



# OWNER'S MANUAL UPDATES

The following information updates your ebike's Owner's Manual. Please read it carefully. Keep your owner's manual and any other documents that came with your ebike. All content in this update and the manual is subject to change or withdrawal without notice. Visit [www.radpowerbikes.eu/help](http://www.radpowerbikes.eu/help) to view and download the latest version. Rad Power Bikes makes every effort to ensure the accuracy of its documentation and assumes no responsibility or liability if any errors or inaccuracies appear within.

 **WARNING:** Incorrect assembly, maintenance, or use of your ebike can cause component or performance failure, loss of control, serious injury, or death. Even if you're an experienced bike rider, **you must read and understand the entire manual and any documentation provided for subcomponents or accessories before riding.** If you are not sure you have the experience, skills, and tools to correctly perform all assembly steps in the manual and the assembly video at [www.radpowerbikes.eu/help](http://www.radpowerbikes.eu/help), consult a local, certified, reputable bike mechanic.


 **WARNING:** To reduce the risk of injury, close supervision is necessary when the product is used near children.


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## Guard against rust, water damage, and corrosion

Like any vehicle used outdoors, your ebike needs care to ensure it isn't damaged by the elements. Follow these steps for a long, healthy life for your ebike:

- Store under shelter and in an upright position; avoid leaving the bike in the rain or exposed to corrosive substances such as water, salt, or de-icing substances. If exposed to rain, dry your bike afterward, and apply an anti-rust treatment to the chain and other unpainted steel surfaces.
- To clean your ebike, turn the bike and battery off and wipe the frame with a clean, damp cloth. If needed, apply a mild, non-corrosive detergent mixture to the damp cloth and wipe the frame. Dry by wiping with a clean, dry cloth. Never use high-pressure water on your bike. Wipe down your bike frequently and wipe or spray all unpainted mechanical parts with anti-rust treatment.
- If painted metal parts become scratched or chipped, use touch up paint or nail polish to prevent rust.
- Never immerse or submerge the bike or any components in water or liquid, which can damage the electrical system.
- Avoid riding on the beach, in coastal areas with high-salinity fog, or on surfaces treated with salt or de-icing compounds. Doing so exposes your bike to salt or other substances that are very corrosive. Corrosion of electrical components can lead to permanent, irreversible damage that can cause battery failure, electrical system failure, or electrical fire. Damage from corrosion is not covered under warranty.

 **WARNING:** Damage to your ebike's electrical system caused in any manner, including water intrusion, can lead to battery failure, electrical system malfunction, or electrical fire and consequent property damage, injury, or death. Follow all recommendations to minimize chance of water damage. If you have any questions, contact Rad Power Bikes Product Support.

 **WARNING:** Using a damaged battery or charger can create additional bike damage or a fire hazard. Stop using your battery and charger and contact Rad Power Bikes immediately if any of the following occur: (1) Your charger's flexible power cord or output cable or any of the electrical cables on your bike is frayed, has broken insulation, or any other signs of damage, (2) Your battery or charger is physically damaged, non-functional, or performing abnormally, (3) Your battery or charger experienced a significant impact from a fall or crash, with or without obvious signs of damage, or (4) Your charger becomes too hot to touch (it's designed to get warm with normal use), makes a funny smell, or shows other signs of overheating. Store any damaged battery or charger in a safe location and, as soon as possible, recycle or otherwise dispose of it according to local rules. Contact Rad Power Bikes if you have any questions or to purchase a compatible replacement battery or charger.

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## How the electrical system works

This ebike is equipped with two ways for a rider to use power assistance from the motor to propel the bike forward: a pedal assist system (PAS) and a twist power assist.

### HOW PEDAL ASSIST WORKS

The rider can engage the pedal assist system (PAS) while pedaling, and it will call up assistance from the motor to help propel the bike forward.

Pedal assist uses a cadence sensor built into the drivetrain of the bike. The sensor detects when the rider revolves the pedals and signals the electric motor to provide the level of pedal assistance (PAS 0-5 on most models and 0-4 on the RadRunner and RadMission) that has been selected.

### HOW THE TWIST POWER ASSIST WORKS

To engage the twist power assist while pedalling, slowly and carefully rotate the twist power assist grip backwards towards yourself. When the bike is on and you are pedalling at an adequate cadence, the twist power assist function acts as an adjustable, on-demand pedal-assistance boost. It is not designed to be used when the rider is not pedalling.

