public roads. Before it can be used on public roads it must be fitted with the legally prescribed equipment. It is designed to be used off-road, but not for competitions. The manufacturer and dealer accept no liability for damage resulting from any use beyond this definition and/or failure to comply with the safety information and instructions in the user guide. This applies particularly to the use of this bike in competitions, overloading and the failure to properly rectify faults. Intended use also includes conformance with the specified operating, service and repair conditions in the user guides and service book ⇒ 13. Service intervals, Page US-99. Fluctuations in the consumption and power of the battery and a reduction of capacity with increasing age ⇒ 7.3.1.2 Capacity, Page US-73 are common and technically unavoidable, and as such, do not constitute material defects.

V.III Pedelec weight

For safety reasons we recommend you weigh your pedelec because the weight can vary due to various equipment characteristics, accessories and frame heights, otherwise you risk fracturing the frame. This can lead to severe falls that could result in death or serious injury.

V.IV The maximum permissible total weight

<table>
<thead>
<tr>
<th>Bike type</th>
<th>Maximum permissible total weight</th>
<th>Weight of rider**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impulse Evo pedelec</td>
<td>287 lbs</td>
<td>225 lbs</td>
</tr>
</tbody>
</table>

** with a 61 lbs pedelec.

Warning

Do not exceed the the maximum permissible total weight of the pedelec, because it can lead to the fracture or failure of safety-relevant parts (such as the brakes). If this happens while you are riding the bike, it can lead to severe falls – with fatal consequences.

Total weight = Weight of the bike + weight of the rider + weight of the trailer bike or trailer + weight of luggage and/or child.

Example calculation:

259 lbs total weight = 61 lbs weight of the bike + 165 lbs weight of the rider + 22 lbs weight of the trailer + 11 lbs weight of the luggage.

259 lbs is below the allowed total weight of 287 lbs and is therefore permissible.
VI. The Impulse Evo pedelec and its components*

1. Rear light including red reflector
2. Luggage rack
3. Saddle
4. Saddle post
5. Crossbar
6. Handlebar and grip
7. Bell
8. Stem
9. Control unit
10. Headset
11. Head tube
12. Front light including white reflector
13. Display
14. Mudguard
15. Suspension fork*
16. Battery including docking station
17. Front brake*
18. Hub
19. Spoke
20. Rim
21. Tire
22. Motor
23. Pedal including two yellow reflectors
24. Pedal crank
25. Beltsprocket or chain ring*
26. Belt or chain*
27. Reflective strips
28. Back brake*
29. Rear stand*
30. Chain stay
31. Gears
32. Cassette
33. Seat tube
34. Red rear reflector
35. Down tube
36. Frame lock
37. Saddle post clamp*
38. Gear shifter

*depending on model
E-mountain bike

1. Saddle
2. Saddle post
3. Crossbar
4. Stem
5. Handlebar and grip
6. Control unit
7. Display
8. Headset
9. Head tube
10. Suspension fork*
11. Battery including docking station
12. Front brake*
13. Hub
14. Spoke
15. Rim
16. Tire
17. Motor
18. Pedal crank
19. Beltsprocket or chain ring*
20. Belt or chain*
21. Back brake*
22. Chain stay
23. Gears
24. Cassette
25. Seat tube
26. Down tube
27. Saddle post clamp*

*depending on model
VII. Warranty

Warranty periods

The statutory warranty valid at the time of delivery applies to all models.

Conditions for claim under warranty

» Manufacturing, material or information error.
» The cause of the change in the product is not wear or aging arising naturally or as a result of its functions.
» The damage was not caused by use of the bike for other than the intended purpose.

The following are excluded from the warranty

» Damage caused by improper use or force majeure.
» All parts subject to function-related wear and tear or aging to a normal, expected extent, unless this is the result of a defect in the manufacturing process or material.
» Damage caused by incorrect or insufficient care and unprofessional repairs, conversions or replacement of components on the bike.
» Accident damage or damage caused by other external factors, providing this is not attributable to incorrect information or a product error.
» Repairs carried out with used parts or damage that occurs as a consequence of this.
» Damage resulting from competitive use.
» Special equipment, accessories or non-standard equipment; in particular technical modifications.
1. General Safety Information

Comply with the safety and user instructions at the start of the following sections.

**WARNING**

By choosing to ride a bike, you assume the responsibility for that risk, so you need to know — and to practice — the rules of safe and responsible riding and of proper use and maintenance. Proper use and maintenance of your bike reduces risk of injury.

We discourage allowing children under the age of 16 years to ride pedelecs. They may not be able to cope with the speed. It can result in serious accidents and falls.

**Wear a bike helmet.** You should always wear a suitable bike helmet for your own safety. A bike helmet can protect you from severe injuries. Make sure the helmet is correctly positioned.

**Do not ride in unfavorable lighting conditions (fog, rain, dusk, darkness) without adequate lighting ⇒ IV.II Lighting, Page US-8;** it can lead to accidents and serious injuries ⇒ 1.1.2 Wet weather, Page US-17. Avoid wet weather riding where possible.

**Keep your hands and other body parts and clothing away from moving parts.** They may get caught or entangled and lead to a fall and/or other serious injuries.

---

**WARNING**

Adapt your riding style to the prevailing traffic conditions. You could fall off and involve yourself and others in a serious accident that could result in death or serious injury. Take into consideration the longer braking distances needed on wet or icy roads. Think ahead, anticipating the actions of other road users and reduce your speed. Avoid sudden jerky movements of the handlebars and braking actions. Dismount if you are unsure about a situation.

**Ride defensively.** Always assume that others do not see you. Look ahead, and be ready to avoid:

- Vehicles slowing or turning, entering the road or your lane ahead of you, or coming up behind you.
- Parked car doors opening.
- Pedestrians stepping out.
- Children or pets playing near the road.
- Pot holes, sewer grating, railroad tracks, expansion joints, road or sidewalk construction, debris and other obstructions that could cause you to swerve into traffic, catch your wheel or cause you to have an accident.
- The many other hazards and distractions which can occur on a bike ride.
WARNING

Only use the bike for its intended purpose ⇒ *V. Intended purpose, Page US-9*, otherwise it can lead to component failure. If this happens while you are riding the bike you could be severely injured or killed.

Do not remove the front or rear reflectors or reflector brackets from your bike ⇒ *IV.II Lighting, Page US-8*. They are an integral part of the bike’s safety system. Removing the reflectors reduces your visibility to others using the roadway. Being struck by other vehicles may result in serious injury or death. Make sure that your bike is equipped with correctly positioned and securely mounted reflectors.

Inspect your pedelec before every trip, and after each time it has been transported anywhere or has been left unattended ⇒ *4. Before every trip, Page US-40*. If wear and damage are not detected in good time, components may fail. If this happens while you are riding the bike you could be severely injured or killed. Due to the additional power, wearing parts on a pedelec are subject to more stress than a normal bike. If you observe worn, damaged or bent components do not use the bike again until the components are repaired or replaced.

Contact your bike dealer when it is necessary to replace wearing parts and other ⇒ *13. Service intervals, Page US-99* components. We recommend that all assembly and adjustment work is carried out by your dealer. Only use original replacement parts. Replacement parts from other manufacturers can impair the function of your pedelec. It can result in failures that can lead to serious accidents, injury or death.

WARNING

Do not exceed the the maximum permissible total weight of the pedelec, because it can to the fracture or failure of safety-relevant parts ⇒ *V.IV The maximum permissible total weight, Page US-10*. If this happens while you are riding the bike, it can lead to severe falls – with fatal consequences.

Ask your dealer to show you the operation and features of the components. Please also read the component guides. We recommend that all assembly and adjustment work be carried out by an approved dealer, as incorrect assembly could cause components to become loose. If this happens while you are riding the bike you could be severely injured or killed. If you do have to tighten something, you will find a complete list of the required torque settings in Section ⇒ *12. Torque settings, Page US-97*, which must be strictly followed.

Always remove the battery before starting to do adjustments, assembly, service or maintenance on the pedelec. The pedelec could switch on unexpectedly and you could be seriously injured.

You should have your bike and its components checked periodically by your dealer for indicators of stress and/or potential failure, including cracks, deformation, corrosion, paint peeling, dents, and any other indicators of potential problems, inappropriate use or abuse. These are important safety checks and very important to help prevent accidents, bodily injury to the rider and shortened product life.
1.1 Tips

1.1.1 Children

**WARNING**

Make sure that your child always wears an approved bike helmet when riding; but also make sure that your child understands that a bike helmet is for bicycling only, and must be removed when not riding. A helmet must not be worn while playing, in play areas, on playground equipment, while climbing trees, or at any time while not riding a bike. Failure to follow this warning could result in serious injury or death.

**CAUTION**

Do not attempt to open the motor, display, battery or charger; you could injure yourself. Furthermore, parts may be destroyed, invalidating the warranty. If problems arise please contact your dealer.

**NOTICE**

Always park your pedelec so that it cannot tip over. If the bike tips over components can be damaged. If your bike is not equipped with a kick stand, one can be retrofitted. Please ask your dealer.

Do not clean the pedelec with a water hose or high pressure washer. You could damage the bike. Clean the pedelec with a soft damp cloth.

As a parent or guardian, you are responsible for the activities and safety of your minor child, and that includes making sure that the bike is properly fitted to the child; that it is in good repair and safe operating condition; that you and your child have learned and understand the safe operation of the bike; and that you and your child have learned, understand and obey not only the applicable local motor vehicle, bike and traffic laws, but also the common sense rules of safe and responsible bicycling. As a parent, you should read this manual, as well as review its warnings and the bike’s functions and operating procedures with your child, before letting your child ride the bike.
1.1.2 Wet weather

**WARNING**

Avoid wet weather riding where possible. Wet weather impairs traction, braking and visibility, both for the bicyclist and for other vehicles sharing the road. The risk of an accident is increased in wet conditions. Under wet conditions, the stopping power of your brakes (as well as the brakes of other vehicles sharing the road) is dramatically reduced and your tires don’t grip nearly as well. This makes it harder to control speed and easier to lose control. To make sure that you can slow down and stop safely in wet conditions, ride more slowly and apply your brakes earlier and more gradually than you would under normal, dry conditions.

1.1.3 Night rides

Riding a bike at night is much more dangerous than riding during the day. A biker is very difficult for motorists and pedestrians to see.

**WARNING**

Therefore, children should never ride at dawn, at dusk or at night. Adults who chose to accept the greatly increased risk of riding at dawn, at dusk or at night need to take extra care both riding and choosing specialized equipment which helps reduce that risk. Consult your dealer about night riding safety equipment.

**WARNING**

Reflectors are not a substitute for required lights. Riding at dawn, at dusk, at night or at other times of poor visibility without an adequate bike lighting system and without reflectors is dangerous and may result in serious injury or death. Bike reflectors are designed to pick up and reflect car lights and street lights in a way that may help you to be seen and recognized as a moving bicyclist.

While riding at dawn, at dusk or at night:

- Ride slowly.
- Avoid dark areas and areas of heavy or fast-moving traffic.
- Avoid road hazards.
- If possible, ride on familiar routes.
- If riding in traffic:
  - Be predictable. Ride so that drivers can see you and predict your movements.
  - Be alert. Ride defensively and expect the unexpected.
- If you plan to ride in traffic often, ask your dealer about traffic safety classes or a good book on bike traffic safety.
2. Protection from theft, manipulation and loss

**WARNING**

Protect your pedelec from unauthorized access. If third parties alter components (e.g. the brakes) without your knowledge, you could be seriously injured. Inspect your pedelec before every trip, and after each time it has been transported anywhere or has been left unattended ⇒ 4. Before every trip, Page US-40. If your bike is damaged, do not ride it again before the damage has been rectified. If your bike is lost or stolen it will not be replaced under the warranty.

The following measures can help you to protect your pedelec from theft and manipulation and to recover it if it has been stolen:

**Always lock the bike and battery even if you are only leaving it for a short while. Ideally, the lock(s) should block the wheel powered by the motor.** Do not leave the key in. To be on the safe side, you can also remove the battery. The pedelec must also be secured with a lock when it is parked outside the home (e.g. sheds, basement).

**Do not park your pedelec in deserted locations** – especially for long periods. If possible, park your pedelec in manned private or communal garages or individual bike lockers.

**Chain and lock the pedelec to fixed anchors such as a fence or street lamp to prevent theft.**

1.1.4 Bright, visible clothing

Wear light colored, reflective clothing and accessories, such as a reflective vest, reflective arm and leg bands, reflective stripes on your helmet, flashing lights attached to your body and/or your bike ... any reflective device or light source that moves will help you get the attention of approaching motorists, pedestrians and other traffic.

Always wear appropriate shoes that will stay on your feet and grip the pedals. Make sure that shoe laces do not get entangled or caught in moving parts, and never ride barefoot or in sandals.

Always wear protective eyewear, to protect against airborne dirt, dust and bugs — tinted when the sun is bright, clear when it’s not.

Always wear bright, reflective and visible clothing that is not too loose to entangle in the bike or get snagged by objects on the side of the road or trail.
Quick-release wheels should be attached to a fixed object together with the frame. That way the bike cannot be stolen. Alternatively, the quick-release levers can be replaced by an anti-theft device. For questions about this please contact your dealer.

Use a high quality bike lock: you should invest approximately 10% of the purchase price of the bike in locks. Your dealer will be able to fit a suitable frame lock if your bike does not already have one. Alternatively, you can also use other types of bike locks. Ask your dealer for advice.

Make a note of the important details of your pedelec and get it registered with the police. This makes it easier to identify if it is stolen.

Bike theft is often covered by household contents insurance. Check the terms of your insurance policy as soon as possible.

3. Before your first ride

Make sure that your pedelec is adjusted to suit your height and is ready to use. Familiarize yourself with the basic functions of your pedelec. If your new bike doesn't fit, ask your dealer to exchange it before you ride it.

WARNING

Your dealer will explain to you the operation and specificities of your pedelec and its components. Please also read the component guides. We recommend that all assembly and adjustment work is carried out by a dealer, as incorrect assembly could cause components to become loose. If that happens while you are riding the bike you could be severely injured or killed. If you do have to tighten something, you will find a complete list of the required torque settings in Section 12. Torque settings, Page US-97, which must be strictly followed.

Adjusting the pedelec to your height. If the bike is not correctly adjusted to your height you can lose control over the bike and fall off.

Practice braking and riding with assistance in a safe place before venturing into traffic. If you do not familiarize yourself with the operation and higher speed of your pedelec you could cause a serious accident. Ride in ECO mode until you feel confident enough to try the higher modes 6.3.4 Changing assist mode, Page US-53. Dismount if you are unsure about a situation.
3.1 Attaching the pedals

1. Screw the right hand pedal (marked ‘R’) into the right hand pedal crank in a clockwise direction.

2. Screw the left hand pedal (marked ‘L’) into the right hand pedal crank in an anticlockwise direction.

3. Tighten both pedals towards the front wheel with a torque setting of 40 Nm [29.5 ft·lb].

3.2 Adjusting the saddle

Correct saddle adjustment is an important factor in getting the most performance and comfort from your bike. If the saddle position is not comfortable for you, see your dealer. Your dealer can adjust saddle angle or teach you how to do it.

3.1.1 Toe overlap

Avoid toe overlap (picture a). Otherwise, your foot can get caught in the spokes, you can fall very hard and get serious injuries. Your toe or toeclip may be able to contact the front wheel when a pedal is all the way forward and the wheel is turned. Changing tire size or pedal crank arm length affects toe overlap. Ask your dealer to help you determine if the combination of frame size, crank arm length, pedal design and shoes you will use results in pedal overlap (picture b). Whether you have overlap or not, you must keep the inside pedal up and the outside pedal down when making sharp turns (picture c).

3.1 WARNING

Make sure you screw the pedals in straight otherwise you could damage the thread on the pedal crank – if that happens while you are riding the bike you could fall off.

3. CAUTION

Some people have claimed that extended riding with a saddle which is incorrectly adjusted or which does not support your pelvic area correctly can cause short-term or long-term injury to nerves and blood vessels, or even impotence. If your saddle causes you pain, numbness or other discomfort, listen to your body and stop riding until you see your dealer about saddle adjustment or a different saddle. If you have questions, please consult with a urologist or men’s health expert.
If, in spite of carefully adjusting the saddle height, tilt and fore-and-aft position, your saddle is still uncomfortable, you may need a different saddle design. Saddles, like people, come in many different shapes, sizes and resilience. Your dealer can help you select a saddle which, when correctly adjusted for your body and riding style, will be comfortable.

Riding with an improperly tightened seat post can allow the saddle to turn or move and cause you to lose control and fall. Therefore:

» Ask your dealer to help you make sure you know how to correctly clamp your seat post.

» Understand and apply the correct technique for clamping your seat post.

» Before you ride the bike, first check that the seat post is securely clamped.

3.2.1 Adjusting the saddle height

1. Sit on the pedelec and at the same time lean against a wall.

2. Turn the pedal crank on the side away from the wall to its lowest point.

3. Put your heel on the pedal. Your leg should be fully extended.

4. Raise the saddle if your leg is not fully extended when your heel is on the pedal. Lower the saddle if you cannot reach the pedals.

**WARNING**

There is a mark on the saddle post showing the maximum amount you can pull the saddle post out of the frame. Never pull out the saddle post beyond this mark, otherwise it can buckle or break and you could fall off.
### 3.2.2 Adjusting the saddle height: Seat clamp(s)*

1. Use an Allen key to loosen the seat clamp(s) by turning them anti-clockwise.

2. Move the seatpost into the right position. Take heed of the marking.

3. Tighten the seat clamp(s) by turning them anti-clockwise with a torque wrench. If no value is shown on the component, use the torque settings from the following table:

<table>
<thead>
<tr>
<th>Thread</th>
<th>Tightening torque</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nm</td>
</tr>
<tr>
<td>M5 / M6 / M8</td>
<td>M5: 5 / M6: 10 / M8: 20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>ft·lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5: 3.7 / M6: 7.4 / M8: 14.8</td>
<td></td>
</tr>
</tbody>
</table>

### 3.2.3 Adjusting the saddle height: Quick-release skewer*

#### WARNING

The quick-release skewer must be correctly closed before you set off. Check that it is correctly fitted before every ride and after every time the bike is left unsupervised, even for a short time. Otherwise, the seatpost may come loose; if this should happen whilst you are cycling, you could fall. This could result in serious injuries.

1. Open the quick-release skewer by swinging the lever 180°. You will generally be able to read "OPEN" on the inside of the lever.

2. Move the seatpost into the right position. Take heed of the marking.

3. Close the quick-release skewer by swinging the lever back 180°. You will generally be able to read "CLOSE" on the outside of the lever.

4. Try to twist the saddle to check that it is firmly fixed.

*depending on model
3.3 Shifting and tilting the saddle

**WARNING**

Never clamp the saddle in the curve of the saddle rail; always do it in the straight section. Only shift the saddle within the straight section (fig. 1). Saddles that stay clamped outside this area can fail (fig. 2).

**Use a torque wrench to tighten the clamping screws.** Observe the specified torque setting. If no value is shown on the component, use the torque settings from the following table:

<table>
<thead>
<tr>
<th>Thread</th>
<th>Tightening torque</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nm</td>
</tr>
<tr>
<td>M5 / M6 / M8</td>
<td>M5: 5.5 / M6: 5.5 / M7: 14 / M8: 20</td>
</tr>
</tbody>
</table>

Failure to comply can result in screws/bolts becoming loose, tearing away or fracturing. If that happens while you are riding the bike, components may come off and you could have a severe crash. If screws are overtightened, other components can also be damaged.
3.3.1 Screw supports: Shifting and tilting the saddle

1. Loosen the clamping screw by turning it anti-clockwise. Turn the screw completely two to three times at most or the whole mechanism could fall apart.

2. Shift the saddle forwards or backwards as desired.

3. Tilt the bike saddle to the desired angle.

4. Tighten the clamping screw by turning it clockwise with a torque wrench.

5. Ensure that the newly-tightened saddle does not tip; test it by pressing down on the front and back alternately.

3.3.2 Twin-screw supports: Shifting and tilting the saddle

**WARNING**

Screw the clamping screws fully in a straight position in the nuts. Failure to do so can result in the screws tearing out of the nuts.

1. To shift the saddle, loosen the front and rear screws by turning them anti-clockwise. Turn the screws completely two to three times at most or the whole mechanism could fall apart.

2. Shift the saddle forwards or backwards as desired.

3. Tighten the screws using a torque wrench to turn them clockwise.

4. To alter the angle of the saddle, loosen the front screw by turning it anti-clockwise. Turn the screw completely two to three times at most or the whole mechanism could fall apart.

5. Tighten the front screw with the same number of turns.

6. Ensure that the newly-tightened saddle does not tip; test it by pressing down on the front and back alternately.

3.3.3 Clamp attachment: Shifting and tilting the saddle

1. Turn the clamping nut clockwise to loosen it. You may need to keep the nut on the other side in place with a second key.

2. Shift the saddle forwards or backwards as desired.

3. Tilt the bike saddle to the desired angle.
4. Turn the clamping nut clockwise to tighten it. You may need to keep the nut on the other side in place with a second key. Observe the correct torque setting.

5. Ensure that the newly-tightened saddle does not tip; test it by pressing down on the front and back alternately.

3.3.4 Suspension seatpost

**WARNING**

If your bike is equipped with a suspension seat post, the suspension mechanism may require periodic service or maintenance. Ask your dealer for recommended service intervals for your suspension seat post.

3.4 Handlebars

**WARNING**

Make sure the stem and the handlebars are at the right height for you. Make sure the saddle and handlebar stem are parallel to the bike’s center line and clamped tight enough so that you can’t twist them out of alignment.

An insufficiently tightened stem clamp bolt, handlebar clamp bolt or bar end extension clamping bolt may compromise steering action, which could cause you to lose control and fall. Place the front wheel of the bike between your legs and attempt to twist the handlebar/stem assembly. If you can twist the stem in relation to the front wheel, turn the handlebars in relation to the stem, or turn the bar end extensions in relation to the handlebar, the bolts are insufficiently tightened.

3.4.1 Adjusting the height and angle of the handlebars

**WARNING**

Ask your dealer to do this, otherwise there is a risk of the handlebars loosening, leading to falls and serious injuries.

3.5 Turn lights *

On the back of the front light there is a slider. Depending on the direction you push the slider, the front and rear lights are either ON or OFF during travel.

*depending on model*
3.6 Brakes

WARNING

Before every ride: Check the brakes. Squeeze the brake levers. Make sure the brake quick-releases are closed. Make sure all control cables are seated and securely engaged. Make sure the brakes begin to engage within an inch of brake lever movement. Make sure you apply full braking force at the levers without having them touch the handlebar. If not, your brakes need adjustment. Do not ride the bike until the brakes are properly adjusted by a professional bike mechanic.

Riding with improperly adjusted brakes, worn brake pads, or wheels on which the rim wear mark is visible is dangerous and can result in serious injury or death.

Replace the brake pads when they reach the safe wear limit. The use of worn brake pads can lead to serious injuries with fatal consequences.

CAUTION

Disc brakes: Avoid touching the brake discs after intensive use of the brakes: they can become very hot. Touching them may cause contact burn injuries.

See the brake manufacturer’s instructions for operation and care of your brakes, and for when brake pads must be replaced. If you do not have the manufacturer’s instructions, see your dealer or contact the brake manufacturer.

If replacing worn or damaged parts, use only manufacturer-approved genuine replacement parts.

Many bikes have brake levers which can be adjusted for reach. If you have small hands or find it difficult to squeeze the brake levers, your dealer can either adjust the reach or fit shorter reach brake levers.

3.6.1 Three types of bike brakes

There are three general types of bike brakes: rim brakes, which operate by squeezing the wheel rim between two brake pads; disc brakes, which operate by squeezing a hub-mounted disc between two brake pads; and internal hub brakes. All three can be operated by way of a handlebar mounted lever. On some models of bike, the internal hub brake is operated by pedaling backwards. This is called a coaster brake.
**WARNING**

Practice braking and riding with assistance in a safe place before venturing into traffic. The braking action may be stronger or weaker than you are used to. Serious accidents can happen if you do not familiarize yourself with the braking action. Practice until you feel confident enough. Dismount if you are unsure about a situation.

**Rim brakes:** Avoid continuous braking on long downhill stretches. It can lead to a loss in braking power and/or damage to the tires. Brake intermittently with intervals in between to allow the airflow to cool the braking system. If necessary, make regular stops to ensure adequate cooling.

Applying brakes too hard or too suddenly can lock up a wheel, which could cause you to lose control and fall. Sudden or excessive application of the front brake may pitch the rider over the handlebars, which may result in serious injury or death.

---

**3.6.2 Braking**

**WARNING**

Make sure that your hands can reach and squeeze the brake levers comfortably. If your hands are too small to operate the levers comfortably, consult your dealer before riding the bike. The lever reach may be adjustable; or you may need a different brake lever design.

The shorter the brake lever reaches, the more critical it is to have correctly adjusted brakes, so that full braking power can be applied within available brake lever travel. Brake lever travel insufficient to apply full braking power can result in loss of control, which may result in serious injury or death.

To make sure that you have maximum friction available, keep your wheel rims and brake pads or the disk rotor and caliper clean and free of dirt, lubricants, waxes or polishes. The braking action of a bike is a function of the friction between the braking surfaces.
3.6.2.1 Learning how to brake

**WARNING**

Practice braking and weight transfer techniques where there is no traffic or other hazards and distractions.

Learn which brake lever controls which bike

It’s very important to your safety that you learn and remember which brake lever controls which brake on your bike. Traditionally, in the U.S. the right brake lever controls the rear brake and the left brake lever controls the front brake; but, to check how your bike’s brakes are set up, squeeze one brake lever and look to see which brake, front or rear, engages. Now do the same with the other brake lever. Two keys to effective speed control and safe stopping are controlling wheel lockup and weight transfer.

Learn to practice slowing and stopping smoothly

Brakes are designed to control your speed, not just to stop the bike. Maximum braking force for each wheel occurs at the point just before the wheel “locks up” (stops rotating) and starts to skid. Once the tire skids, you actually lose most of your stopping force and all directional control. You need to practice slowing and stopping smoothly without locking up a wheel. The technique is called progressive brake modulation. Instead of jerking the brake lever to the position where you think you’ll generate appropriate braking force, squeeze the lever, progressively increasing the braking force. If you feel the wheel begin to lock up, release pressure just a little to keep the wheel rotating just short of lockup. It’s important to develop a feel for the amount of brake lever pressure required for each wheel at different speeds and on different surfaces. To better understand this, experiment a little by walking your bike and applying different amounts of pressure to each brake lever, until the wheel locks.

Learn how to transfer your weight

When you apply one or both brakes, the bike begins to slow, but your body wants to continue at the speed at which it was going. This causes a transfer of weight to the front wheel (or, under heavy braking, around the front wheel hub, which could send you flying over the handlebars).

A wheel with more weight on it will accept greater brake pressure before lockup; a wheel with less weight will lock up with less brake pressure.

So, as you apply brakes and your weight is transferred forward, you need to shift your body toward the rear of the bike, to transfer weight back on to the rear wheel; and at the same time, you need to both decrease rear braking and increase front braking force. This is even more important on descents, because descents shift weight forward.

This weight transfer is even more pronounced if your bike has a front suspension fork. Front suspension “dips” under braking, increasing the weight transfer.

Go more slowly on loose or wet surfaces

Everything changes when you ride on loose surfaces or in wet weather. Avoid wet weather riding where possible. It will take longer to stop on loose surfaces or in wet weather. Tire adhesion is reduced, so the wheels have less cornering and braking traction and can lock up with less brake force. Moisture or dirt on the brake pads reduces their ability to grip. The way to maintain control on loose or wet surfaces is to go more slowly.

**WARNING**

If your brakes are not functioning as listed above, they need adjustment, do not ride the bike until the brakes are properly adjusted by a professional bicycle mechanic.
3.7 Understanding the chain

**WARNING**
Always remove the battery before starting to work on the pedelec. The system could switch itself on unexpectedly and you could seriously injure yourself.

**CAUTION**
Check the chain for signs of wear before every trip. A worn or damaged chain can break. It that happens while you are riding the bike you could be thrown off and seriously injured.

**NOTICE**
When you are cleaning the belt, make sure that no water gets into the motor. Water ingress can damage the motor.

If the chain won’t shift smoothly and quietly from gear to gear, the derailleur is out of adjustment. See your dealer.

### 3.7.1 Chain tension

**Measuring chain tension**

1. Remove the pedelec battery.
2. Press the chain up or down at its taustest point. The tension is correct if you can move the chain up and down by about 0.2 inches.
3. Check the chain at four or five points over a complete revolution of the crank.

**Adjusting chain tension**

1. Remove the pedelec battery.
2. Undo the rear wheel nuts.
3. If necessary remove the brake anchor.
4. Pull the rear wheel back in the drop-outs until the chain just has the permissible amount of play.
5. Carefully tighten all bolts in a clockwise direction to a torque setting of 35 – 40 Nm [25.8 - 29.5 ft·lb]. Make sure the wheel is reinstalled straight.
3.7.2 Checking for wear

1. Remove the pedelec battery.
2. Check chain wear with a chain wear indicator or a vernier calliper.
3. Replace the chain if it is worn.

3.7.3 Cleaning and maintenance

Lubricate the chain after riding in the rain. Clean and lubricate it when you clean the wheel.

1. Remove the pedelec battery.
2. Roughly brush the chain with a hand brush.
3. Then remove the old chain oil with a dry cloth.
4. You can now lubricate chain. How you lubricate the chain depends on the product you have chosen.
5. When you have finished, turn the crank to distribute the chain oil.

3.8 Understanding the drive belt

**WARNING**

Always remove the battery before starting to do adjustments, assembly, service or maintenance on the pedelec. The system could switch itself on unexpectedly and you could be seriously injured.

**CAUTION**

Check the drive belt for signs of wear before every trip. A worn or damaged drive belt can break. It that happens while you are riding the bike you could be thrown off and seriously injured.

Do not twist, bend, reverse, turn backwards, tie or bind the belt. This may destroy the belt.
3.8.1 Belt tension

Measuring belt tension

There are various methods of measuring the tension of the drive belt. One of these is the Carbon Drive app, which measures the tension based on the natural frequency (Hz) of the belt length.

<table>
<thead>
<tr>
<th>Smartphone operating system</th>
<th>Download</th>
</tr>
</thead>
<tbody>
<tr>
<td>iOS</td>
<td><a href="http://de.gatescarbondrive.com/CDS/Products/ACCESSORIESANDTOOLS">http://de.gatescarbondrive.com/CDS/Products/ACCESSORIESANDTOOLS</a></td>
</tr>
<tr>
<td>Android</td>
<td></td>
</tr>
</tbody>
</table>

The Carbon Drive app works best in a quiet environment.

1. Remove the pedelec battery.
2. Load the app on to your smartphone.
3. Start the app.
4. Select the tension icon.
5. Switch on the microphone, click on "Measure" and hold the phone over the middle of the belt making sure that the microphone is pointing at the belt.

6. Pluck the belt so that it vibrates like a guitar string. The app converts the sound into the natural frequency of the belt.
7. Turn the pedal crank a quarter of a revolution and repeat the measurement.
8. Compare the frequency of the belt with the reference value to see if the tension needs adjusting.

<table>
<thead>
<tr>
<th>Specified Tension Values</th>
<th>Smaller, lighter riders</th>
<th>Taller, heavier riders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hub gear</td>
<td>50 Hz</td>
<td>60 Hz</td>
</tr>
</tbody>
</table>

Adjusting the belt tension

1. Remove the pedelec battery.
2. Undo the bolts from the drop-out by turning them anticlockwise.
3. Increase or reduce the tension with the set screw. Make sure that the wheel is put back straight.
3.8.2 Checking for belt wear

1. Remove the pedelec battery.

2. Checking the belt for wear:

   - **Belt without wear**: This belt is in good condition. The loss of blue color is **not** a sign of wear.

   - **Worn belts**: Missing teeth and cracks in the tooth root. This belt is in a very poor condition.

   ![Correct alignment](image1)

   ![Sprockets are not aligned correctly](image2)

   ![Sprockets are not aligned correctly](image3)

When adjusting the belt tension, the correct alignment of the belt must be maintained. Otherwise this can lead to unwanted noise, premature wear of the belt or sprocket, or the jumping off of the belt.

3. When the wear limit is reached, the belt must be replaced immediately.

   - **Notice**: When adjusting the belt tension, the correct alignment of the belt must be maintained. Otherwise this can lead to unwanted noise, premature wear of the belt or sprocket, or the jumping off of the belt.


   ![For 4. Tighten the screws](image4)

For 4. Tighten the screws

*depending on model*
3.8.3 Belt Cleaning

1. Remove the pedelec battery.
2. Clean the belt with a soft, damp cloth.

**NOTICE**

When you are cleaning the belt, make sure that no water gets into the motor. Water ingress can damage the motor.

3. Let the belt dry.

3.9 Gears

**WARNING**

Never shift a derailleur onto the largest or the smallest sprocket if the derailleur is not shifting smoothly. The derailleur may be out of adjustment and the chain could jam, causing you to lose control and fall.

If you have difficulties with shifting, the problem could be mechanical adjustment. See your dealer.

The gears are operated by controls on the handlebars (gear lever, twist grips, ...). The gear shift allows you to adjust the gear of your bike and the transmission to the current situation. On a straight level stretch a higher gear is sensible to achieve and maintain a higher speed without having to pedal too much.

As soon as you start going uphill a lower gear is beneficial, because it is important to be able to climb the hill with little effort. Select the gears so that your legs are always moving at a steady pace.

**Derailleur**

With this system the chain is lifted on to a sprocket when changing gear. The chain must continue moving so that the teeth of the sprocket can engage with the chain links easily and smoothly. For a successful gear change you must therefore keep pedaling forwards, never backwards! – but at the same time pedaling lightly and without force.

**Hub gear**

Here the change of gear takes place inside the rear wheel hub. Space is very tight inside the hub, therefore it is sensible to pedal lightly when changing gear.
3.10 Wheel

**WARNING**

Riding with an improperly secured wheel can cause the wheel to wobble or disengage from the bike, and cause serious injury or death.

Spin each wheel and check for brake clearance and side-to-side wobble. If a wheel wobbles side to side even slightly, or rubs against or hits the brake pads, take the bike to a qualified bike shop to have the wheel trued.

Wheels must be true for rim brakes to work effectively. Wheel trueing is a skill which requires special tools and experience. Do not attempt to true a wheel unless you have the knowledge, experience and tools needed to do the job correctly.

Riding with an improperly secured wheel can allow the wheel to wobble or fall off the bike, which can cause serious injury or death. Therefore, it is essential that you:

» Ask your dealer to help you make sure you know how to install and remove your wheels safely.

» Understand and apply the correct technique for clamping your wheel in place.

---

### 3.10.1 Axle nut

**Removing the rear wheel**

1. Remove the pedelec battery.
2. Change the gear to the one recommended by the gear manufacturer for disassembly.
3. Remove the gear shift cable from the rear wheel.
4. Undo the axle nuts using a 0.59 inches spanner, turning anticlockwise.
5. Take off the belt/chain
6. Remove the rear wheel.

**Replacing the rear wheel**

1. Attach the belt/chain
2. Insert the rear wheel centrally in the drop-outs as far as it will go.
3. Re-attach the gear shift cable.
4. Tighten the axle nuts using a 0.59 inches spanner, turning clockwise. Make sure that your wheel is correctly centered.
5. Reinsert the battery.
3.10.2 Quick-release wheels*

**NOTICE**

Detach all cables from the wheel (e.g. lighting cables), otherwise you could tear them.

**WARNING**

Front wheel: The quick-release lever must be positioned on the opposite side to the brake disc (where fitted). If the quick-release lever is on the same side as the brake disc, there is a risk that they can clash and lock the front wheel (see diagram), which can cause a serious accident.

If your bike is fitted with rim brakes it is sensible to release them before you remove the front wheel. Otherwise you may not be able to remove the front wheel.

4. Remove the front wheel.

**Replacing the front wheel**

1. Insert the wheel into the front fork ends.

2. Gently turn the adjusting nut on the quick-release lever in a clockwise direction. Make sure that your wheel is correctly centered.