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## Do not touch the brake rotor



**WARNING:** Touching the brake rotor, which has sharp edges and can get very hot while you're riding, can cause serious injury, slicing damage, or burns. The brake rotor heats up from normal friction when the brake pads press against the brake rotor to slow or stop the bike. Touching the brake rotor with bare skin can also transfer natural oils to the rotor, which can decrease braking performance. **Do not touch the brake rotor, especially when it's in motion or after you've been riding your bike.** Touch the brake rotor only for necessary maintenance when it is cool, not moving, and while you are wearing gloves or using other appropriate protective equipment.



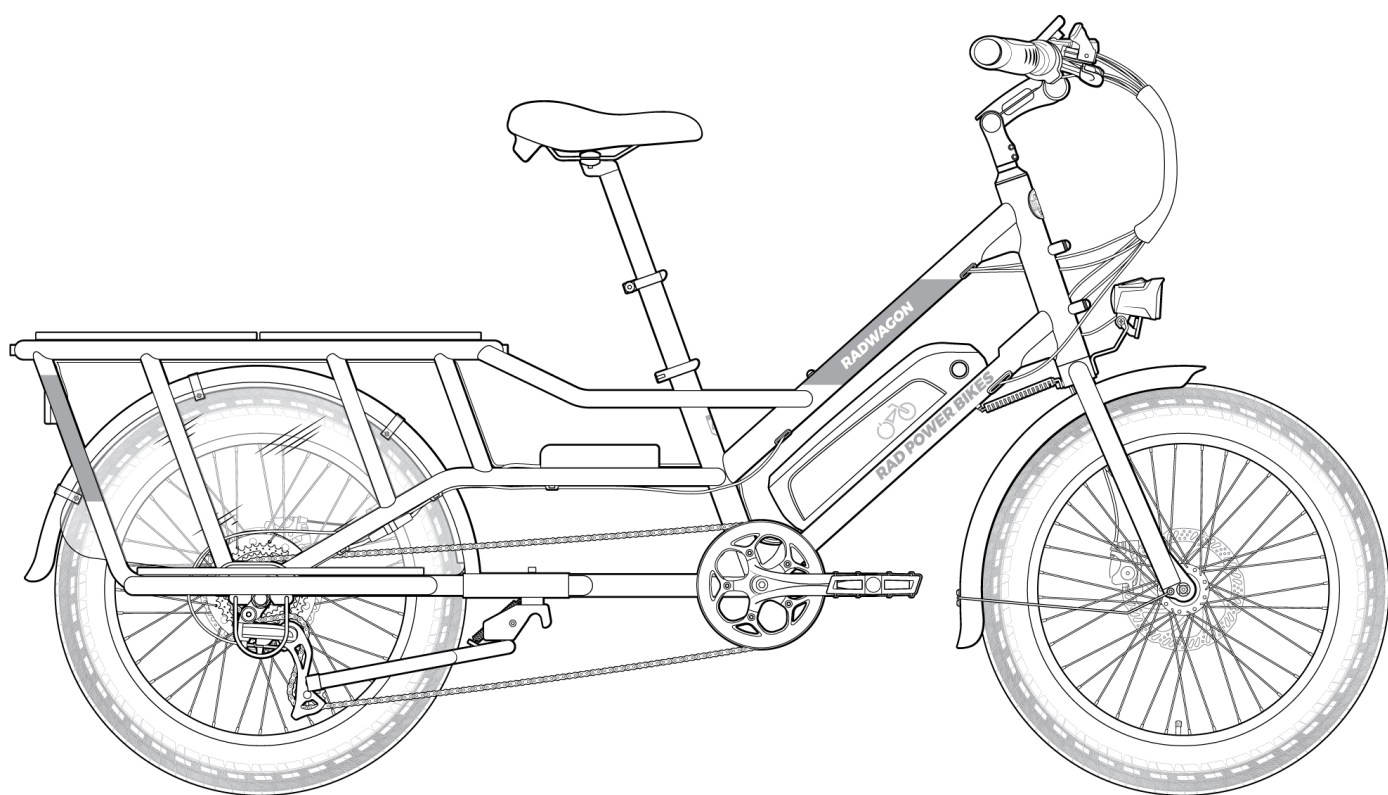
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## Warranty update

Notwithstanding the warranty information in the manual, the warranty period begins at the date of receipt of this ebike by the customer. The latest version of the warranty terms is available at [www.radpowerbikes.eu/terms](http://www.radpowerbikes.eu/terms).

# **RADWAGON®**

## **OWNER'S MANUAL**



# Welcome!

Thank you for purchasing the RadWagon® 4 from Rad Power® Bikes!

We take pride in bringing you a quality product that will offer years of enjoyment. Please read and understand this manual fully before assembling and riding your bike, and check out the official RadWagon assembly video in the “Help Centre” section of the Rad Power Bikes website ([www.radpowerbikes.eu/help](http://www.radpowerbikes.eu/help)).