3. Close the quick-release lever by turning it up 180°. You will now usually be able to see the word 'CLOSE' on the outside of the lever.

**WARNING**

Closing the quick-release lever should be so hard that you need to use the ball of your hand to do it. If not, it can open and loosen the saddle, which could result in you falling off the bike.

**NOTICE**

All quick-release clamps must be correctly tightened before you set off, otherwise the components can loosen – which, if it happens while you are riding the bike, could cause you to fall off, leading to serious injuries.

Removing the front wheel

1. Remove the pedelec battery.

2. Open the quick-release lever by turning it down 180°. You will now usually be able to see the word 'OPEN' on the inside of the lever.

3. Carefully undo the adjusting nuts, turning them anticlockwise.

---

*depending on model
3.10.3 Quick-release axle*

**Removing the front wheel**

1. Remove the pedelec battery.
2. Open the quick-release lever by turning it down 180°.
3. Hook the quick-release lever into the slot and turn it anticlockwise until the quick-release axle protrudes from the axle hole about 0.39 inches.
4. Lift out the front wheel and remove the quick-release axle.

**NOTICE**

Detach all cables from the wheel (e.g. lighting cables), otherwise you could tear them.

If your bike is fitted with rim brakes you must release them. Alternatively, you can deflate the front tire. Otherwise you will not be able to remove the front wheel.

5. Remove the front wheel.

---

<table>
<thead>
<tr>
<th>Quick-release lever shuts too easily</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Open the quick-release lever.</td>
</tr>
<tr>
<td>2. Turn the adjustment nut <strong>clockwise</strong>.</td>
</tr>
<tr>
<td>3. Close the quick-release lever again.</td>
</tr>
<tr>
<td>4. Repeat if necessary.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quick-release lever too stiff</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Open the quick-release lever.</td>
</tr>
<tr>
<td>2. Turn the adjustment nut <strong>anticlockwise</strong>.</td>
</tr>
<tr>
<td>3. Close the quick-release lever again.</td>
</tr>
<tr>
<td>4. Repeat if necessary.</td>
</tr>
</tbody>
</table>

Quick-release levers cannot be closed just by simple turning.

**WARNING**

If you have released the rim brakes to remove the wheel, you must close them again, otherwise you will not be able to brake and run the risk of serious injury.

Reattach any previously disconnected cables (e.g. lighting cables), otherwise they can get caught in the spokes. If that happens while you are riding the bike you could be thrown off and seriously injured.

*depending on model
Replacing the front wheel

1. Apply a thin layer of grease to the quick-release axle.
2. Push the wheel into the front forks and align with the axle holes.
3. Reinsert the quick-release axle.
4. Move the quick-release lever to the open position.
5. Hook the quick-release lever into the slot and turn it clockwise. This screws the axle into the thread. Make sure that your wheel is correctly centered.
6. Close the quick-release lever by turning it up 180°.

**WARNING**

Closing the quick-release lever should be so hard that you need to use the ball of your hand to do it. If not, it can open and loosen the wheel, which could result in you falling off the bike.

---

**Quick-release lever shuts too easily**

1. Open the quick-release lever.
2. Hook the quick-release lever into the slot and turn it clockwise. This screws the axle into the thread. Ensure that your wheel is centered.
3. Close the quick-release lever.
4. Repeat if necessary.

**Quick-release lever too stiff**

1. Open the quick-release lever.
2. Hook the quick-release lever into the slot and turn it counter-clockwise until the quick-release axle sticks out about 1 cm from the axle hole.
3. Close the quick-release lever.
4. Repeat if necessary.

**WARNING**

Reattach the previously disconnected cables (e.g. lighting cables) to the wheel, otherwise they could tear.
3.10.5 Tires

**WARNING**

**Do not either overinflate or underinflate the tires.** If the tire pressure is too high, at worst, the tire could burst, causing you to fall off. On the other hand, if the tire pressure is continuously too low, the tire can wear out prematurely. The maximum permissible pressure is marked on the side of tire in bar and pounds per square inch. You can check the tire pressure for yourself using a tire pressure gage. Alternatively, you can ask your dealer.

To check if the tires are in good shape, spin each wheel slowly and look for cuts in the tread and sidewall. Replace damaged tires before riding the bike.

We highly recommend that you carry a spare inner tube when you ride your bike, unless the bike is fitted with tubeless tires. Patching a tube is an emergency repair. If you do not apply the patch correctly or apply several patches, the tube can fail, resulting in possible tube failure, which could cause you to lose control and fall. Replace a patched tube as soon as possible.

---

3.10.4 Rims

**Wear**

**WARNING**

Look out for deep grooves on both rims. The rims could fracture and cause a fall. Replace rims as soon as you detect signs of wear. Many rims have a wear indicator. If the indicator can no longer be felt in a spot, the rim is worn.

Make sure the rims are clean and undamaged at the tire bead and, if you have rim brakes, along the braking surface.

**Cleaning**

1. Remove the pedelec battery.

2. Brush the rims with a hand brush. Heavier soiling can be removed with a soft, damp cloth.

**NOTICE**

When you are cleaning, make sure that no water gets into the motor. Water ingress can damage the motor.

3. Leave to dry.
3.11 Suspension fork

The suspension forks support the front wheel.

**WARNING**

Do not ride over rough terrain with the suspension locked. It can damage the suspension forks. A broken fork could cause you to fall off and seriously injure yourself.

**CAUTION**

Familiarize yourself with how the suspension responds to brake application and rider weight shifts ⇒ 3.6.2 Braking, Page US-27.

Suspension can change the way a bike performs. Follow the suspension manufacturer’s instructions for use, adjustment and care ⇒ II. Component guides, Page US-6.

3.11.1 Lockout system

If your suspension forks are fitted with a lockout system it is possible to lock the suspension. There are some riding situations where that can be useful: for example, if you riding up a hill or if you are standing up from the saddle when accelerating. To switch the suspension to fixed, turn the rotary control on the right hand side of the fork to 'LOCK' (or alternatively: 🔒). To reactivate the suspension, turn the control to the 'OPEN' position.

<table>
<thead>
<tr>
<th>LOCK, 🔒</th>
<th>Suspension locked</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPEN</td>
<td>Suspension activated</td>
</tr>
</tbody>
</table>

3.11.2 Air system

On some suspension forks it is possible to alter the air pressure. To do that you will need the assistance of your dealer – or if you feel confident of doing it yourself – a suspension fork pump with a pressure gage and the suspension fork manufacturer's installation manual. The valve with cap (e.g. marked 'AIR') is usually located on the left hand side of the fork.
4. Before every trip

**WARNING**

Have damaged components (tears, cracks etc.) replaced before you use the bike again. If not, important components may fail, causing you to fall off.

Do not ride the bike if it is not in a technically satisfactory condition.

Do not ride a bike or component with any crack, bulge or dent, even a small one. Riding a cracked frame, fork or component could lead to complete failure, with risk of serious injury or death. If you are not sure, have it checked out by your dealer.

Inspect your pedelec before every trip, and after each time it has been transported anywhere or has been left unattended. Use the following checklist to help you.

**Checklist**

<table>
<thead>
<tr>
<th>Type</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frame/forks</td>
<td>Check the frame and forks for visible warping, cracks and damage.</td>
</tr>
<tr>
<td>Handlebars / front stem</td>
<td>Check they are seated securely</td>
</tr>
<tr>
<td></td>
<td>Check that the bell is working and attached correctly and securely.</td>
</tr>
<tr>
<td>Saddle / saddle post</td>
<td>Check that the quick-release skewers / through-axles (if available) are secure.</td>
</tr>
<tr>
<td>Luggage</td>
<td>Check it is attached securely</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheels</td>
<td>Check the condition (damage, foreign bodies), concentricity and pressures of the tires.</td>
</tr>
<tr>
<td></td>
<td>The maximum permissible pressure is marked on the side of a tire in bar and psi (pounds per square inch).</td>
</tr>
<tr>
<td></td>
<td>Check the valves are seated securely.</td>
</tr>
<tr>
<td></td>
<td>Visually inspect the rims for damage and wear.</td>
</tr>
<tr>
<td></td>
<td>Check that the quick-release skewers / through-axles (if available) are secured correctly.</td>
</tr>
<tr>
<td>Chain or belt</td>
<td>Check the chain, belt, pinions and sprockets for wear and damage.</td>
</tr>
<tr>
<td>Brakes</td>
<td>Check that the brake system (including brake levers) is working and attached correctly and securely.</td>
</tr>
<tr>
<td></td>
<td>Visual inspection of the brake pads/disks.</td>
</tr>
<tr>
<td>Lights</td>
<td>Check that the light system is adjusted and in working order.</td>
</tr>
<tr>
<td></td>
<td>Check that reflectors are affixed in accordance with applicable national traffic regulations.</td>
</tr>
<tr>
<td>Threaded joints</td>
<td>Check that all threaded joints are tightened as specified.</td>
</tr>
<tr>
<td>Luggage</td>
<td>Check it is attached securely</td>
</tr>
</tbody>
</table>
4.1 If your bike sustains an impact

1. First, check yourself for injuries, and take care of them as best you can. Seek medical help if necessary.
2. Next, check your bike for damage.

4.2 Nothing lasts forever, including your bike

**WARNING**

After any crash, take your bike to your dealer for a thorough check.

A crash or other impact can put extraordinary stress on bike components, causing them to fatigue prematurely. Components suffering from stress fatigue can fail suddenly and catastrophically, causing loss of control, serious injury or death. Carbon composite components, including frames, wheels, handlebars, stems, cranksets, brakes, etc. which have sustained an impact must not be ridden until they have been disassembled and thoroughly inspected by a qualified mechanic.

Every bike and its component parts have a finite, limited useful life. The length of that life will vary with the construction and materials used in the frame and components; the maintenance and care the frame and components receive over their life; and the type and amount of use to which the frame and components are subjected. Use in competitive events, trick riding, ramp riding, jumping, aggressive riding, riding on severe terrain, riding in severe climates, riding with heavy loads, commercial activities and other types of non-standard use can dramatically shorten the life of the frame and components. Any one or a combination of these conditions may result in an unpredictable failure.

All aspects of use being identical, lightweight bikes and their components will usually have a shorter life than heavier bikes and their components. In selecting a lightweight bike or components you are making a tradeoff, favoring the higher performance that comes with lighter weight over longevity. So, if you choose lightweight, high performance equipment, be sure to have it inspected frequently.
5. **Operations guide**

5.1 **Charging the battery**

If you only want to go for a quick test run, you do not need to charge the battery completely. You should definitely charge it before the first long trip because for technical reasons, the battery is supplied only partially charged—(approximately 50%).

---

**NOTICE**

Perform a 'learning cycle': You should completely run down a new, *fully charged* battery once until the assistance stops and without recharging it in between. In that way the battery 'learns' its capacity, and the actual capacity will agree with the level indicated on the battery status display. As soon as the battery enters Sleep mode, press the battery button for 1 second. Then the learn cycle can be continued. Please perform a learning cycle every six months or 3100 miles. If you do not repeat this from time to time, the actual capacity of the battery will increasingly diverge from the value on the battery status display.

---

**NOTICE**

**Grasp the battery firmly**, so that it does not fall out of your hand. It can be damaged if you drop it.

1. Hold the battery in front of the docking station at angle of 80°, slightly tilted to the left.

2. Insert the battery nibs into recesses provided.

3. Push the battery forwards and upwards into the docking station until the locking mechanism engages.
5.3 Switching ON the pedelec

Do not turn on the pedelec while driving it. Otherwise this may cause the motor to stop or you won’t receive full assistance.

1. Press the \( \bigcirc \) button on the control unit for 1 second. The display lighting comes on for about 30 seconds. The bike lighting also switches ON. After a few moments a welcome screen appears followed by the start menu. If you have an Impulse Evo system with a back pedal brake the screen shows: “Please start pedaling”. You can configure other settings from the start menu.

If the system does not switch ON despite pressing on the \( \bigcirc \) button, press the battery button for 1 second. The pedelec will switch on. If it still does not switch ON, check the battery \( \Rightarrow 7.3.1 \) Display panel, Page US-73.

4. Remove the battery key from the battery lock. The battery is now locked.

NOTICE

It is recommended that you remove the key to prevent it breaking off and getting lost.

Make a note of the key number on the sales receipt or proof of purchase. You can order a replacement with this number if you lose the key \( \Rightarrow 11.2 \) Battery, Page US-95.
5.4 Battery status and remaining range

Impulse Evo (Smart) Display

The battery status and the remaining range are displayed on the upper left of the display. A battery icon, which displays the remaining range, will show you information about how long the Impulse Evo system will continue to provide assistance. The lower the battery charge status, the less the battery icon is filled. The remaining range then also shows only a small remainder. If the battery falls below a minimum charge level, the motor assistance turns itself off.

While you are riding measurements are taken every 50 m. The display computes an average value from measurements taken over the last 20 kilometers, which is separately stored for each assist level. This value is then used as a basis for calculating the remaining range. This means that the remaining range largely depends on your riding style over the last 20 kilometers.

5.5 Changing assist mode

1. You must be in the start menu to change the assist mode. Select the level of assist you require by briefly pressing the $\Theta$/ buttons.

<table>
<thead>
<tr>
<th>Display</th>
<th>Assist</th>
<th>Power Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>ULTRA*</td>
<td>Assist function is working with maximum power</td>
<td>Very high</td>
</tr>
<tr>
<td>POWER</td>
<td>Assist function is working hard</td>
<td>High</td>
</tr>
<tr>
<td>SPORT</td>
<td>Assist is working with medium power</td>
<td>Medium</td>
</tr>
<tr>
<td>ECO</td>
<td>Assist is working with low power</td>
<td>Low</td>
</tr>
<tr>
<td>Off</td>
<td>No assist</td>
<td>Very low</td>
</tr>
</tbody>
</table>

2. Assist starts working as soon as you start pedaling. Assist cuts out as soon as you stop pedaling or when you have reached a speed of 15.53 mph.

Below the selected assist mode there is a display field consisting of ten bars of increasing size, that indicate the assist level you are currently receiving. The greater the number of black bars, the higher level of assistance being provided. This display only appears when you have selected an assist mode.
5.6 Enabling push assist

**WARNING**

**Push assist may only used when pushing the pedelec.** Otherwise you could seriously injure yourself. Push assist is not designed to provide assistance when someone is sitting on the pedelec. On back pedal models the pedal crank also turns.

Push assist helps you when pushing the bike up to a maximum of 3.73 mph. This is particularly helpful when you want to push the pedelec on a hill.

1. Press and hold the ☰ button. The push assist is activated after three seconds. At the same time a warning tone is emitted. "**Hint (1/1) Push assist**" appears on the display. Keep the button pressed until you no longer need push assist.

5.7 Displaying SET favorites

If you want to display different SET favorites on the start menu, follow these steps:

1. Briefly press the ☰ button in the start menu. If you have selected multiple SET favorites ⇒ 6.3.6.2 Preselecting favorite settings, Page US-54, the next SET favorite will now be displayed.

2. Continue pressing the ☰ button until the desired SET favorite is displayed.
5.8 Configuring settings in the main menu

You cannot configure any settings in the main menu while you are riding.

5.8.1 Accessing the main menu

1. If you are in the start menu, press the button for three seconds: You will go to the main menu.

5.9 Changing the ride profile

1. While in the start menu, press the button for three seconds. You access the main menu.

2. Use the button to select the 'Settings' option. The selected item is shown on a black background.

3. To confirm your selection, briefly press the button. You arrive at sub-menu 1.
4. Use the +/− buttons to select the 'Device Settings' option.

5. Confirm with ✪.

6. Use the +/− buttons to select the 'Drive' option. The selected item is shown on a black background.

7. Confirm with the ✪ button. You arrive at sub-menu 2.

8. Use the +/− buttons to select the 'Ride Profile' option. The selected option is shown on a black background.

9. Confirm with the ✪ button. You have accessed the ride profiles.

<table>
<thead>
<tr>
<th>Ride profile</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Power on start-up</td>
</tr>
<tr>
<td>Relax</td>
<td>Low</td>
</tr>
<tr>
<td>Regular</td>
<td>Medium</td>
</tr>
<tr>
<td>Dynamic</td>
<td>High</td>
</tr>
</tbody>
</table>

10. Use the +/− buttons to select the desired option which is highlighted in black.

11. Pressing the ✪ button returns you to sub-menu level 2.

5.10 Switching off the pedelec

**WARNING**

Only ride the Pedelec when you can safely reach the brakes ³ 3.6.2 Braking, Page US-27. Your Pedelec does not have an Emergency stop button. You must activate the brakes to stop the cycle quickly in a dangerous situation. The maximum brake force is greater than the propulsion force possible. This means stopping is guaranteed at all times by pressing the brakes. Note that the drive system does not disable automatically after braking. Switch the drive system to idle after braking.

On the control unit

1. Press the ✪ button on the control unit for 1 second. The goodbye screen appears and the Impulse Evo system switches off.

Via the battery

1. Briefly press the battery button twice.
6. Drive unit, display and control unit

6.1 Safety Information

**WARNING**

Do not let yourself become distracted by the display. If you do not concentrate exclusively on the traffic, you run the risk of a serious accident or fall with fatal consequences.

Do not attempt any modifications to the drive unit. For example, it is not permitted to raise the cut-off speed above 20 mph. Furthermore, the speed of the push assist must not exceed 3.73 mph. Pedelecs with modified drive power no longer comply with the legal requirements of their relevant country. You may be liable to prosecution if you ride on public roads with a 'tuned' pedelec. There is also the risk of a technical failure. Modified bikes of this type are excluded from the warranty and guarantee.

Always remove the pedelec battery before starting to work on the pedelec. Accidental activation of the button may lead to severe injuries.

**CAUTION**

Do not open the drive unit. There is a risk of electric shock. It will also invalidate any warranty claim. Repairs to the drive unit should only be carried out by trained dealers.

Do not touch the motor after a long downhill stretch. It can become extremely hot. Touching them may cause contact burn injuries.

5.11 Unlocking and removing the battery

**NOTICE**

Grasp the battery firmly, so that it does not fall out of your hand. It can be damaged if you drop it.

1. Grip the battery firmly, put the key into the lock and turn clockwise. Hold the key. The battery is unlocked.

2. Grip the battery and tip it sideways out of the docking station.

**NOTICE**

It is recommended that you remove the key to prevent it from breaking off and getting lost.
### NOTICE

All components mounted on the drive unit, and all other drive components, may only be replaced with identical components or those specially approved for your Pedelec by the manufacturer. Otherwise it may result in overloading and damage.

**Do not open the display;** you may damage it beyond repair.

The display may be slow to react in cold temperatures. Note the operating temperature on the display ⇒ 6.2 Technical Data, Page US-49.

---

#### 6.2 Technical Data

**Drive unit**

<table>
<thead>
<tr>
<th>Type</th>
<th>Brushless electric motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back pedal</td>
<td>250 W</td>
</tr>
<tr>
<td>Free-wheel</td>
<td>250 W</td>
</tr>
<tr>
<td>Nominal power</td>
<td>35 Nm</td>
</tr>
<tr>
<td>Nominal torque</td>
<td>35 Nm</td>
</tr>
<tr>
<td>Max. torque</td>
<td>80 Nm</td>
</tr>
<tr>
<td>Nominal voltage</td>
<td>80 Nm</td>
</tr>
<tr>
<td>Cut-off speed</td>
<td>36 V</td>
</tr>
<tr>
<td>Permitted ambient temperature range during operation</td>
<td>14 to 104 °F</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>14 to 122 °F</td>
</tr>
<tr>
<td>Recommended storage temperature</td>
<td>65 to 74 °F</td>
</tr>
</tbody>
</table>

**Impulse Evo Display**

<table>
<thead>
<tr>
<th>Type</th>
<th>LCD display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permitted ambient temperature range during operation</td>
<td>14 to 104 °F</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>14 to 122 °F</td>
</tr>
<tr>
<td>Recommended storage temperature</td>
<td>65 to 74 °F</td>
</tr>
<tr>
<td>Dimensions L</td>
<td>W</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP 54</td>
</tr>
<tr>
<td>Weight</td>
<td>0.28 lbs</td>
</tr>
<tr>
<td>Languages</td>
<td>DE</td>
</tr>
</tbody>
</table>

---
## Impulse Evo Smart display*

<table>
<thead>
<tr>
<th>Type</th>
<th>LCD display with USB charging socket and Bluetooth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permitted ambient temperature range during operation</td>
<td>14 to 104 °F</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>14 to 122 °F</td>
</tr>
<tr>
<td>Recommended storage temperature</td>
<td>65 to 74 °F</td>
</tr>
<tr>
<td>Dimensions L</td>
<td>W</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP 54</td>
</tr>
<tr>
<td>Weight</td>
<td>0.28 lbs</td>
</tr>
<tr>
<td>Languages</td>
<td>DE</td>
</tr>
</tbody>
</table>

## Control unit

<table>
<thead>
<tr>
<th>Type</th>
<th>4-button control unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permitted ambient temperature range during operation</td>
<td>14 to 104 °F</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>14 to 122 °F</td>
</tr>
<tr>
<td>Recommended storage temperature</td>
<td>65 to 74 °F</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP 54</td>
</tr>
<tr>
<td>Weight</td>
<td>0.06 lbs</td>
</tr>
</tbody>
</table>

## 6.3 Overview and basic functions

### Impulse Evo display / Impulse Evo Smart display*

<table>
<thead>
<tr>
<th>No.</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Battery charge level and remaining range (with selected assist mode) ⇒ 6.3.3 Battery charge level and remaining range, Page US-52</td>
</tr>
<tr>
<td>2</td>
<td>Time ⇒ 6.4.2.9 Time, Page US-61</td>
</tr>
<tr>
<td>3</td>
<td>Assist mode ⇒ 6.3.4 Changing assist mode, Page US-53</td>
</tr>
<tr>
<td>4</td>
<td>Assist display ⇒ 6.3.4 Changing assist mode, Page US-53</td>
</tr>
<tr>
<td>5</td>
<td>a) Information field</td>
</tr>
<tr>
<td></td>
<td>b) Favorite display settings ⇒ 6.3.6 Favorite display settings, Page US-54</td>
</tr>
<tr>
<td>6</td>
<td>Speed</td>
</tr>
<tr>
<td>7</td>
<td>Lighting symbol</td>
</tr>
</tbody>
</table>

*depending on model
6.3.1 Switching on the pedelec

The system can only be activated if a sufficiently charged battery has been inserted.

Do not turn on the pedelec while riding it. Otherwise this may cause the motor to stop or you won’t receive full assistance.

1. Press the button on the control unit for 1 second. The display lighting comes on for about 30 seconds. The bike lighting also switches on. After a few moments a welcome screen appears followed by the start menu. If you have an Impulse Evo system with a back pedal brake the screen shows: "Please start pedaling". You can configure other settings from here.

2. If the system does not switch on despite pressing on the button, press the battery button for 1 second. The pedelec will switch on. If it still does not switch on, check the battery ⇒ 7.3.1 Display panel, Page US-73.
6.3.2 Switching off the pedelec

**WARNING**

Only ride your pedelec if you can safely reach the brakes ⇒ 3.6.2 Braking, Page US-27. Your pedelec has no emergency stop button. To quickly stop the bike in a dangerous situation, you need to apply the brakes. The maximum braking force is stronger than the possible propulsion. This ensures that the bike can be stopped at all times by activating the brakes. Please note that the drive system is not automatically turned off after braking. After braking, turn off the drive system when at a standstill.

From the control unit

1. Press the button on the control unit for 1 second. The goodbye screen appears and the Impulse Evo system switches off.

Via the battery

1. Press the battery button twice.

You can switch off your Impulse Evo pedelec off from any level in the menu. You do not have to display the start menu to do this.

The last configured settings remain saved.

If the pedelec remains stationary for about 20 minutes the Impulse Evo switches itself off.

6.3.3 Battery charge level and remaining range

The battery charge level and remaining range are shown in the top left of the display. The remaining range is displayed on a battery-shaped icon telling you how long the Impulse Evo system can continue to provide assistance. The lower the battery charge level, the shorter the black infill on the battery icon. The remaining range will also show a lower value.

Measurements are taken while you are riding. The display computes an average value from measurements taken over the last 12 miles. This value is then used as a basis for calculating the remaining range. This means that the remaining range largely depends on your riding style over the last 12 miles.
### 6.3.4 Changing assist mode

1. You must be in the start menu to change the assist mode. Select the assist level you require by briefly pressing the ± buttons.

<table>
<thead>
<tr>
<th>Display</th>
<th>Assist</th>
<th>Power Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>ULTRA*</td>
<td>Assist function is working with maximum power</td>
<td>Very high</td>
</tr>
<tr>
<td>POWER</td>
<td>Assist function is working hard</td>
<td>High</td>
</tr>
<tr>
<td>SPORT</td>
<td>Assist is working with medium power</td>
<td>Medium</td>
</tr>
<tr>
<td>ECO</td>
<td>Assist is working with low power</td>
<td>Low</td>
</tr>
<tr>
<td>OFF</td>
<td>No assist</td>
<td>Very low</td>
</tr>
</tbody>
</table>

2. Assist starts working as soon as you start pedaling. Assist cuts out as soon as you stop pedaling or when you have reached a speed of 15.53 mph.

Below the selected assist mode there is a display field consisting of ten bars of increasing size, that indicate the assist level you are currently receiving. The greater the number of black bars, the higher the assist level being provided. This display only appears when you have selected an assist mode.

### 6.3.5 Enabling push assist

Push assist helps you when pushing the bike.

**WARNING**

Push assist may only used when pushing the pedelec. Otherwise you could seriously injure yourself. Push assist is not designed to provide assistance when someone is sitting on the pedelec.

Push assist helps you when pushing the bike up to a maximum of 3.73 mph. This is particularly helpful when you want to push the pedelec uphill.

1. Press and hold the ⊕ button. The push assist is activated after three seconds. At the same time a warning tone is emitted. "Hint (1/1) Push assist" appears on the display. Keep pressing the button until you no longer need push assist.
6.3.6 Favorite display settings

6.3.6.1 Displaying favorite settings

If you are in the start menu and want to change to other favorite settings proceed as follows:

1. While in the start menu, press the button for three seconds. If you have selected several favorite settings in the start menu 6.3.6.2 Preselecting favorite settings, Page US-54, the next favorite is now displayed.
2. Keep pressing the button until the desired favorite setting is displayed.

6.3.6.2 Preselecting favorite settings

You can select which of the following favorite settings you want displayed in the start menu:

<table>
<thead>
<tr>
<th>Display</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trip (in km)</td>
<td>Trip (ex. day trip, short trip) in kilometers.</td>
</tr>
<tr>
<td>Trip duration (in 00:00:00)</td>
<td>Duration of trip (ex. day trip, short trip) in hours, minutes and seconds.</td>
</tr>
<tr>
<td>Trip Ø (in km/h)</td>
<td>Average speed in kilometers per hour, reached during the trip (ex. day trip, short trip).</td>
</tr>
<tr>
<td>Total km (in km)</td>
<td>The total number of kilometers driven.</td>
</tr>
</tbody>
</table>

You can select all or just one of the available options. Proceed as follows:

1. While in the start menu, press the button for three seconds. You are now in the main menu.
2. Use the buttons to select the 'Settings' option. The selected item is shown on a black background.
3. To confirm your selection, briefly press the button. You have arrived at sub-menu 1.
4. Use the buttons to select the 'Ride Profile' option. The selected item is shown on a black background.
5. Confirm with the button. You are now sub-menu 2.
6. Use the buttons to select the 'Favorite Settings' option. The selected item is shown on a black background.
7. Confirm with the button. You are now in the 'Favorite Settings' menu.

8. Use the / buttons to select the desired option, which is highlighted in black.

9. Briefly press the button to confirm or remove the option in the box.

10. Once you have made your selection, you can return to the sub-menu level by choosing the 'Back' option.

6.4 Main menu

6.4.1 Configuring settings in the main menu

You cannot configure any settings in the main menu while you are riding.

6.4.1.1 Selecting the main menu

1. If you are in the start menu, press the button for three seconds: You are now in the main menu.

6.4.1.2 Navigating within a menu

1. Use the / buttons to navigate to the required place. The selected item is shown on a black background.

2. To confirm your selection, briefly press the button. You are now at the next lowest menu level.

6.4.1.3 Returning from a menu

There are four different ways to return to the next highest level or the start menu:

Back option

1. Use the / buttons to navigate to the 'Back' option. The selected option is displayed on a black background.

2. Confirm with the button. You are now back at the next highest level.

Briefly pressing the button

1. If there is no 'Back' option, and one of the displayed options is selected, briefly press the button to return to the next highest level.

Prolonged pressing of the button

1. If you press the button for three seconds, you will return to the start menu.

Start riding

1. The start menu is displayed as soon as you start moving.
## 6.4.2 Menu structure

<table>
<thead>
<tr>
<th>Main menu</th>
<th>Sub-menu 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display ride data</td>
<td>Trip (in mi.)</td>
</tr>
<tr>
<td></td>
<td>Trip time (in 00:00:00 format)</td>
</tr>
<tr>
<td></td>
<td>Trip max (in mph)</td>
</tr>
<tr>
<td></td>
<td>Trip Ø (in mph)</td>
</tr>
<tr>
<td></td>
<td>Tour (in mi.)</td>
</tr>
<tr>
<td></td>
<td>Tour Ø (in mph)</td>
</tr>
<tr>
<td></td>
<td>Total (in mi.)</td>
</tr>
<tr>
<td>Delete trip data</td>
<td>Confirm delete? Yes</td>
</tr>
<tr>
<td>Delete tour data</td>
<td>Confirm delete? Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sub-menu 1</th>
<th>Sub-menu 2</th>
<th>Sub-menu 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device settings</td>
<td>Display</td>
<td>Contrast</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.4.2.4 Contrast, Page US-60</td>
</tr>
<tr>
<td></td>
<td>Brightness</td>
<td>6.4.2.5 Brightness, Page US-60</td>
</tr>
<tr>
<td></td>
<td>Language</td>
<td>3.6.2.1 Learning how to brake, Page US-28</td>
</tr>
<tr>
<td></td>
<td>Deutsch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>English</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Français</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nederlands</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Español</td>
<td></td>
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<tr>
<td></td>
<td>Italiano</td>
<td></td>
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<tr>
<td></td>
<td>Suomi</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dansk</td>
<td></td>
</tr>
<tr>
<td>Main menu</td>
<td>Sub-menu 1</td>
<td>Sub-menu 2</td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
<td>------------</td>
</tr>
<tr>
<td><strong>Settings</strong></td>
<td>Device settings</td>
<td>Display</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Date</strong> 6.4.2.8 Date, Page US-61</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Time</strong> 6.4.2.9 Time, Page US-61</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Parking light</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Navigation indicator sound</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Drive unit</strong></td>
<td><strong>Wheel circumference</strong> 6.4.2.12 Wheel circumference, Page US-62</td>
<td>1,510 mm to 2,330 mm</td>
</tr>
<tr>
<td></td>
<td><strong>Light reserve</strong> 6.4.2.13 Light reserve, Page US-63</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Shift sensor</strong> 6.4.2.14 Shift sensor, Page US-63</td>
<td>OFF, 50 ms to 300 ms</td>
</tr>
<tr>
<td></td>
<td><strong>Climb assist</strong> 6.4.2.15 Climb assist, Page US-64</td>
<td>1 to 7</td>
</tr>
<tr>
<td></td>
<td><strong>Ride profile</strong> 6.4.2.16 Ride profile, Page US-64</td>
<td>Relax</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.9 Changing the ride profile, Page US-46</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 6.4.2.1 Display ride data

In the main menu option "Display ride data" you can display the following menu options:

<table>
<thead>
<tr>
<th>Menu options</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trip (in mi.)</td>
<td>Trip (e.g. day trip, short trip) in kilometers</td>
</tr>
<tr>
<td>Trip time (in 00:00:00 format)</td>
<td>Duration of trip (e.g. day trip, short trip) in hours, minutes and seconds</td>
</tr>
<tr>
<td>Trip max (in mph)</td>
<td>Maximum speed achieved during the trip (e.g. day trip, short trip) in kilometers per hour.</td>
</tr>
<tr>
<td>Trip Ø (in mph)</td>
<td>Average speed achieved during the trip (e.g. day trip, short trip) in kilometers per hour.</td>
</tr>
<tr>
<td>Tour (in mi.)</td>
<td>Tour (e.g. tour over several days) in kilometers</td>
</tr>
<tr>
<td>Tour Ø (in mph)</td>
<td>Average speed achieved on the tour (e.g. over several days) in kilometers per hour.</td>
</tr>
<tr>
<td>Total (in mi.)</td>
<td>Total distance ridden in kilometers</td>
</tr>
</tbody>
</table>
1. Navigate as described in \textit{6.4.1 Configuring settings in the main menu, Page US-55} to the menu item “Display ride data”.

2. Use the \textcircled{1}/\textcircled{2} buttons to select the desired option. The selected item is shown on a black background. On the right hand side there is box that shows how far you can scroll up or down.

3. To confirm your selection, briefly press the \textcircled{3} button. You will return to the main menu.

\textbf{6.4.2.2 Delete trip data}

In the main menu option "Delete trip data" you can reset to 0 the options: Trip (in mi.), Trip time (in 00:00:00), Trip max (in mph) and Trip Ø (in mph). Proceed as follows:

1. In the main menu, navigate to the option "Delete trip data" as described under \textit{6.4.1 Configuring settings in the main menu, Page US-55}:

2. The question "Confirm delete?" appears on the display above "No" or "Yes".

3. Use the \textcircled{1}/\textcircled{2} buttons to select the desired option, which is then displayed on a black background.

4. To confirm your selection, briefly press the \textcircled{3} button. You will then return to the main menu options.

\textbf{6.4.2.3 Delete tour data}

In the main menu option "Delete tour data" you can reset the options Tour (in mi.) and Tour Ø (in mi.) back to 0. Proceed as follows:

1. In the main menu, navigate to the option "Delete tour data" as described under \textit{6.4.1 Configuring settings in the main menu, Page US-55}:

2. The question "Confirm delete?" appears on the display above "No" or "Yes".

3. Use the \textcircled{1}/\textcircled{2} buttons to select the desired option, which is then displayed on a black background.

4. To confirm your selection, briefly press the \textcircled{3} button. You will then return to the main menu options.
6.4.2.4 Contrast

**Path: Settings | Device settings | Display | Contrast**

You can adjust the contrast of the display to improve legibility:

1. In the main menu, navigate to the option "Contrast" as described under **6.4.1 Configuring settings in the main menu, Page US-55**:

Choose between:

<table>
<thead>
<tr>
<th>-5</th>
<th>-4</th>
<th>-3</th>
<th>-2</th>
<th>-1</th>
<th>Standard</th>
<th>+1</th>
<th>+2</th>
<th>+3</th>
<th>+4</th>
<th>+5</th>
</tr>
</thead>
</table>

2. Use the ⊕/⊖ buttons to select the desired contrast level. The selected contrast level is displayed on a black background.

3. Pressing the ⊕ button will return you to the sub-menu 2 level.

6.4.2.5 Brightness

**Path: Settings | Device settings | Display | Brightness**

You can adjust the brightness of the display to improve legibility:

1. In the main menu, navigate to the option "Brightness" as described under **6.4.1 Configuring settings in the main menu, Page US-55**:

You can choose between:

2. Use the ⊕/⊖ buttons to select the desired brightness level. The selected brightness level is displayed on a black background.