Be sure to check all hardware for correct torque (see [“Tools and recommended torque values” on page 9](#)) during assembly. Before each ride, follow the recommendations in the [“Safety checklists” on page 20](#). Finally, take care of your new RadWagon by following the guidelines in [“Recommended service intervals” on page 22](#). If you’re not sure you have the skills, experience, and special tools required for assembly and maintenance, get help from a local, certified, and reputable bike mechanic.

## We are here to help!

If you have questions after reading this manual and watching the assembly video, please consult the Rad Power Bikes Help Centre, contact us by email, and/or give us a call on the phone. **Thanks for riding Rad!**

Rad Power Bikes

Help Centre: [www.radpowerbikes.eu/help](http://www.radpowerbikes.eu/help)

Phone: +31-85 7470430

Email: [eu-support@radpowerbikes.com](mailto:eu-support@radpowerbikes.com)

## Contents

Using this manual .....	2
Assembly instructions for the RadWagon 4 .....	2
Adjusting for comfort and safety .....	6
Tools and recommended torque values .....	9
Battery information .....	10
Operation .....	13
Maintenance .....	20
Troubleshooting .....	26
Ride as safely as possible .....	27
Limited warranty and other terms .....	30

# Using this manual

This manual contains critical details about how to safely operate and maintain your RadWagon. Read it carefully and familiarize yourself with your ebike before riding it. Pay special attention to the safety messages shown here.

**NOTICE:** A “notice” is important information that can help you avoid bike/property damage or extend the life of parts and the bike.



**CAUTION:** A “caution” statement indicates a hazardous situation that, if not avoided, could result in minor or moderate injury or property damage.



**WARNING:** A “warning” statement indicates a hazardous situation that, if not avoided, could result in death, serious injury, or property damage.



**DANGER:** A “danger” statement indicates a hazardous situation that, if not avoided, has a very high risk of death, serious injury, or property damage.

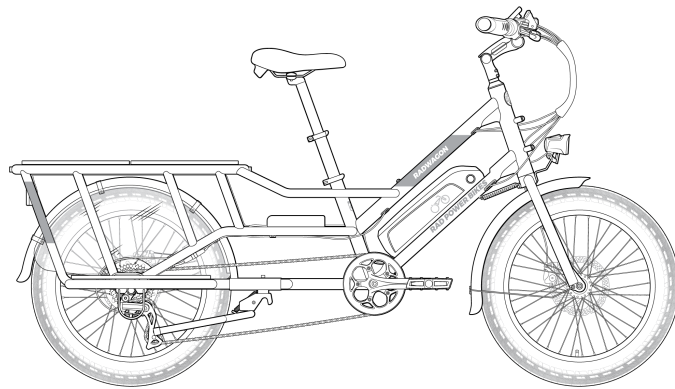
Riding any bike or other vehicle always involves some risk of serious injury or death. Your safety depends on many factors including your bike knowledge, your bike’s maintenance, foreseeable riding conditions, etc. There are also factors we cannot control or anticipate in every situation or condition while riding. This manual makes no representations about the safe use of bikes under all conditions. If you have any questions you should contact Rad Power Bikes immediately.

Assembly and first adjustment of your bike from Rad Power Bikes requires special tools and skills. We recommend that you have this done by a certified, reputable bike mechanic.

Keep this manual and any other documents that came with your RadWagon. All content in this manual is subject to change or withdrawal without notice. Visit [www.radpowerbikes.eu/help](http://www.radpowerbikes.eu/help) to view and download the latest version. Rad Power Bikes makes every effort to ensure the accuracy of its documentation and assumes no responsibility or liability if any errors or inaccuracies appear within.

## Assembly instructions for the RadWagon 4

The following steps provide an overview of how to assemble your RadWagon 4 from Rad Power Bikes. They are not a complete or comprehensive manual of all aspects of assembly, maintenance, and repair, which involve specialized tools and skills. We recommend you consult a certified, reputable bike mechanic to assist in the assembly, repair, and maintenance of your RadWagon.



Fully assembled RadWagon 4

**WARNING:** Incorrect assembly, maintenance, or use of your RadWagon can cause component or performance failure, loss of control, serious injury, or death. Even if you’re an experienced bike rider, **you must read and understand the entire manual and any documentation provided for subcomponents or accessories before riding.** If you are not sure you have the experience, skills, and tools to correctly perform all assembly steps in the manual and the assembly video at [www.radpowerbikes.eu/help](http://www.radpowerbikes.eu/help), consult a local, certified, reputable bike mechanic.