3. Pressing the ⊕ button will return you to the sub-menu 2 level.

6.4.2.6 Language

**Path: Settings | Device settings | Display | Language**

The option "Language" allows you to select the language in which the display text appears. You can choose between:

<table>
<thead>
<tr>
<th>deutsch</th>
<th>español</th>
</tr>
</thead>
<tbody>
<tr>
<td>english</td>
<td>italiano</td>
</tr>
<tr>
<td>français</td>
<td>suomi</td>
</tr>
<tr>
<td>nederlands</td>
<td>dansk</td>
</tr>
</tbody>
</table>

1. In the main menu, navigate to the option "Language" as described under **6.4.1 Configuring settings in the main menu, Page US-55**:

2. Use the ⊕/⊖ buttons to select the desired language. The selected language is displayed on a black background.

3. Pressing briefly on ⊕ will return you to the sub-menu 2 level.
6.4.2.7 Unit

Path: Settings | Device settings | Display | Unit

1. In the main menu, navigate to the option "Unit" as described under 6.4.1 Configuring settings in the main menu, Page US-55:

   You can choose between:
   » Kilometers
   » Miles

2. Use the ⊕⊖ buttons to select the desired unit, which is highlighted in black.

3. Pressing briefly on ⊕ will return you to the sub-menu 2 level.

6.4.2.8 Date

Path: Settings | Device settings | Display | Date

1. Navigate to the "Date" option

   You can choose between:
   
   ![Date options]
   
   | Day | 01 to 31 |
   | Month | January to December |
   | Year | 2015 to 2114 |

2. Use the ⊕⊖ buttons to select the desired options, which will then be displayed on a black background.

3. Press briefly on ⊕ to confirm. You will then go to the next option.

4. If you have confirmed the year with ⊕, you will return to sub-menu level 2.

6.4.2.9 Time

Path: Settings | Device settings | Display | Time

The time is displayed in the start menu. To adjust or change the time proceed as follows:

1. In the main menu, navigate to the option "Time" as described under 6.4.1 Configuring settings in the main menu, Page US-55.

   You can choose between:
   
   ![Time options]
   
   | Hour | 00 to 23 |
   | Minute | 00 to 59 |
   | Second | 00 to 59 |

2. Use the ⊕⊖ buttons to select the desired options, which will then be displayed on a black background.

3. Press briefly on ⊕. You will then go to the next option.

4. If you have confirmed the seconds with ⊕, you will return to sub-menu level 2.
6.4.2.10  Impulse Evo (Smart) Display: Parking light

Path: Settings | Device settings | Display | Parking light

In this menu item you can set how long the parking light on the pedelec should stay on after the system has been turned off.

1. Navigate as described in 6.4.1 Configuring settings in the main menu, Page US-55, under the "Parking light".

You have the choice between:

| Off | 15s | 30s | 45s | 60s |

2. Use the ⊕/⊖ buttons to select the desired option. The selection is then displayed on a black background.

3. Confirm by briefly pressing ⊕. You will return to sub-menu 1.

6.4.2.11  Impulse Evo (Smart) Display: Navigation indicator sound

Path: Settings | Device settings | Display | Navigation indicator sound

If you want to set whether you want to be alerted by a beep when leaving the navigation path, follow these steps:

1. Navigate as described in 6.4.1 Configuring settings in the main menu, Page US-55 to the menu item “Navigation indicator sound”.

2. Use the ⊕/⊖ buttons to select the desired options. The selected option is then displayed on a black background.

3. If you have confirmed the wheel circumference with ⊕, you will return to sub-menu level 2.

You have the choice between:

| Normal | quieter | quieter-short | off |

6.4.2.12  Wheel circumference

Path: Settings | Device settings | Drive | Wheel circumference

Ask your dealer for the wheel circumference.

1. In the main menu, navigate to the option "Wheel circumference" as described under 6.4.1 Configuring settings in the main menu, Page US-55:

You can choose between:

» 1,510 mm to 2,330 mm

2. Use the ⊕/⊖ buttons to select the desired option. The selection is highlighted in black. At the same time, an acoustic signal alerts you of changes in the future.

3. When you confirm the acoustic signal with ⊕, you return to sub-menu 2.
### 6.4.2.13 Light reserve

**Path: Settings | Device settings | Drive | Light reserve**

When enabled, the light reserve function reserves some of the battery power for the long-term lighting function. This light reserve remains available for two hours after the assist power has ended. This function is a default setting and can be disabled.

1. In the main menu, navigate to the option "Light reserve" as described under 6.4.1 Configuring settings in the main menu, Page US-55:
2. Select "Yes" or "No" using the buttons. The selected option is displayed on a black background.
3. If you have confirmed with , you will return to sub-menu level 2.

**WARNING**

Leave the light reserve enabled. This prevents lighting and the Impulse Evo system from stopping simultaneously. If you are cycling in unfavorable lighting conditions (fog, rain, dusk, darkness) there is a risk of not being seen – and consequently of serious accidents.

### 6.4.2.14 Shift sensor

**Path: Settings | Device settings | Drive | Shift sensor**

The shift sensor detects gear changes and interrupts the motor assist for a fraction of a second. This enables smoother and quicker gear changes especially with a hub gear. This reduces material wear when changing gear on the pedelec. The higher the value selected, the longer the interruption to the motor assist and the more time the gear has to change.

1. In the main menu, navigate to the option "Shift sensor" as described under 6.4.1 Configuring settings in the main menu, Page US-55:
2. Use the buttons to select the desired option. The selected option is displayed on a black background.
3. If you have confirmed with , you will return to sub-menu level 2.

You can choose between:

<table>
<thead>
<tr>
<th>Option</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td></td>
</tr>
<tr>
<td>50 ms</td>
<td></td>
</tr>
<tr>
<td>100 ms</td>
<td></td>
</tr>
<tr>
<td>150 ms</td>
<td></td>
</tr>
<tr>
<td>200 ms</td>
<td></td>
</tr>
<tr>
<td>250 ms</td>
<td></td>
</tr>
<tr>
<td>300 ms</td>
<td></td>
</tr>
</tbody>
</table>

**Short interruption**

**Long interruption**

2. Use the buttons to select the desired option. The selected option is displayed on a black background.
3. If you have confirmed with , you will return to sub-menu level 2.
6.4.2.15 Climb assist

The power sensor in the motor registers your pedaling force as you ride. The motor controller interprets the pedaling force signals and responds according to the climb assist setting. The lower the set value (e.g. 1), the more sluggish the reaction of the motor when assist is enabled. With a high value (e.g. 7), the motor reacts very responsively to the pedal force. When riding uphill it can be an advantage if the power sensor does not react so sensitively, so as to provide the motor assist as evenly and smoothly as possible.

1. In the main menu, navigate to the option "Climb assist" as described under 6.4.1 Configuring settings in the main menu, Page US-55:

You can choose between:

1 2 3 4 5 6 7

Use the ↑/↓ buttons to select the desired options, the selected option is displayed on a black background.

2. If you have confirmed with ↵, you will return to sub-menu level 2.

6.4.2.16 Ride profile

Profile: Settings | Device settings | Drive | Ride profile

The ride profile allows you to specify the maximum assist level to be achieved by the motor.

Select the ride profile to suit your cycling trips. The "Relax" profile is the best assist level for a leisurely weekend tour with friends. If you are often speeding from one appointment to the next, "Dynamic" will deliver the required boost.

The most recent setting remains saved.

1. In the main menu, navigate to the option "Ride profile" as described under 6.4.1 Configuring settings in the main menu, Page US-55:

You can choose between:

<table>
<thead>
<tr>
<th>Ride profile</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Power on start-up</td>
</tr>
<tr>
<td>Relax</td>
<td>Low</td>
</tr>
<tr>
<td>Regular</td>
<td>Medium</td>
</tr>
<tr>
<td>Dynamic</td>
<td>High</td>
</tr>
</tbody>
</table>

2. Use the ↑/↓ buttons to select the desired option. The selected option is displayed on a black background.

3. If you have confirmed with ↵, you will return to sub-menu level 2.
6.4.2.17 Name

**Path: Settings | Device settings | Personalize | Name**

The "Name" option allows you to choose how you wish to be addressed on the welcome screen.

1. In the main menu, navigate to the option "Name" as described under 6.4.1 Configuring settings in the main menu, Page US-55.

2. Use the Θ/Θ buttons to select the desired option. The selected letter is displayed on a black background.

3. Confirm by pressing the Θ button.

4. When you have made your selection choose "OK" in order to return to sub-menu 2 or ← to go to the start menu.

6.4.2.18 Favorite display settings

⇒ 6.3.6.2 Preselecting favorite settings, Page US-54

6.4.2.19 Factory settings

**Path: Settings | Device Settings | Other | Factory settings**

1. In the main menu, navigate to the option "Factory settings" as described under 6.4.1 Configuring settings in the main menu, Page US-55.

2. The question "Reset factory settings?" appears above the options "No" or "Yes".

3. Use the Θ/Θ buttons to select the desired option, which will then be displayed on a black background.

4. To confirm your selection, briefly press the Θ button, which will return you to the sub-menu 2 level.

6.4.2.20 Version

**Path: Settings | Device Settings | Other | Version**

If you want to display the name of the current software version on your display, proceed as follows:

Display software version

1. In the main menu, navigate to the option "Version" as described under 6.4.1 Configuring settings in the main menu, Page US-55. Here you will find the current software for the display, motor and Bluetooth chip.

2. Pressing the Θ buttons returns you to the sub-menu 2 level.

Ask if there is a software update for your pedelec in the course of regular maintenance checks listed in the service book.
Display serial number

1. In the main menu, navigate to the option "Version" as described under 6.4.1 Configuring settings in the main menu, Page US-55.
2. Briefly press button. The serial numbers of the cockpit and motor will be displayed.
3. Pressing the button returns you to the sub-menu 3 level.

Test display

It is advisable to access the test display in order to clearly identify pixel errors.

1. In the main menu, navigate to the option "Version" as described under 6.4.1 Configuring settings in the main menu, Page US-55.
2. Press the button twice. A black screen is displayed.
3. Pressing the button takes you to the sub-menu 3 level.

6.5 Tips

6.5.1 Transporting your pedelec

**WARNING**

Remove panniers and other attachments during transport, as they can come off and cause serious accidents.

**Always remove the battery before transporting the pedelec.** There is a risk of injury due to accidental activation of the button. Otherwise, the battery can fall out of the docking station and get damaged. Use a special battery bag that protects the battery from heat, shocks and impacts.

**By car:** The bike rack must be of a higher load capacity than the weight of the pedelec  V.III Pedelec weight, Page US-10, otherwise it can break and cause a serious accident. It is imperative to follow the guidance of the bike rack manufacturer.

**NOTICE**

Pedelecs carried on a rear-mounted bike rack must have suitable weather protection. Water ingress can damage the motor and its components. You can find suitable protection at your dealer or in the online shop.

**Bus, train and plane:** Find out from your travel company well in advance if their regulations allow you to take your pedelec with you.
6.5.2 Trailer bikes and trailers

The use of trailer bikes and trailers is generally permitted for the Impulse Evo pedelec, but please observe the following safety instructions:

**WARNING**

Do not exceed the maximum permissible total weight of the pedelec, because it can lead to the fracture or failure of safety-relevant parts. If this happens while you are riding the bike, it can lead to severe falls – with fatal consequences ⇒ V.IV The maximum permissible total weight, Page US-10.

Trailer bikes and trailers alter the riding characteristics. Adapt your riding style accordingly. If you do not adapt your riding style, you could seriously injure or kill yourself or the child in the trailer. The braking distance is longer so you have to start braking earlier, and the steering response becomes more sluggish. Practice starting, braking, going round corners, and up and down hills, starting with an empty trailer bike or trailer.

Only use trailer bikes and trailers that conform to all applicable federal, state and local regulations. Ensure that the cycle trailers are designed and tested in accordance with DIN EN 15918 and the relevant US standards, otherwise components could break while you are riding the bike; resulting in serious or even fatal injuries for you and/or the child. If you are interested in purchasing a trailer bike or trailer please consult your dealer.

6.5.3 Luggage rack

Position: Over the rear wheel

<table>
<thead>
<tr>
<th>Maximum carrying capacity</th>
<th>55 lbs*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tested</td>
<td>in accordance with DIN EN 14872</td>
</tr>
</tbody>
</table>

**WARNING**

*Check for different specifications on the luggage rack itself or in the luggage rack manufacturer's installation instructions. Otherwise it may result in the luggage rack fracturing. It that happens while you are riding the bike you could be seriously injured. The maximum load is shown on the luggage rack bars or on the mounting of the rear light.

6.5.3.1 Safety Information

**WARNING**

Never carry anything which obstructs your vision, affects your control of the bike or can become entangled in the moving parts of the bike.

Make sure your clothing or anything you may be carrying on the bike does not obstruct a reflector or light. Otherwise there is a risk of not being seen in unfavorable lighting conditions (fog, dusk, darkness), which could result in you being seriously injured.

Make sure luggage is securely attached and carry out regular checks to see it is correctly positioned, otherwise loose straps can get caught in the spokes or rotating wheels. resulting in a serious fall.
WARNING

Do not exceed the the maximum permissible total weight of the pedelec, because it can lead to fracture or failure of safety-relevant parts. If this happens while you are riding the bike, it can lead to severe falls – with fatal consequences ⇒ V.IV The maximum permissible total weight, Page US-10.

It is not permitted to modify the luggage rack in any way, otherwise it may result in the luggage rack fracturing. It that happens while you are riding the bike you could be seriously injured.

The maximum carrying capacity of the luggage rack must not be exceeded, otherwise it may result in the luggage rack fracturing. It that happens while you are riding the bike you could be seriously injured.

Luggage alters the handling characteristics of the bike. Adapt your riding style accordingly. If you do not adapt your riding style, you could seriously injure or kill yourself. The braking distance is longer so you have to start braking earlier, and the steering response becomes more sluggish.

Carry your luggage in side-mounted panniers. Distribute the weight evenly to ensure safer riding characteristics.

The luggage rack of your pedelec is supplied without a luggage rack spring flap. However, one can be retrofitted – please ask your bike dealer. You can view other luggage rack accessories via http://www.racktime.com.

6.5.3.2 Assembly
6.5.4 Storage

1. Remove the battery from the pedelec.

2. Store the battery in a dry, but not too warm place. The battery must not be exposed to direct sunlight. The recommended storage temperature is 65 to 74 °F.

6.5.5 Cleaning

Drive unit

WARNING

Remove the battery from the bike before cleaning. Accidental activation of the button may lead to severe injuries.

NOTICE

Do not clean the pedelec and its components with a water hose or high pressure washer. You could damage the bike. Clean the pedelec with a soft, damp cloth.

Do not immerse the drive unit and components in water. You could damage the bike.

Do not use any cleaners containing alcohol, solvents or that have a scouring action. Nor should you use coarse sponges or brushes; you will scratch and tarnish the surface. Clean the pedelec with a soft, damp cloth.

Do not let dirt dry out. Ideally, you should clean the bike straight after the trip.

1. Remove the drive unit from the pedelec.

2. Clean the outside of the drive unit with a soft, damp cloth.

Display and control unit

1. Clean the outside of the display and drive unit with a soft, damp cloth.
7. Battery

7.1 Safety Information

**WARNING**

People (including children) who, because of their physical, sensory or intellectual capabilities, or because of their lack of experience or knowledge, are unable to use batteries, are prohibited from using them unless supervised or under the instruction of a responsible person. Otherwise there is a risk of mishandling with consequential very serious injuries.

**Only operate your pedelec with the original manufacturer-supplied battery.** The use of other batteries can cause explosions, serious burns and fires. Other consequences can include malfunctions and a restricted battery life. You can find a list of approved batteries in § 7.2 Technical Data, Page US-72.

**Only use the correct original battery charger to charge your battery.** The use of other battery chargers can cause explosions, serious burns and fires. Further consequences can include malfunctions and a limited battery life. You can find a list of permitted battery chargers in § 8.3 Functions, Page US-80.

**Always remove the battery before starting to do adjustments, assembly, service or maintenance on the pedelec.** Accidental activation of the button may lead to serious injuries.

---

**WARNING**

Keep batteries away from sparks and fires. Do not expose batteries to high temperatures. It can cause explosions, serious burns and fires. Further consequences can include malfunctions and a limited battery life. Keep batteries away from sources of heat (e.g. direct sunlight and radiators). When charging the battery make sure there is sufficient ventilation and observe the permitted ambient temperature range: 32 to 104 °F. Do not extinguish a burning battery with water, only the surrounding burning material. Class D extinguishers (metal powder type) are better suited for this. If it is possible to take the battery safely outside, smother the fire with sand.

**Batteries must not be short-circuited.** They can cause explosions, serious burns and fires. Further consequences can include malfunctions and a limited battery life. Do not store batteries in a box or drawer where they can be short-circuited by contact with each other or with conductive materials (screws, paper clips, keys, coins, nails or other small metal objects).

**Batteries must not be destroyed, shredded, taken apart, opened up or repaired.** They can explode and cause serious burns and fires. If you have problems with the battery, please contact your dealer.
**WARNING**

**Damaged batteries must not be charged, used or transported.**

» They can explode and cause serious burns and fires.

» Gases can be released and irritate the airways. Ensure there is a supply of fresh air and consult a doctor in the event of discomfort.

» Liquid can escape and cause skin irritation. Avoid contact, with this liquid, but in case of accidental contact, wash off with water. If the liquid gets into the eyes, flush out with plenty of water and seek medical help.

**Do not send batteries in the mail.** Batteries are dangerous goods that under certain conditions may explode, causing severe burns and fires. The preparation and dispatch of batteries must only be carried out by trained personnel and as per the applicable shipping policies and regulations. If you have a complaint regarding the battery, please contact your dealer. Dealers are able to have the battery collected free of charge under the terms of the dangerous goods regulations.

**Batteries must not be immersed in water.** There is a risk of explosion. Do not extinguish a burning battery with water, only the surrounding burning material. Class D extinguishers (metal powder type) are better suited for this. If it is possible to take the battery safely outside, smother the fire with sand. You need have no worries that the battery beneath you could explode while you are riding in the rain– it is protected from ingress of moisture and/condensation.

**NOTICE**

**Batteries must not be subject to mechanical impact.** There is a risk of it being damaged. A battery can still be damaged after a drop or impact even if there are no visible signs of damage. Even apparently perfect batteries should be inspected. Please ask your dealer to inspect.

**Perform a 'learning cycle':** A new, fully charged battery should be run down once until the motor assist stops and without recharging in between. In that way the battery 'learns' its capacity, and the actual capacity will agree with the level indicated on the battery status display. As soon as the battery enters Sleep mode, press the battery button for 1 second. Then the learn cycle can be continued. Please perform a learning cycle every six months or 3000 miles. If you do not repeat this from time to time, the actual capacity of the battery will increasingly diverge from the value on the battery charge display.