1. **Unpack the bike.** Open the bike box and, with the help of another person capable of safely lifting a heavy object, remove the RadWagon from the bike box, placing it upright on the back wheel and front fork protector plate. Carefully remove the packaging material protecting the bike frame and components, and keep the packaging materials in case you want to ship the bike. Otherwise, recycle these materials, especially cardboard and foam, wherever possible. Carefully place the handlebar on the ground in front of the front fork. Remove the small box from the bottom of the bike box and carefully set out the contents. **Ensure all of the following pieces are included with the RadWagon:**

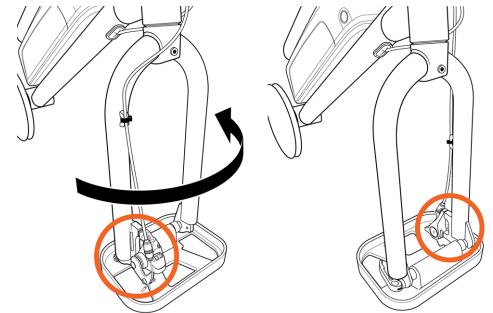
- Front wheel
- Front fender/mudguard and mounting hardware
- Kickstand and mounting hardware
- Headlight
- Assembly toolkit
- Charger
- Pedals (left and right)
- Keys (two, identical)
- Manual(s)
- Front wheel quick release (in fork protector plate)
- Deflopilator spring and hardware

If anything is missing, please contact Rad Power Bikes.

We also recommend the following (not included) for assembly and maintenance:

- A strong friend
- Flat-side cutters
- 15 mm pedal wrench
- Bicycle grease
- Clean shop towel or paper towel for cleaning excess grease
- Bike pump with Schrader valve and pressure gauge
- Torque wrench (3 Nm-60 Nm) with Allen bits

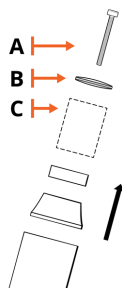
2. **Rotate the front fork.** The front fork comes in the shipping box rotated so it's facing backwards (this helps it fit in the box), as shown in the illustration. Rotate the fork so it faces forwards. When the fork is correctly positioned, the brake calliper (circled in orange) will be on the rider's left side (the non-drivetrain side of the bike, without the chain). Cables should also not be twisted around the headtube.



Left: The front fork as it ships, facing backwards.

Right: The front fork after rotation. Note the brake caliper circled in orange.

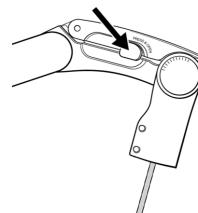
3. **Install the handlebar and stem.** The RadWagon 4 comes with a handlebar stem ("stem") that lets you adjust the handlebar height and angle without tools. Installation requires an extra-long 5 mm Allen wrench included in the assembly toolkit. Install the stem and handlebar following the steps below. For more information, view the assembly video at [www.radpowerbikes.eu/help](http://www.radpowerbikes.eu/help).



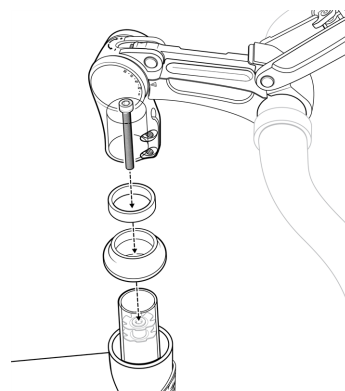
Top cap removal

- Remove the top cap from the steerer tube** (as shown in the "Top cap removal" illustration). Find the top cap on the steerer tube and use a 5 mm Allen wrench to loosen and remove the temporary top-cap bolt from the steerer tube. Set aside the temporary top-cap bolt (A), the top cap (B), and the temporary spacer (C) with other packaging materials. Retain in case you ever need to ship your bike; otherwise recycle according to local rules.
- Remove any remaining packaging** from the steerer tube and handlebar.
- Orient the handlebar and stem.** Ensure the controls and display face the rider and that the cables aren't twisted, as shown in the assembly video at [www.radpowerbikes.eu/help](http://www.radpowerbikes.eu/help).

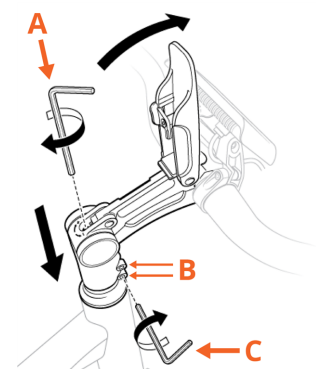
d. **Secure the stem to the steerer tube.** Open the stem adjustment lever by pressing the stem release button (see the illustration "[Stem release button](#)") while pulling upwards on the lever. Slide the stem into the steerer tube with the spacer components retained previously (see the illustration "[Slide stem onto steerer tube](#)"). Tighten the stem onto the steerer tube by hand as far as it can go.