**Do not use the pedelec battery for any other purpose,** otherwise there is a risk of damage to the device.

**Batteries are subject to the dangerous goods regulations.** Private users are permitted to transport them on the road without further conditions. If transported by commercial third parties (e.g by air freight, hauliers or logistics companies) special conditions apply to packing and labeling. For questions about transporting batteries, please contact your dealer.
## 7.2 Technical Data

* With a 4 A charger up to 95% of full charge capacity
** Measured at the lowest assist mode, under optimal conditions and with a fully charged battery of the highest capacity.

<table>
<thead>
<tr>
<th></th>
<th>15 Ah</th>
<th>17 Ah</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>15 Ah</td>
<td>17 Ah</td>
</tr>
<tr>
<td><strong>Position</strong></td>
<td>Seat post</td>
<td>Seat post</td>
</tr>
<tr>
<td><strong>Nominal capacity</strong></td>
<td>14.25 Ah</td>
<td>16.75 Ah</td>
</tr>
<tr>
<td><strong>Nominal voltage</strong></td>
<td>36 V</td>
<td>36 V</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>520 Wh</td>
<td>603 Wh</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>6.88 lbs</td>
<td>7.02 lbs</td>
</tr>
<tr>
<td><strong>Charging cycles</strong></td>
<td>1100 full cycles</td>
<td>1100 full cycles</td>
</tr>
<tr>
<td><strong>Charging time</strong></td>
<td>Approx. 3.5 hours</td>
<td>Approx. 4 hours</td>
</tr>
<tr>
<td><strong>Cell</strong></td>
<td>Li-ion</td>
<td>Li-ion</td>
</tr>
<tr>
<td><strong>Range</strong></td>
<td>111 mi.</td>
<td>127 mi.</td>
</tr>
<tr>
<td><strong>Permitted ambient temperature range during operation</strong></td>
<td>14 to 104 °F</td>
<td>14 to 104 °F</td>
</tr>
<tr>
<td><strong>Permitted charging temperature</strong></td>
<td>32 to 104 °F</td>
<td>32 to 104 °F</td>
</tr>
<tr>
<td><strong>Storage temperature</strong></td>
<td>14 to 122 °F</td>
<td>14 to 122 °F</td>
</tr>
<tr>
<td><strong>Recommended storage temperature</strong></td>
<td>65 to 74 °F</td>
<td>65 to 74 °F</td>
</tr>
</tbody>
</table>

## 7.3 Overview and basic functions

- **Discharging socket**
- **Display panel**
- **Specification plate**
- **Charging socket**
- **Protective cap for charging socket**
7.3.1 Display panel

On the outside of the battery there is a display panel with 5 LEDs and a battery button. Three of the LEDs have percentage values. The LEDs light up when you press the battery button. The number and way they light up tell you about the battery status.

7.3.1.1 Battery charge level

1. Press the battery button for one second. The LEDs light up.

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
<th>Battery charge level</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>5 LEDs on</td>
<td>84 – 100 %</td>
</tr>
<tr>
<td>50%</td>
<td>4 LEDs on</td>
<td>68 – 83 %</td>
</tr>
<tr>
<td>50%</td>
<td>3 LEDs on</td>
<td>51 – 67 %</td>
</tr>
<tr>
<td>0%</td>
<td>2 LEDs on</td>
<td>34 – 50 %</td>
</tr>
<tr>
<td>0%</td>
<td>1 LED on</td>
<td>17 – 33 %</td>
</tr>
<tr>
<td>0%</td>
<td>1 LED flashing</td>
<td>0 – 17 %</td>
</tr>
</tbody>
</table>

7.3.1.2 Capacity

Capacity indicates the quantity of electric charge that a battery can deliver or store. It is given in ampere hours (Ah). Even when used properly, capacity diminishes over time due to chemical reactions (aging). So it reduces with every charging cycle. A battery also ages slightly when it is not used.

A charging cycle is the complete charging of a battery from 0 to 100% capacity. It follows that not every charging process equates to a charging cycle. For example, a charge from 50 to 100% capacity is only half a charging cycle.

1. Press the battery button for five seconds. The capacity of the battery will be displayed.

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
<th>Battery charge level</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>At least 4 LEDs on</td>
<td>The battery has a capacity of over 68%</td>
</tr>
<tr>
<td>&lt;50%</td>
<td>0 - 2 LEDs on</td>
<td>The battery charge is below 50%</td>
</tr>
</tbody>
</table>

If fewer than three LEDs come on, the battery may need to be replaced. To discuss the next steps speak to your dealer.
7.3.1.3 Sleep mode

To prevent a total discharge, the battery management system (BMS) switches to sleep mode. After two days your battery will revert to sleep mode irrespective of the charge level.

To wake from sleep mode

1. Press the battery button for one second. The following appears:

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>✈️✈️✈️✈️✈️</td>
<td>The first, second, third, fourth and fifth LEDs come on in order and then all go off.</td>
</tr>
</tbody>
</table>

2. The battery has now "woken up".

If no LED blinks, or all 5 LEDs blink repeatedly, the battery may be defective ⇒ 7. Battery, Page US-70.

Initiating sleep mode

1. Press the battery button twice. The following appears:

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>✈️✈️</td>
<td>The first and fifth LEDs flash twice.</td>
</tr>
</tbody>
</table>

2. The battery is now in sleep mode.

7.3.2 Inserting and locking the battery

**NOTICE**

Grasp the battery firmly, so that it does not fall out of your hand. It can be damaged if you drop it.

One-key system: The same key can be used for both the bike and battery locks (where fitted).

1. Hold the battery in front of the docking station at angle of 80°, slightly tilted to the left.

2. Insert the battery nibs into recesses provided.
3. Push the battery forwards and upwards into the docking station until the locking mechanism engages.

4. Remove the battery key from the battery lock. The battery is now locked.

**NOTICE**

We recommend you remove the key to prevent it breaking off and getting lost.

---

### 7.3.3 Unlocking and removing the battery

1. Grip the battery firmly, put the key into the lock and turn clockwise. Hold the key. The battery is unlocked.

2. Grip the battery and tip it sideways out of the docking station.

**NOTICE**

*Grasp the battery firmly,* so that it does not fall out of your hand. It can be damaged if you drop it.
7.4 Tips

7.4.1 Range

Various factors determine how far you can go with your battery:

When you go on a long trip it is worth taking a spare battery or battery charger with you.

Ride profile: The highest ride profile (Dynamic) uses the most battery power and the consumption rate decreases with lower ride profiles.

Select the ride profile to suit your cycling trips. The "Relax" profile is the best assist level for a leisurely week-end tour with friends. If you want to ride fast (e.g. going to work), "Dynamic" will deliver the required boost.

Assist mode: You consume the most battery power in the highest ride profile. The range decreases, the higher the selected assist mode.

Vary the assist modes you use. If there is a tailwind when going down hill or on the level, you can still go fast with a lower assist mode.

Tire pressure: If the tire pressure is too low it is harder for the tires to rotate. The drive must provide more assistance – the range decreases.

Ride profile: A low cadence (pedaling rate) combined with high gears consumes the most battery power.

Your fitness level: The fitter you are, the less assistance you will need.

The maximum permissible total weight: The lower the total weight supported by the bike, the easier it will be to ride ⇒ V.III Pedelec weight, Page US-10.

Outside temperatures: The lower the outside temperatures (e.g. cold in winter), the shorter the range.

Insert the battery just before you set off to prevent low temperatures reducing the range.

Battery capacity: A significantly reduced operating time after charging indicates that the battery has lost its capacity ⇒ 7.3.1.2 Capacity, Page US-73.

The battery may have to be replaced. To replace the battery, consult your dealer.

Chosen route: Pedal faster when going uphill or into a headwind. It will be registered by the power sensor which will cause the motor to work harder.

Charging the smartphone: if you connect a smartphone to your Evo Impulse Smart display it will consume additional power.
7.4.2 Storage

1. Remove the battery from the pedelec.
2. Store the battery in a dry, but not too warm place. The battery must not be exposed to direct sunlight. The recommended storage temperature is between 32 and 68 °F.

**NOTICE**

The battery should not be stored in a fully charged state. It then ages faster. A charge level of 50–70% (●●●) is ideal. Since the battery loses charge very slowly, you should only recharge it when only one or two LEDs come on, but after six months at the latest.

7.4.3 Cleaning

**WARNING**

If you wipe the battery avoid touching the contacts, otherwise there is the risk of an electric shock.

Remove the battery from the pedelec before cleaning. There is a risk of injury due to accidental activation of the button.

Batteries must not be immersed in water. There is a risk of explosion. Do not extinguish a burning battery with water, only the surrounding burning material. Class D extinguishers (metal powder type) are better suited for this. If it is possible to take the battery safely outside, smother the fire with sand. You need have no worries that the battery beneath you could explode while you are riding in the rain– it is protected from ingress of moisture and/condensation.

**NOTICE**

Do not clean the battery with a water hose or high pressure washer. You could still damage the battery. Clean the battery with a soft, damp cloth.

Do not use any cleaners containing alcohol, solvents or that have a scouring action. Nor should you use coarse sponges or brushes; you will scratch and tarnish the surface. Clean the battery with a soft, damp cloth.

Do not let dirt dry out. Ideally, you should clean the bike straight after the trip.

1. Remove the battery from the pedelec.
2. Clean the casing with a soft, damp cloth.
3. If the contacts are dirty, clean them with a soft dry cloth.
8. Battery charger

8.1 Safety Information

**WARNING**

Battery chargers are not toys and should not be handled by children under 8 years of age. Older children must be adequately instructed in the use of the battery charger.

People (including children) who, because of their physical, sensory or intellectual capabilities, or because of their lack of experience or knowledge, are unable to use batteries, are prohibited from using them unless supervised or under the instruction of a responsible person. Otherwise there is a risk of misuse resulting in serious injuries.

Only use the correct original charger to charge the battery. The use of other battery chargers can cause explosions, serious burns and fires. Further consequences can include malfunctions and a limited battery life. You can find a list of approved batteries in § 8.3 Functions, Page US-80.

Only charge the original battery with the battery charger. The use of other batteries can cause explosions, serious burns and fires. Further consequences can include malfunctions and a limited service life. You can find a list of approved batteries in § 7.2 Technical Data, Page US-72.

Check the charger, cable and plug before each use. Do not use the charger if you detect signs of damage. Do not open the battery and only have repairs carried out by qualified personnel and with original replacement parts. There is a risk of fire and explosion. Damaged chargers, cables and plugs also increase the risk of electric shock.

**WARNING**

The charger is only intended for interior use. Do not expose the battery charger to rain and moisture. If water gets into the charger there is a risk of electric shock. If water has penetrated the casing, unplug the device immediately and have it checked out by your dealer. Sudden temperature changes from cold to warm can lead to condensation. In this case, wait about an hour, which is how long it takes until the charger has reached the temperature of the warm surroundings. You can prevent this by storing the charger in the same place where you are using it.

The charger and battery must not be covered during the charging process. Do not operate the charger and battery on a combustible surface (e.g. paper, textiles etc.) or in a combustible environment. This also applies if the battery is charged while attached to the pedelec, in which case you must position the pedelec so that a possible fire cannot easily spread (take care with carpeted floors!). The heat emitted by the charger and battery during charging represents a fire risk. Do not expose the Pedelec with battery to direct sunshine above 40 degrees. If you notice smoke or an unusual smell unplug the charger from the mains immediately and remove the battery from the charger. A overheated battery is damaged and must not be used again. Never leave operate the charger and battery unattended.

Keep batteries away from sparks and fires. It can explode causing severe burns and fires. Further consequences can include malfunctions and a reduced service life. Make sure there is sufficient ventilation when charging.
NOTICE

The mains voltage must match the supply voltage of the battery charger, otherwise there is a risk of damage to the device. The supply voltage of the battery charger is marked on the back of the device.

Do not charge batteries for a long period if they are already fully charged or are not being used. Electrical storms, voltage fluctuations and short circuits can damage the battery.

Keep the battery charger clean. If the contacts are dirty, the dirt can burn during charging, leaving burn marks. In such cases the charger must be replaced ⇒ 7.4.3 Cleaning, Page US-77.

8.2 Technical Data

<table>
<thead>
<tr>
<th>Charger Type 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Battery voltage</strong></td>
</tr>
<tr>
<td><strong>AC input voltage</strong></td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
</tr>
<tr>
<td><strong>Maximum DC output voltage</strong></td>
</tr>
<tr>
<td><strong>Maximum charging current</strong></td>
</tr>
<tr>
<td>**Dimensions ( L</td>
</tr>
<tr>
<td><strong>Permitted ambient temperature range during charging</strong></td>
</tr>
<tr>
<td><strong>Storage temperature</strong></td>
</tr>
<tr>
<td><strong>Recommended storage temperature</strong></td>
</tr>
<tr>
<td><strong>Weight</strong></td>
</tr>
</tbody>
</table>

**Protection class**

The charger is only intended for interior use. Do not expose the battery charger to rain and moisture. If water gets into the charger there is a risk of electric shock.
Type 2 charger

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery voltage</td>
<td>36 V</td>
</tr>
<tr>
<td>AC input voltage</td>
<td>110 – 240 V</td>
</tr>
<tr>
<td>Frequency</td>
<td>50 - 60 Hz</td>
</tr>
<tr>
<td>Maximum DC output voltage</td>
<td>42 V</td>
</tr>
<tr>
<td>Maximum charging current</td>
<td>4 A</td>
</tr>
<tr>
<td>Dimensions (L</td>
<td>W</td>
</tr>
<tr>
<td>Permitted ambient temperature range during charging</td>
<td>32 to 104 °F</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>14 to 122 °F</td>
</tr>
<tr>
<td>Recommended storage temperature</td>
<td>65 to 73 °F</td>
</tr>
<tr>
<td>Weight</td>
<td>1.66 lbs</td>
</tr>
<tr>
<td>Protection class</td>
<td>The charger is only intended for interior use. Do not expose the battery charger to rain and moisture. If water gets into the charger there is a risk of electric shock.</td>
</tr>
</tbody>
</table>

The symbols on the charger display can vary. If you are not sure about the meaning of the symbols ask your dealer.

8.3 Functions

8.3.1 Charging the battery

**WARNING**

Read and follow the information on the charger specification plate, otherwise there is a risk of misuse resulting in serious injuries.

Damaged batteries may not be charged.

The battery can remain on the pedelec during charging or you can remove the battery and charge it elsewhere.

Type 1 charger

1. Remove the protective cap from the battery.
2. Insert the battery into the charger until it clicks into place.
3. Insert the mains plug into a power outlet.
4. Once the battery is charged, all five LEDs light up on the battery continuously. No LED blinks.
5. Remove the main plug from the power outlet after charging.
6. Remove the charging cable from the battery charging socket.
Type 2 charger

1. Connect power cord to the charger.

2. Remove the protective cap from the battery.

3. Insert the battery into the charger until it clicks into place.

4. Insert the mains plug into a power outlet. The green LED flashes steadily ⚡ signaling that the charging process has started.

If the battery remains connected, the charger checks at irregular intervals whether the battery is full. When this occurs, the LED on the charger starts flashing again. After checking and finding that the battery is fully charged, the charger will switch back to “Permanently On”.

5. The charger switches off once the battery is fully charged. The green LED is permanently on ⚡. All five LEDs ⚡ on the battery are permanently on. No LED blinks.

6. Remove the main plug from the power outlet after completing the charging process.

7. Remove the charging cable from the battery charging socket.

8.3.1.1 Battery display during charging

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
<th>Battery charge level</th>
</tr>
</thead>
<tbody>
<tr>
<td>⚡</td>
<td>5 LEDs on, no LED flashes</td>
<td>97 – 100 %</td>
</tr>
<tr>
<td>⚡☀</td>
<td>4 LEDs on and the 5th LED flashes</td>
<td>80 – 96 %</td>
</tr>
<tr>
<td>⚡☀☀</td>
<td>3 LEDs on and the 4th LED flashes</td>
<td>60 – 79 %</td>
</tr>
<tr>
<td>⚡☀☀☀</td>
<td>2 LEDs on and the 3rd LED flashes</td>
<td>40 – 59 %</td>
</tr>
<tr>
<td>⚡☀☀☀☀</td>
<td>1 LED on and the 2nd LED flashes</td>
<td>20 – 39 %</td>
</tr>
<tr>
<td>☀</td>
<td>1 LED flashing</td>
<td>0 – 19 %</td>
</tr>
</tbody>
</table>
8.4 Tips

8.4.1 Cleaning

**WARNING**

Always unplug the charger from the mains before cleaning and especially before wiping it, otherwise you could get an electric shock if you touch the contacts.

**NOTICE**

Do not immerse the charger in water. You could damage the bike.

Do not use any cleaners containing alcohol, solvents or that have a scouring action. Nor should you use coarse sponges or brushes; you will scratch and tarnish the surface. Clean the casing with a soft, damp cloth.

1. Remove the charging cable from the battery charging socket.
2. Unplug the charger from the power outlet.
3. Clean the casing with a soft, damp cloth.
4. If the contacts are dirty, clean them with a soft dry cloth.

8.4.2 Storage

1. Store the battery charger in a dry, but not too warm place. The battery charger must not be exposed to direct sunlight. The recommended storage temperature is between 32°F and 68 °F.

9. Impulse e-bike navigation app

Take a look at our film: https://youtu.be/PBwtDXuTzz8


9.1 Technical requirements

<table>
<thead>
<tr>
<th>Smartphone operating system</th>
<th>iOS ≥ 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Android</td>
<td>≥ 4.3.3</td>
</tr>
</tbody>
</table>
### 9.2 Menu structure

<table>
<thead>
<tr>
<th>Calculate route</th>
<th>Start – Destination</th>
<th>Current location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Start / Destination</td>
<td>Find location</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Location of a contact</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Location from map ⇒ 9.4.1 Location from map, Page US-85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Place of interest</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Accommodation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Place to eat/drink</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bike service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recently used location</td>
</tr>
<tr>
<td>Round trip</td>
<td>Start</td>
<td>Current location</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Find location</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Location of a contact</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Location from map ⇒ 9.4.1 Location from map, Page US-85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Place of interest</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Accommodation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Place to eat/drink</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bike service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recently used location</td>
</tr>
<tr>
<td>Record route</td>
<td></td>
<td>Every day ⇒ 9.4.2 Every day, Page US-85</td>
</tr>
<tr>
<td>My routes</td>
<td>Recorded routes</td>
<td>Leisure time ⇒ 9.4.3 Leisure time, Page US-86*</td>
</tr>
<tr>
<td></td>
<td>Noted routes</td>
<td></td>
</tr>
</tbody>
</table>
### 9.3 Installation

1. Load the Impulse Evo navigation app on to your smartphone. The app is free of charge.

   **iOS**
   
   ![iOS App Store](https://itunes.apple.com/app/id988052596)

   ![iOS QR Code](#)

   **Android**
   
   ![Android Play Store](https://play.google.com/store/apps/details?id=eu.beemo.impulse)

   ![Android QR Code](#)

2. After a successful installation the start screen is displayed on your smartphone.

9.4 Basic functions

9.4.1 Location from map

To select a location from a map, proceed as follows:

1. Select "Calculate route". You access the menu.

2. Select "Location from map".

3. Tap on the desired location with your finger. Keep it there for 2 seconds. The location is selected.

9.4.2 Every day

The right route planner to speed you to your everyday destinations. Where possible, this option gives preference to:

» Secondary routes
» Bike lanes and paths
» Short and direct routes
» Easily accessible, paved surfaces
9.4.3 Leisure time

The route planner specially for leisure and tourist activities. Where possible, this option gives preference to:

- Signposted, official themed bike trails and long-distance bike paths
- Easily accessible, paved surfaces
- Secondary routes
- Attractive countryside and landscape

10. Impulse Evo Smart display*

Take a look at our film: https://youtu.be/PBwtDXuTzz8

10.1 Show route

To display a route on your Evo Smart display, you can connect the display to a smartphone.

10.1.1 Technical requirements

You need a smartphone with the following specifications:

<table>
<thead>
<tr>
<th>Wireless technology</th>
<th>BTLE (Bluetooth Low Energy) 4.0, BTLE 4.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating system</td>
<td>iOS ≥ 7</td>
</tr>
<tr>
<td></td>
<td>Android ≥ 4.3.3</td>
</tr>
<tr>
<td>Installed app</td>
<td>Impulse E-Bike Navigation ⇒ 9.3 Installation, Page US-84</td>
</tr>
</tbody>
</table>

10.1.2 Show route

WARNING

Make sure the smartphone and smartphone charger cable are securely attached, otherwise they can get caught in rotating parts, which can cause serious falls. Ask your dealer for a suitable smartphone holder.

1. Enable Bluetooth on your mobile phone.
2. Switch on the pedelec ⇒ 6.3.1 Switching on the pedelec, Page US-51.
3. Open the Impulse E-bike Navigation app.
4. Go to "Settings".

*depending on model
5. Select "My e-bike and I".

6. Select "Connect to Impulse display". The app starts searching for the pedelec. After a short time all Bluetooth-capable pedelecs are displayed in the form of a number combination.

7. Select the pedelec that you want to connect to your smartphone. The number of your pedelec is on the back of the display. It is an 8-digit serial number. Use the last digits of the number.

8. Once you have selected the desired pedelec it is shown with a red tick-mark. The smartphone is now connected to the pedelec.
9. Now go to "Calculate route".

10. Enter the start and destination, or the round trip.

11. Select "Calculate"
The title of the route, its length (in mi.) and the journey time (in hours) are displayed.

12. Select "Start navigation"
Navigation is shown in successive steps on the Impulse Evo Smart display.
13. Select how you want to display the route on your smartphone:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Display</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="openstreetmap.org" alt="Heights" /></td>
<td><img src="openstreetmap.org" alt="As elevations" /></td>
<td>A chart provides information about the changes in elevation over the entire route. It also displays the highest and lowest points on the route and the steepest climb and descent.</td>
</tr>
<tr>
<td><img src="openstreetmap.org" alt="Map" /></td>
<td><img src="openstreetmap.org" alt="As map" /></td>
<td></td>
</tr>
<tr>
<td><img src="openstreetmap.org" alt="Overview" /></td>
<td><img src="openstreetmap.org" alt="As an overview" /></td>
<td>Display of route title, length (in mi.) and journey time (in hours).</td>
</tr>
</tbody>
</table>

**Symbol**
- Heights
- Map
- Overview

**Display**
- As elevations
- As a road book
- As map

**Meaning**
- A list of the waypoints. It is read from top downwards.
- Display of route title, length (in mi.) and journey time (in hours).
10.2 Charging the smartphone

You can charge your smartphone battery via the USB charging socket on the display.

1. Use the correct cable to connect the smartphone to the display.

| Cable type | USB-OTG (on the go) micro cable |

**WARNING**

Make sure the smartphone and smartphone charger cable are securely attached, otherwise they can get caught in rotating parts, which can cause serious falls. Ask your dealer for a suitable smartphone holder.

Whether the smartphone battery is charged depends on the energy consumption of the mobile phone. If the power consumption of the mobile phone is very high - e.g. due to many open apps (Bluetooth, WLAN, GPS) or high display brightness - the smartphone will charge very slowly. At high energy consumption levels, it is also possible that the battery charge will not increase, but that the operating life of the smartphone's battery will be extended. Once the pedelec battery is empty or the Impulse Evo system is off, the smartphone will no longer receive power.
# 11. Faults

## 11.1 Drive unit, display and control unit

<table>
<thead>
<tr>
<th>Description</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display does not light up and is not functioning, no motor assist.</td>
<td>a) Battery is in sleep mode.</td>
<td>a) Wake battery from sleep mode ⇒ 7.3.1.3 Sleep mode, Page US-74. If the battery does not respond, briefly connect it to the battery charger ⇒ 8.3.1 Charging the battery, Page US-80.</td>
</tr>
<tr>
<td></td>
<td>b) The battery is not charged/defective</td>
<td>b) Insert a new or fully charged battery ⇒ 8.3.1 Charging the battery, Page US-80.</td>
</tr>
<tr>
<td></td>
<td>c) The pedelec is OFF. The Impulse Evo switches itself off after 20 minutes if there is no call for power from the drive (e.g. because the pedelec is stationary).</td>
<td>c) Switch on the pedelec ⇒ 6.3.1 Switching on the pedelec, Page US-51.</td>
</tr>
<tr>
<td></td>
<td>d) Ambient temperature is too high/low.</td>
<td>d) The battery has an operating temperature range from 32 to 104 °F.</td>
</tr>
<tr>
<td>There is no speed display</td>
<td>a) The spoke magnet has slipped.</td>
<td>a) Check whether the spoke magnet has slipped. It should be as close as possible to the sensor on the chain stay (max. 0.39 inches). Align the magnet on the mark on the speed sensor.</td>
</tr>
<tr>
<td></td>
<td>b) The speed sensor is faulty.</td>
<td>b) Contact your dealer. He will be able to replace the speed sensor.</td>
</tr>
<tr>
<td></td>
<td>c) Spoke magnet missing</td>
<td>c) Contact your dealer. He can fit a new spoke magnet to your pedelec.</td>
</tr>
<tr>
<td></td>
<td>d) Speeds below 6.21 mph are not always displayed due to the inertia of the system.</td>
<td>d) Check whether a speed is displayed when riding at a higher speed. If that is the case, the display is not faulty.</td>
</tr>
<tr>
<td>Speed display incorrect</td>
<td>a) Incorrect unit set</td>
<td>a) Check the mph and km/h settings ⇒ 6.4.2.7 Unit, Page US-61.</td>
</tr>
<tr>
<td></td>
<td>b) Wheel circumference setting incorrect.</td>
<td>b) Set the correct wheel circumference ⇒ 6.4.2.12 Wheel circumference, Page US-62.</td>
</tr>
<tr>
<td>Description</td>
<td>Cause</td>
<td>Remedy</td>
</tr>
<tr>
<td>-------------------------------------------------------</td>
<td>-------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Some of the display is missing</td>
<td>The display is faulty.</td>
<td>Enable the test display ⇓ 6.4.2.20 Version, Page US-65. The display may have to be replaced. Please ask your dealer.</td>
</tr>
<tr>
<td>Display lighting not working</td>
<td>The display is faulty.</td>
<td>Please ask your dealer. The display may have to be replaced.</td>
</tr>
<tr>
<td>There is mist in the display</td>
<td>Moisture has got in.</td>
<td>Dry out the pedelec complete with display at room temperature (66 to 69 °F). If the display still has some mist in it, contact your dealer. The display may have to be replaced.</td>
</tr>
<tr>
<td>The smartphone does not connect with the Impulse Evo Smart display</td>
<td>a) Your smartphone is not equipped to connect with the Impulse Evo Smart display.</td>
<td>a) Check the technical specification of your smartphone ⇓ 9.1 Technical requirements, Page US-82.</td>
</tr>
<tr>
<td></td>
<td>b) The pedelec software is not up to date.</td>
<td>b) Contact your dealer for a software update.</td>
</tr>
<tr>
<td></td>
<td>c) The distance between the smartphone and display is too great.</td>
<td>c) Reduce the distance between the smartphone and display to a maximum of 9,84 feet.</td>
</tr>
<tr>
<td></td>
<td>d) The Bluetooth module on the display is faulty.</td>
<td>d) Please ask your dealer.</td>
</tr>
<tr>
<td></td>
<td>e) The Impulse E-bike Navigation app is out of date.</td>
<td>e) Download the latest version of the Impulse E-bike Navigation app ⇓ 9.3 Installation, Page US-84.</td>
</tr>
<tr>
<td></td>
<td>f) The smartphone has &quot;crashed&quot;.</td>
<td>f) Switch off the smartphone (if necessary take out the smartphone battery and replace it again) and restart.</td>
</tr>
<tr>
<td></td>
<td>g) The Bluetooth function of your smartphone is not enabled.</td>
<td>g) Enable the Bluetooth function on your smartphone.</td>
</tr>
<tr>
<td>Motor assist level is too weak</td>
<td>a) Climb Assist is set too low.</td>
<td>a) Change the value ⇓ 6.4.2.15 Climb assist, Page US-64.</td>
</tr>
<tr>
<td></td>
<td>b) Empty battery</td>
<td>b) Insert new/charged battery ⇓ 8.3.1 Charging the battery, Page US-80</td>
</tr>
<tr>
<td></td>
<td>b) Ride profile is set too low</td>
<td>b) Change the ride profile ⇓ 6.4.2.16 Ride profile, Page US-64.</td>
</tr>
<tr>
<td>Motor idles</td>
<td>a) Gear changing is not properly set</td>
<td>a) Check the setting. If necessary, ask your dealer.</td>
</tr>
<tr>
<td></td>
<td>b) Chain/belt has come off</td>
<td>b) Lift the chain/belt on to the sprocket and adjust the tension. If necessary, ask your dealer ⇓ 3.7.1 Chain tension, Page US-29 ⇓ 3.8.1 Belt tension, Page US-31.</td>
</tr>
<tr>
<td>Description</td>
<td>Cause</td>
<td>Remedy</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Power assist sporadically cuts out</td>
<td>a) The spoke magnet has slipped.</td>
<td>a) Check whether the spoke magnet has slipped. It should be as close as possible to the sensor on the chain stay (max. 0.39 inches). Align the magnet on the mark on the speed sensor.</td>
</tr>
<tr>
<td></td>
<td>b) Climb Assist is set too high.</td>
<td>b) Change the value ⇒ 6.4.2.15 Climb assist, Page US-64.</td>
</tr>
<tr>
<td>Motor noise</td>
<td>a) There are various reasons for motor noise – it is not always due to a mechanical fault. For example, the following factors can increase noise:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>» Excessively high cadence with a low load.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>» Very high assist level (e.g. riding uphill).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>» Derailleur gear (as opposed to a hub gear).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) Defective pedals</td>
<td>d) Replace pedals ⇒ 3.1 Attaching the pedals, Page US-20.</td>
</tr>
<tr>
<td>Buttons on the easy-reach control don’t work.</td>
<td>Easy-reach control is defective.</td>
<td>Ask your dealer. The easy-reach control may need to be replaced.</td>
</tr>
<tr>
<td>The system hangs in a mode</td>
<td></td>
<td>Ask your dealer. The shift sensor may need to be replaced.</td>
</tr>
<tr>
<td>Shift sensor doesn’t work</td>
<td></td>
<td>Ask your dealer. The shift sensor may need to be replaced.</td>
</tr>
<tr>
<td>Push assist too weak.</td>
<td>a) Software out of date.</td>
<td>Ask your dealer. He can load the latest system software.</td>
</tr>
<tr>
<td></td>
<td>b) Shift cable threaded incorrectly.</td>
<td>Ask your dealer.</td>
</tr>
<tr>
<td>Error message</td>
<td>Cause</td>
<td>Remedy</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>--------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>&quot;Motor setting cannot be interrogated!&quot;</td>
<td>Faulty cable connection</td>
<td>c) Contact your dealer. He can check the cable connection and repair it if necessary.</td>
</tr>
<tr>
<td>&quot;Check speed sensor&quot;</td>
<td>a) The spoke magnet has slipped.</td>
<td>a) Check whether the spoke magnet has slipped. It should be as close as possible to the sensor on the chain stay (max. 0.39 inches).</td>
</tr>
<tr>
<td></td>
<td>b) The speed sensor is faulty.</td>
<td>b) Contact your dealer. He will be able to replace the speed sensor.</td>
</tr>
<tr>
<td></td>
<td>c) Spoke magnet missing</td>
<td>c) Contact your dealer. He will be able to replace the spoke magnet.</td>
</tr>
<tr>
<td></td>
<td>d) Assist is being requested while stationary.</td>
<td>d) The message should disappear when the speed exceeds 3.73 mph.</td>
</tr>
<tr>
<td>&quot;Back pedal sensor: \n\hardware fault&quot;</td>
<td>The back pedal sensor is faulty.</td>
<td>c) Contact your dealer. The battery motor may have to be replaced.</td>
</tr>
<tr>
<td>&quot;Waiting for drive&quot;</td>
<td>The motor is not ready yet.</td>
<td>The message should disappear after 5 or 6 seconds.</td>
</tr>
<tr>
<td>&quot;36 V battery voltage not found&quot;</td>
<td>a) No connection to battery.</td>
<td>a) Remove battery and reinsert it.</td>
</tr>
<tr>
<td></td>
<td>b) Dirty contacts</td>
<td>b) Clean the battery discharge plug and docking station contacts with a soft, dry cloth.</td>
</tr>
<tr>
<td></td>
<td>c) The battery is damaged.</td>
<td>c) <strong>Damaged batteries must not be charged or used for any other purpose.</strong> Please ask your dealer; the battery may have to be replaced.</td>
</tr>
<tr>
<td></td>
<td>d) Battery not charged.</td>
<td>d) Charge the battery.</td>
</tr>
<tr>
<td>&quot;Rotor magnet fault&quot;</td>
<td>The motor unit is faulty</td>
<td>c) Contact your dealer. The battery motor may have to be replaced.</td>
</tr>
<tr>
<td>&quot;Rotor sensor fault&quot;</td>
<td>The motor unit is faulty</td>
<td>c) Contact your dealer. The battery motor may have to be replaced.</td>
</tr>
<tr>
<td>&quot;Back pedal sensor/range error&quot;</td>
<td>The back pedal sensor is faulty.</td>
<td>c) Contact your dealer. The battery motor may have to be replaced.</td>
</tr>
<tr>
<td>Start data transmission failed</td>
<td>Data transmission fault</td>
<td>1. Switch the system off and on again three times ⇒ 6.3 Overview and basic functions, Page US-50.</td>
</tr>
<tr>
<td>Data transmission initialization failed</td>
<td></td>
<td>1. Switch the system off and on again ⇒ 6.3 Overview and basic functions, Page US-50. If the error message occurs again contact your dealer; the system software might need updating.</td>
</tr>
<tr>
<td>Data transmission failed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completion of data transmission failed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Errors Address outside the valid range</td>
<td>Possibly outdated software version</td>
<td>1. Switch the system off and on again ⇒ 6.3 Overview and basic functions, Page US-50. If the error message occurs again contact your dealer; the system software might need updating.</td>
</tr>
</tbody>
</table>
## 11.2 Battery

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>🚩 🚩 🚩 🚩 🚩</td>
<td>5 LEDs rapidly flashing</td>
<td>a) The battery is not charged and is disabled.</td>
<td>a) If the battery is not charged, it will work again briefly after a short recovery period, then switch off again. It must be charged now ⇒ 8.3.1 Charging the battery, Page US-80.</td>
</tr>
<tr>
<td>🚩</td>
<td>The first LED flashes rapidly</td>
<td>b) The battery is overloaded</td>
<td>b) If the battery is overloaded, it switches itself on again after a short rest period and can used again as normal.</td>
</tr>
<tr>
<td>🚩</td>
<td></td>
<td>c) The battery is too cold or too hot.</td>
<td>c) The operating temperature range of the battery is 23 to 104 °F.</td>
</tr>
<tr>
<td>🚩</td>
<td>After pushing the battery button no LED lights up.</td>
<td>The battery is defective.</td>
<td>Ask your dealer. The battery must be replaced.</td>
</tr>
<tr>
<td></td>
<td>The range appears too short</td>
<td>a) The range depends on:</td>
<td>a) The are many reasons why the range may seem low ⇒ 7.4.1 Range, Page US-76.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Ride profile</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Assist mode:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Tire pressure:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Riding style</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Your fitness level</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Total weight</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Outside temperatures</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Battery capacity</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>» The selected route</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Smartphone charging via the display</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) A learning cycle has not been carried out</td>
<td></td>
</tr>
</tbody>
</table>

⚠️ **Unplug the charger from the mains immediately.** Please ask your dealer.