Stem release button



Slide stem onto steerer tube

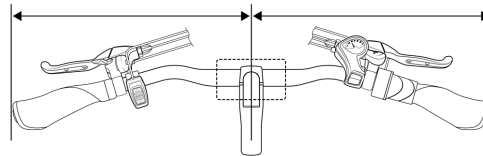


Tighten stem

e. **Tighten the top cap bolt.** See "A" in the illustration "[Tighten stem](#)". Use an extra long Allen wrench to tighten the top cap bolt until the gap between the bottom of the stem and the spacers has closed, and just until the spacers cannot spin. Do not overtighten.

- f. **Achieve ideal headset tightness.** Your headset should be tightened enough so that there's no forward or backward play inside the headset and loose enough that the handlebar and wheel can turn freely. For more information, see the "Fine-tune the headset tightness" section in ["Adjusting for comfort and safety" on page 6](#).
  - g. **Tighten the stem clamp bolts evenly.** The stem clamp bolts on the side of the stem are labelled "B" in the illustration ["Tighten stem"](#). Use a 5 mm Allen wrench ("C" in the illustration ["Tighten stem"](#)) to tighten the top clamp bolt until you feel some resistance. Repeat with the bottom bolt. Then alternate between the two bolts, tightening each a quarter turn at a time, until both are torqued to 10 Nm.
  - h. **Close and secure the stem adjustment lever** until the stem release button clicks into the locked position. One hand needs to press the stem release button while the other hand is open, palm down, closing the stem adjustment lever. Be sure to keep fingers, hair, clothing and other items away the lever's underside to avoid pinches. Ensure the stem adjustment lever is centred. See ["Handlebar and stem adjustment lever centred" below](#). Test that it is fully secure by trying to pull up on the lever. The lever should not open unless you press the stem release button.
4. **Adjust the position of the handlebar and stem.**

- a. **Open the stem adjustment lever and adjust the handlebar angle** so that the handlebar is roughly parallel with the top of the rear rack. Make sure to stay within the angle range markings on the side of the stem.

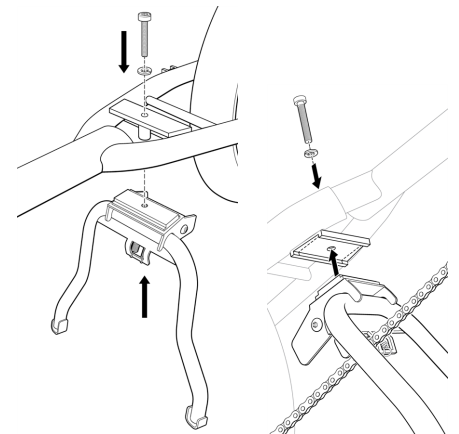


**Handlebar and stem adjustment lever centred**

- b. **Centre the handlebar on the stem** as shown in the illustration.
- c. **Close the stem adjustment lever.** Push down on the stem adjustment lever with one hand while the other hand pushes the stem release button. When the lever is closed properly, the lever should be centred over the stem, the release button should click into the locked position, and the stem and handlebar should feel secure.
- d. **Check that the stem adjustment lever is secure.** Without touching the stem release button, pull up on the stem adjustment lever. The lever should not open if properly secured.

**Note:** Finish assembling the rest of the bike as described below. Afterwards you will need to fine-tune the positioning of the stem and handlebar as described in the next section, ["Adjusting for comfort and safety" on page 6](#).

**CAUTION:** Fingers, hair, and other objects can get pinched in the stem adjustment lever when it's closing. You can prevent this by closing the lever with one hand pressing the stem release button and the other hand pressing the lever. Push down firmly on the lever with an open hand while keeping clothing, hair, and other objects clear of the lever's underside.



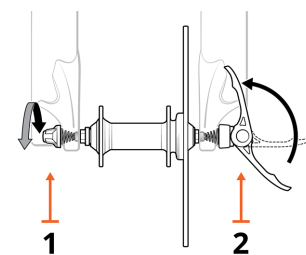
**Installing the kickstand: view from above and below**

- 5. **Install the kickstand** onto the bike using the included hardware as shown in the assembly video at [www.radpowerbikes.eu/help](http://www.radpowerbikes.eu/help). This requires aligning just one bolt and fastening the kickstand with an 8 mm Allen wrench, as pictured in the "Installing the kickstand" illustrations on this page. Torque to 50 Nm.