**Carry out a learning cycle:** You should completely run down a **fully charged** battery once until the assistance stops and without recharging in between. In that way the battery ‘learns’ its capacity, and the actual capacity will agree with the level indicated on the battery status display. Please perform a learning cycle every six months or 3100 miles. If you do not repeat this from time to time, the actual capacity of the battery will increasingly diverge from the value on the battery status display.
<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Battery key is missing</td>
<td>Order a new key: We recommend making a note of the key number on the sales receipt or proof of purchase. You can order a replacement with this number if you lose the key.</td>
<td>1. Go to the website: <a href="http://www.trelock.de">www.trelock.de</a>.  2. Select your language.  3. Select &quot;Service&quot;, then menu item &quot;Replacement key&quot;.  4. Follow the instructions.  If you have lost the key number, the only option is to replace the lock. Please ask your dealer about this.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a) High ambient temperatures.</td>
<td>a) Stop charging immediately and let the battery cool down. Then resume charging in a cooler environment. If this problem keeps reoccurring please contact your dealer; the battery may have to be replaced.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) Damaged battery.</td>
<td>b) <strong>Damaged batteries must not be charged or used for any other purpose.</strong> Please ask your dealer; the battery may have to be replaced.</td>
</tr>
<tr>
<td></td>
<td>Battery heats up to when charging</td>
<td>a) High ambient temperatures.</td>
<td>a) You can charge the battery at ambient temperatures of between 32 and 104 °F.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) Damaged battery.</td>
<td>b) <strong>Damaged batteries must not be charged or used for any other purpose.</strong> Please contact your dealer; the battery may have to be replaced.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c) Battery charger faulty.</td>
<td>c) Have the battery checked out by your dealer; the battery may have to be replaced.</td>
</tr>
<tr>
<td></td>
<td>Battery cannot be recharged</td>
<td>a) Ambient temperature to high or too low.</td>
<td>a) You can charge the battery at ambient temperatures of between 32 and 104 °F.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) Damaged battery.</td>
<td>b) <strong>Damaged batteries must not be charged or used for any other purpose.</strong> Please contact your dealer; the battery may have to be replaced.</td>
</tr>
<tr>
<td></td>
<td>The battery is damaged</td>
<td>Accident /fall with pedelec or the battery has been dropped.</td>
<td><strong>Damaged batteries must not be charged or used for any other purpose.</strong> Please contact your dealer; the battery may have to be replaced.</td>
</tr>
<tr>
<td></td>
<td>Battery does not &quot;wake up&quot; from sleep mode</td>
<td>a) Battery is not charged.</td>
<td>a) Briefly charge the battery.  a) If the battery still does not respond or the LEDs flash in an unusual way the battery is damaged and must be removed from the charger.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) Damaged battery.</td>
<td>b) <strong>Damaged batteries must not be charged or used for any other purpose.</strong> Please contact your dealer; the battery may have to be replaced.</td>
</tr>
</tbody>
</table>
### 11.3 Battery charger

**Type 1 charger**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
</table>
| Charger gets hotter than 185 °F. | Ambient temperature too high, direct sunlight | 1. Unplug the charger from the mains immediately and let it cool down.  
**Unplug the charger from the mains immediately.** Please ask your dealer.  
2. Continue the charging process when the charger has cooled down.  
3. If the problem reoccurs, please ask your dealer; the charger may have to be replaced. |
|             |                            | Permitted ambient temperature range during charging: 32 to 104 °F.      |
|             |                            |                                                                        |
| Damaged charger | Please ask your dealer; the charger may have to be replaced.         |                                                                        |

**Type 2 charger**

<table>
<thead>
<tr>
<th>Display</th>
<th>Description</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>![sun]</td>
<td>The red LED flashes</td>
<td>There is a charging fault.</td>
<td><strong>Unplug the charger from the mains immediately.</strong> Please ask your dealer.</td>
</tr>
</tbody>
</table>

### 12. Torque settings

**WARNING**

Only use proper tools to tighten screws and bolts. Observe the specified torque setting. The component manufacturer's torque settings take precedence (where available). Failure to comply can result in screws/bolts becoming loose, tearing away or fracturing. If that happens while riding the bike, components may come off and you could have a severe crash. If fixings are overtightened other components can also be damaged. Tighten all safety-relevant screws and bolts with a torque wrench. This indicates the corresponding torque in newton meters (Nm) or foot pound [ft·lb].

**Correct tightening force on fasteners – nuts, bolts, screws— on your bike is important.** Too little force and the fastener may not hold securely. Too much force and the fastener can strip threads, stretch, deform or break. Either way, incorrect tightening force can result in component failure, which can cause you to lose control and fall.

**Correctly tightening a fastener requires a calibrated torque wrench. A professional bike mechanic with a torque wrench should torque the fasteners on your bike.** If you choose to work on your own bike, you must use a torque wrench and the correct tightening torque specifications from the bike or component manufacturer or from your dealer. If you need to make an adjustment at home or in the field, we urge you to exercise care, and to have the fasteners you worked on checked by your dealer as soon as possible.
**WARNING**

Correct tightening torque of threaded fasteners is very important to your safety. Always tighten fasteners to the correct torque. In case of a conflict between the instructions in this manual and information provided by a component manufacturer, consult with your dealer or the manufacturer’s customer service representative for clarification. Bolts that are too tight can stretch and deform. Bolts that are too loose can move and fatigue. Either mistake can lead to a sudden failure of the bolt.

Always use a correctly calibrated torque wrench to tighten critical fasteners on your bike. Carefully follow the torque wrench manufacturer’s instructions on the correct way to set and use the torque wrench for accurate results.

If no values are shown on the component or component manuals, use the torque settings from the following table.

<table>
<thead>
<tr>
<th>Screw fixing</th>
<th>Thread</th>
<th>Tightening torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedal crank screw</td>
<td>M6</td>
<td>10 ( \text{Nm} ) 7.4 ( \text{ft}\cdot\text{lb} )</td>
</tr>
<tr>
<td>Pedal crank arm</td>
<td>M6</td>
<td>12 – 14 ( \text{Nm} ) 8.9 - 10.3 ( \text{ft}\cdot\text{lb} )</td>
</tr>
<tr>
<td>Pedal</td>
<td>9/16</td>
<td>40               29.5</td>
</tr>
<tr>
<td>Front axle nut</td>
<td>General</td>
<td>25 – 30 ( \text{Nm} ) 18.4 - 22.1</td>
</tr>
<tr>
<td>Rear axle nut</td>
<td>General</td>
<td>35 – 40 ( \text{Nm} ) 25.8 - 29.5</td>
</tr>
<tr>
<td>Stem cone</td>
<td>M8</td>
<td>23               17</td>
</tr>
<tr>
<td>Ahead stem angle adjustment</td>
<td>M6</td>
<td>8 – 10 ( \text{Nm} ) 5.9 - 7.4</td>
</tr>
<tr>
<td>Ahead stem handlebar clamp</td>
<td>M5 / M6 / M7</td>
<td>M5: 5 / M6: 10 / M7: 14 ( \text{Nm} ) 5.9 - 7.4 / M7: 10.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Screw fixing</th>
<th>Thread</th>
<th>Tightening torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ahead stem steerer tube</td>
<td>M5 / M6 / M7</td>
<td>M5: 5 / M6: 10 / M7: 14 ( \text{Nm} ) 5.9 - 7.4 / M7: 10.3</td>
</tr>
<tr>
<td>Bar end, external clamp</td>
<td>M5 / M6</td>
<td>M5: 5 / M6: 10 ( \text{Nm} ) 5.9 - 7.4</td>
</tr>
<tr>
<td>Saddle clamp bottom</td>
<td>M5 / M6 / M8</td>
<td>M5: 5 / M6: 10 / M8: 20 ( \text{Nm} ) 5.9 - 7.4 / M8: 14.8</td>
</tr>
<tr>
<td>Saddle clamp top</td>
<td>M5 / M6 / M7 / M8</td>
<td>M5: 5.5 / M6: 5.5 / M7: 14 / M8: 20 ( \text{Nm} ) 5.9 - 7.4 / M7: 10.3 / M8: 14.8</td>
</tr>
<tr>
<td>Rim brake shoe</td>
<td>M6</td>
<td>10               7.4</td>
</tr>
<tr>
<td>Sliding drop-outs</td>
<td>M10</td>
<td>16               11.8</td>
</tr>
<tr>
<td>Disc brake calliper, Shimano IS and PM</td>
<td>M6</td>
<td>6 – 8 ( \text{Nm} ) 4.4 - 5.9</td>
</tr>
<tr>
<td>Disc brake calliper, Avid IS and PM</td>
<td>M6</td>
<td>8 – 10 ( \text{Nm} ) 5.9 - 7.4</td>
</tr>
<tr>
<td>Disc brake calliper, Magura IS and PM</td>
<td>M6</td>
<td>6               4.4</td>
</tr>
<tr>
<td>Gear lever clamp</td>
<td>M5</td>
<td>5                3.7</td>
</tr>
<tr>
<td>Brake lever clamp</td>
<td>M5</td>
<td>Ref. manufacturer's spec. -</td>
</tr>
<tr>
<td>Cassette fixing ring</td>
<td>N/A</td>
<td>30 – 40 ( \text{Nm} ) 22.1 - 29.5</td>
</tr>
<tr>
<td>Screw-on handlebar plugs</td>
<td>M4 / M5</td>
<td>M4: 3 / M5: 5 ( \text{Nm} ) 2.2 / M5: 3.7</td>
</tr>
<tr>
<td>Motor housing</td>
<td>M5</td>
<td>5.9              -</td>
</tr>
<tr>
<td>Motor bolts</td>
<td>M8</td>
<td>25               -</td>
</tr>
<tr>
<td>Luggage rack</td>
<td>M5 / M6</td>
<td>M5: 5 – 6 / M6: 8 – 10 -</td>
</tr>
</tbody>
</table>
13. **Service intervals**

To ensure continued enjoyment of your bike, please adhere to the service intervals. This is also important for the following reasons:

- Regular checks are worth it for the sake of your own safety.
- Higher resale value, because the bike had been regularly serviced.
- Regular servicing saves you major repairs.
- Less likely to break down.
- Longer life.
- Peace of mind that your bike is safe and comfortable.

**Service interval 1**
After no more than 62 miles or six weeks after the purchase date.

- Screws tightened
- Wheel bearings checked and adjusted
- Bottom bracket checked
- Wheel checked and centered
- Brakes checked and adjusted
- Gears checked and adjusted
- Chain checked
- Handlebar unit checked
- Headset checked and adjusted
- Tires checked
- Test ride completed

**Parts replaced:**

---

---

**Date**       **Stamp and signature of the dealer**

**Service interval 2**
After no more than 310 miles or 6 months.

- Screws tightened
- Wheel bearings checked and adjusted
- Bottom bracket checked
- Wheel checked and centered
- Brakes checked and adjusted
- Brake pads checked for wear
- Brakes tested
- Rim wear indicator checked
- Gears checked and adjusted
- Chain checked
- Handlebar unit checked
- Headset checked and adjusted
- Tires checked
- Safety components checked and changed, if necessary
- Test ride completed
- Software version

**Parts replaced:**

---

---

**Date**       **Stamp and signature of the dealer**
### Service interval 3
After no more than 620 miles or one year.

- Screws tightened
- Wheel bearings checked and adjusted
- Bottom bracket checked
- Wheel checked and centered
- Brakes checked and adjusted
- Brake pads checked for wear
- Brakes tested
- Rim wear indicator checked
- Gears checked and adjusted
- Chain checked
- Handlebar unit checked
- Headset checked and adjusted
- Tires checked
- Safety components checked and changed, if necessary
- Test ride completed
- Software version

### Parts replaced:

______________________________________________________________

______________________________________________________________

Date ___________ Stamp and signature of the dealer

---

### Service interval 4
After no more than 1250 miles or two years.

- Screws tightened
- Wheel bearings checked and adjusted
- Bottom bracket checked
- Wheel checked and centered
- Brakes checked and adjusted
- Brake pads checked for wear
- Brakes tested
- Rim wear indicator checked
- Gears checked and adjusted
- Chain checked
- Handlebar unit checked
- Headset checked and adjusted
- Tires checked
- Safety components checked and changed, if necessary
- Test ride completed
- Software version

### Parts replaced:

______________________________________________________________

______________________________________________________________

Date ___________ Stamp and signature of the dealer

---

### Service interval 5
After no more than 1850 miles or three years.

- Screws tightened
- Wheel bearings checked and adjusted
- Bottom bracket checked
- Wheel checked and centered
- Brakes checked and adjusted
- Brake pads checked for wear
- Brakes tested
- Rim wear indicator checked
- Gears checked and adjusted
- Chain checked
- Handlebar unit checked
- Headset checked and adjusted
- Tires checked
- Safety components checked and changed, if necessary
- Test ride completed
- Software version

### Parts replaced:

______________________________________________________________

______________________________________________________________

Date ___________ Stamp and signature of the dealer
<table>
<thead>
<tr>
<th>Service interval 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>After no more than 2500 miles or four years.</td>
</tr>
<tr>
<td>⬜ Screws tightened</td>
</tr>
<tr>
<td>⬜ Wheel bearings checked and adjusted</td>
</tr>
<tr>
<td>⬜ Bottom bracket checked</td>
</tr>
<tr>
<td>⬜ Wheel checked and centered</td>
</tr>
<tr>
<td>⬜ Brakes checked and adjusted</td>
</tr>
<tr>
<td>⬜ Brake pads checked for wear</td>
</tr>
<tr>
<td>⬜ Brakes tested</td>
</tr>
<tr>
<td>⬜ Rim wear indicator checked</td>
</tr>
<tr>
<td>⬜ Gears checked and adjusted</td>
</tr>
<tr>
<td>⬜ Chain checked</td>
</tr>
<tr>
<td>⬜ Handlebar unit checked</td>
</tr>
<tr>
<td>⬜ Headset checked and adjusted</td>
</tr>
<tr>
<td>⬜ Tires checked</td>
</tr>
<tr>
<td>⬜ Safety components checked and changed, if necessary</td>
</tr>
<tr>
<td>⬜ Test ride completed</td>
</tr>
<tr>
<td>⬜ Software version</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Service interval 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>After no more than 3100 miles or five years.</td>
</tr>
<tr>
<td>⬜ Screws tightened</td>
</tr>
<tr>
<td>⬜ Wheel bearings checked and adjusted</td>
</tr>
<tr>
<td>⬜ Bottom bracket checked</td>
</tr>
<tr>
<td>⬜ Wheel checked and centered</td>
</tr>
<tr>
<td>⬜ Brakes checked and adjusted</td>
</tr>
<tr>
<td>⬜ Brake pads checked for wear</td>
</tr>
<tr>
<td>⬜ Brakes tested</td>
</tr>
<tr>
<td>⬜ Rim wear indicator checked</td>
</tr>
<tr>
<td>⬜ Gears checked and adjusted</td>
</tr>
<tr>
<td>⬜ Chain checked</td>
</tr>
<tr>
<td>⬜ Handlebar unit checked</td>
</tr>
<tr>
<td>⬜ Headset checked and adjusted</td>
</tr>
<tr>
<td>⬜ Tires checked</td>
</tr>
<tr>
<td>⬜ Safety components checked and changed, if necessary</td>
</tr>
<tr>
<td>⬜ Test ride completed</td>
</tr>
<tr>
<td>⬜ Software version</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Service interval 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>After no more than 3750 miles or six years.</td>
</tr>
<tr>
<td>⬜ Screws tightened</td>
</tr>
<tr>
<td>⬜ Wheel bearings checked and adjusted</td>
</tr>
<tr>
<td>⬜ Bottom bracket checked</td>
</tr>
<tr>
<td>⬜ Wheel checked and centered</td>
</tr>
<tr>
<td>⬜ Brakes checked and adjusted</td>
</tr>
<tr>
<td>⬜ Brake pads checked for wear</td>
</tr>
<tr>
<td>⬜ Brakes tested</td>
</tr>
<tr>
<td>⬜ Rim wear indicator checked</td>
</tr>
<tr>
<td>⬜ Gears checked and adjusted</td>
</tr>
<tr>
<td>⬜ Chain checked</td>
</tr>
<tr>
<td>⬜ Handlebar unit checked</td>
</tr>
<tr>
<td>⬜ Headset checked and adjusted</td>
</tr>
<tr>
<td>⬜ Tires checked</td>
</tr>
<tr>
<td>⬜ Safety components checked and changed, if necessary</td>
</tr>
<tr>
<td>⬜ Test ride completed</td>
</tr>
<tr>
<td>⬜ Software version</td>
</tr>
</tbody>
</table>

Parts replaced:

<table>
<thead>
<tr>
<th>Date</th>
<th>Stamp and signature of the dealer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Stamp and signature of the dealer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Stamp and signature of the dealer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Service interval 9**
After no more than 4350 miles or seven years.

- Screws tightened
- Wheel bearings checked and adjusted
- Bottom bracket checked
- Wheel checked and centered
- Brakes checked and adjusted
- Brake pads checked for wear
- Brakes tested
- Rim wear indicator checked
- Gears checked and adjusted
- Chain checked
- Handlebar unit checked
- Headset checked and adjusted
- Tires checked
- Safety components checked and changed, if necessary
- Test ride completed
- Software version

**Parts replaced:**

________________________________________

________________________________________

Date ___________________________  Stamp and signature of the dealer ___________________________

**Service interval 10**
After no more than 4900 miles or eight years.

- Screws tightened
- Wheel bearings checked and adjusted
- Bottom bracket checked
- Wheel checked and centered
- Brakes checked and adjusted
- Brake pads checked for wear
- Brakes tested
- Rim wear indicator checked
- Gears checked and adjusted
- Chain checked
- Handlebar unit checked
- Headset checked and adjusted
- Tires checked
- Safety components checked and changed, if necessary
- Test ride completed
- Software version

**Parts replaced:**

________________________________________

________________________________________

Date ___________________________  Stamp and signature of the dealer ___________________________

**Service interval 11**
After no more than 5600 miles or nine years.

- Screws tightened
- Wheel bearings checked and adjusted
- Bottom bracket checked
- Wheel checked and centered
- Brakes checked and adjusted
- Brake pads checked for wear
- Brakes tested
- Rim wear indicator checked
- Gears checked and adjusted
- Chain checked
- Handlebar unit checked
- Headset checked and adjusted
- Tires checked
- Safety components checked and changed, if necessary
- Test ride completed
- Software version

**Parts replaced:**

________________________________________

________________________________________

Date ___________________________  Stamp and signature of the dealer ___________________________
Service interval 12
After no more than 6200 miles or ten years.

- Screws tightened
- Wheel bearings checked and adjusted
- Bottom bracket checked
- Wheel checked and centered
- Brakes checked and adjusted
- Brake pads checked for wear
- Brakes tested
- Rim wear indicator checked
- Gears checked and adjusted
- Chain checked
- Handlebar unit checked
- Headset checked and adjusted
- Tires checked
- Safety components checked and changed, if necessary
- Test ride completed
- Software version

Parts replaced:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Date
Stamp and signature of the dealer