- 6. **Install the front wheel and components.**

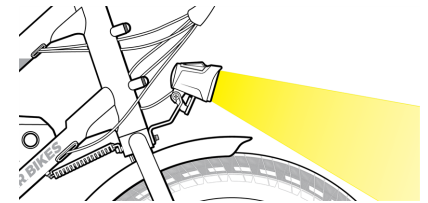
- a. **Install the front fender/mudguard, front wheel, and headlight** onto the front fork as shown in the assembly video at [www.radpowerbikes.eu/help](http://www.radpowerbikes.eu/help).

**Note:** Closing the quick release lever should require enough pressure that it leaves an imprint in your hand. If it's too easy or too difficult to close, adjust the lever tension by turning the adjustment nut ("1" in the "Front wheel" illustration) opposite the quick release lever. Check the front wheel security on a regular basis: the front wheel should always be fully seated in the dropouts of the front fork, and the quick release should always be properly secured.



**Front wheel: adjustment nut (1) and quick release lever (2)**

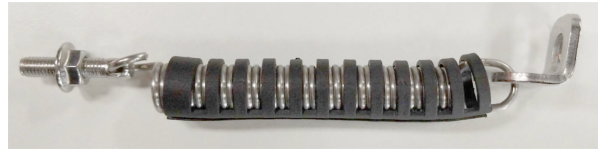
- b. **Check the security of the front wheel and quick release.** The rear wheel security and hardware torque should also be checked (see [“Tools and recommended torque values” on page 9](#)). Either wheel can become loose or unsecured over time.
- c. **Carefully align and plug in the headlight connector.** Adjust the headlight angle so it illuminates the road ahead but doesn't blind oncoming traffic, as in the illustration shown here.
- d. **Perform a handlebar twist test to ensure the front wheel and handlebar stem are securely connected.** Instructions for doing so are in [“Handlebar twist test” on page 25](#).



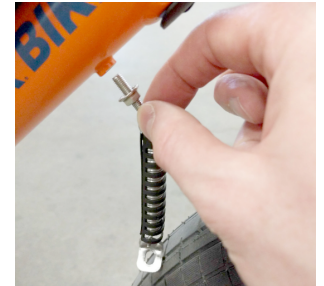
Headlight pointing slightly downwards to not blind others

**! WARNING:** An improperly secured front or rear wheel can cause loss of control, accidents, serious injury, or death. Check that both wheels are properly secured during assembly and before each ride.

- 7. **Install the deflopilator,** a spring component that will span from the front fork to the downtube, and helps prevent the front wheel from “flopping” left or right too readily and improves steering quality.



Deflopilator prior to installation. Left side: Eye bolt and locking nut; attaches to the downtube. Right side: L-bracket that attaches to front fork (with mounting bolt and two flat washers, not pictured).



Thread the deflopilator eye bolt into the downtube at least 5 mm. Secure with locking nut.

- a. **Thread the locking nut onto the deflopilator's eye bolt** approximately 5 mm, as shown on the left side of the illustration “Deflopilator prior to installation. . . .” Next, thread the eye bolt into the mounting point of the downtube at least 5 mm, and then twist the locking nut to be against the frame to lock the bolt in place.
- b. **Orient the hardware that will attach the deflopilator to the front fork.** Pass the deflopilator mounting bolt through one flat washer, the L-shaped bracket, and the second flat washer as shown in the illustration [“Deflopilator fully installed”](#).
- c. **Install the deflopilator mounting bolt.** Thread the bolt into the mounting point at the back of the front fork by hand. Use a 4 mm Allen wrench to tighten the bolt securely. Torque to 6 Nm.

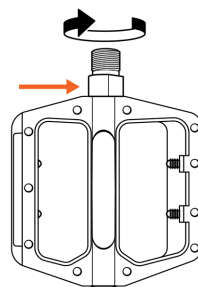


Deflopilator fully installed

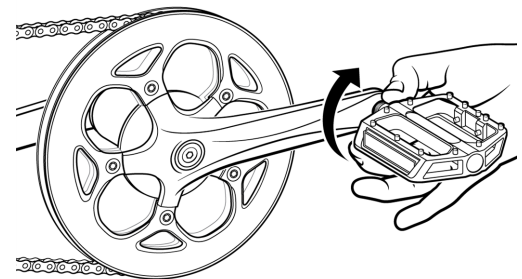
- 8. **Install the pedals.**

- a. **Locate the right-side pedal,** which is marked “R,” should have an “R” sticker attached, and has a smooth pedal axle. The right pedal goes on the crank on the drivetrain side of the bike, which has the chain and is the same as a rider's right side when seated on the bike.
- b. **Carefully thread the right pedal onto the right crank by turning clockwise.** Do so slowly and gently by hand. Do not cross thread or damage the threads. See the [“Right pedal installation”](#) illustration.

#### Right pedal installation



Right pedal with smooth pedal axle.

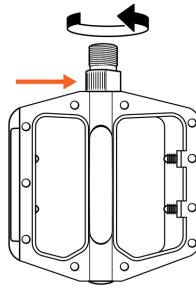


Thread the right pedal onto the right crank gently by hand, turning clockwise.

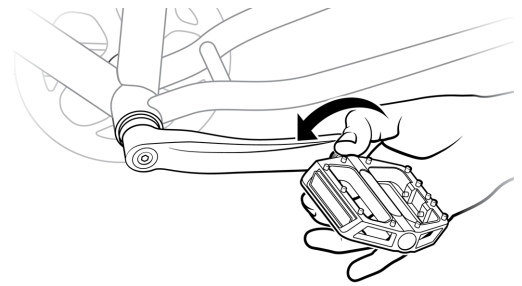


- c. Carefully thread the left pedal onto the left crank by turning anticlockwise. The reverse-threaded left pedal is marked with an “L,” should have an “L” sticker attached, and has notches on the pedal axle. Thread slowly and gently by hand without crossing thread or damaging the threads. See the [“Left pedal installation”](#) illustrations.

#### Left pedal installation



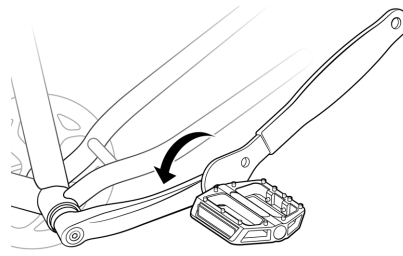
Left pedal with notches on the pedal axle.



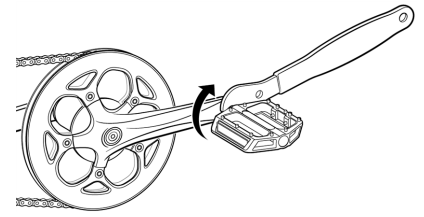
Thread the left pedal onto the left crank gently by hand, turning anticlockwise.

- d. Tighten each pedal using a pedal wrench to avoid damage caused by wider wrenches, as shown in the assembly video at [www.radpowerbikes.eu/help](http://www.radpowerbikes.eu/help).

- e. Torque each pedal to 35 Nm.



Pedal wrench on left pedal



Pedal wrench on right pedal

9. **Inflate tyres.** Check that the tyre beads and tyres are evenly seated around the rims. Use a pump with a Schrader valve and pressure gauge to inflate each tyre to the recommended pressure indicated on the tyre sidewall. Do not overinflate or underinflate tyres. For more information, see [“Tyre and wheel care” on page 24](#) or visit our Help Centre at [www.radpowerbikes.eu/help](http://www.radpowerbikes.eu/help).
10. **Complete all steps in “Adjusting for comfort and safety” below**, including checking that all hardware has been tightened according to the values in [“Tools and recommended torque values” on page 9](#).

## Adjusting for comfort and safety

The following steps are critical for your comfort and safety, and **must** be performed before your first bike ride. We recommend that you consult a bike fitting professional such as a certified, reputable bike mechanic who specializes in bike fit.

### Adjusting the seat angle and horizontal position

Many riders will prefer the seat to be roughly parallel to the ground, with its horizontal position in the middle of the range marked on the seat rails. To change the angle and horizontal position of the seat:

1. Use a 5 mm Allen wrench to loosen the seat adjustment bolt on the clamp positioned just below the seat. Do not remove the bolt fully.
2. Move the seat backwards or forwards and tilt to adjust the angle. Do not exceed the limit markings etched into one of the seat rails, which show how far you can safely move the seat forwards and backwards.
3. While holding the seat in the desired position, use a 5 mm Allen wrench to tighten the seat adjustment bolt securely to the recommended torque value, 10 Nm.



Seat adjustment bolt

**WARNING:** A loose seat clamp or seatpost adjustment bolt can cause loss of control, bike/property damage, serious injury, or death. Prior to first use, be sure to tighten the seat clamp via the seat adjustment bolt properly. Regularly check to make sure that the seat adjustment bolt is properly tightened and the clamp is secure on the seat rails.

## Adjusting the seat height

An ideal seat height for most riders allows them to be comfortable and get the best pedalling efficiency. When the rider is seated, they should be able to place the ball of their foot on the pedal at its lowest position while their leg is almost fully extended, with the knee slightly bent. The seat should never be so high that the rider must rock side to side or fully straighten their legs while pedalling.

Depending on a rider's preference, ability, and amount of experience with bike and ebike riding, lowering the seat so the rider can put one or both feet on the ground without dismounting from the seat may offer a safer and more comfortable experience while operating the bike.

The RadWagon 4 has a seatpost with two telescoping sections, each of which can be adjusted independently with a quick release lever. These directions assume you start the adjustment with the bottom quick-release, but you can adjust either one at any time *as long as you do not pull the bottom portion out so far that the minimum insertion point etching becomes visible*.



Seatpost quick release levers

**DANGER:** Overextending the seatpost can cause it to break or fall off your bike, which will put you at very high risk of serious injury or death. Avoid this danger by inserting your seatpost into the seat tube far enough that the minimum insertion point is no longer visible.

1. **Adjust the bottom portion of the seatpost by sliding it in or out of the seat tube.** If you're shorter than average, you can probably push this bottom portion of the seatpost all of the way into the frame. If you're taller than average, pull it out somewhat but *do not extend the seatpost beyond the minimum insertion marking* etched onto the seatpost (see the "Seatpost pulled out TOO FAR . . ." illustration).

2. **Close the quick release lever fully** so it looks like the levers in the photo "[Seatpost quick release levers](#)" above. When closing the lever, it should require enough pressure that it leaves an imprint in your hand. When closed, the seat should not move up, down, left, or right. If needed, adjust the lever tension by turning the adjustment nut opposite the quick release lever.



Seatpost pulled out TOO FAR, as indicated by the minimum insertion point (see black arrows).

3. **Repeat steps 2 and 3** for the top quick release mechanism ("B" in "[Seatpost quick release levers](#)" above) on the seatpost.

Note that you cannot overextend the top half, as it has an internal mechanism that keeps it from overextending. Before closing the last quick release lever, make sure the seat points directly forwards.

## Fine-tune the handlebar and stem positioning

For maximum comfort, riders should not overextend their arms' reach when riding. Ensure that the position and angle of the stem, handlebar, and brake levers allow for a comfortable arm position, with a relatively straight line from the forearms, wrists, and hands. The rider must also be able to turn the handlebar side to side without strain or getting hit by the handlebar.

1. **Open the stem adjustment lever** by pressing the stem release button on its side while lifting the lever upwards.
2. **Adjust the angle of the stem** to bring the handlebar closer to or farther from the rider. Be sure to stay within the limits indicated by the stem angle range markings on the side of the stem.
3. **Rotate the handlebar** within the stem so that the handlebar grips are roughly parallel to the ground or positioned however the rider prefers.
4. **Make sure the handlebar is still centred in the stem** as shown in the assembly instructions.
5. **Close and secure the stem adjustment lever** until the stem release button clicks. Make sure you close it with one hand pressing the stem release button and the other hand open, palm down on the lever. Be sure to keep fingers, hair,

clothing and other items away from the lever to avoid pinches. Test that it is fully secure by trying to pull up on the lever. The lever should not open unless you press the stem release button.



Lever torque adjustment bolt

6. **Optional:** If the stem adjustment lever is too tight or too loose to latch and unlatch properly, fine-tune its tension using a 2.5 mm Allen wrench on the lever torque adjustment bolt (see “Lever torque adjustment bolt” photo). Start with a quarter turn clockwise to tighten the lever tension, or a quarter turn counterclockwise to loosen tension, check to see how the lever is operating, and repeat until you can close the lever completely with enough force to leave a light imprint on your palm.

7. **Optional:** If the brake levers are angled too high or too low for the rider’s comfort, loosen the brake lever clamp bolts, adjust the angle, and securely

tighten to the recommended torque spec (6 Nm). For more information on adjusting brakes, visit the Help Centre at [www.radpowerbikes.eu/help](http://www.radpowerbikes.eu/help).

**! DANGER:** Overextending components like the handlebar stem, seatpost, or seat can cause those components to break or fall off your bike, which will put you at very high risk of serious injury or death. Avoid this danger by never extending these components beyond any minimum insertion markings etched into the components.

## Fine-tune the headset tightness

The headset is the portion of the bike inside the headtube that connects the front fork to the handlebar stem.

**Check if the headset is too loose.** To test that the headset is tight enough, place one hand over the spot where the handlebar stem meets the bike’s headtube. With the other hand squeezing the front brake lever (left side of handlebar), gently rock the bike front to back. If your headset is too loose, you’ll feel a knocking sensation.

**Check if the headset is too tight.** Hold onto your top tube and lift the front wheel off the ground slightly. Your front wheel should be able to flop if you tilt the bike to the side without your hands on the handlebar, though it will be somewhat inhibited by the deflopilator.

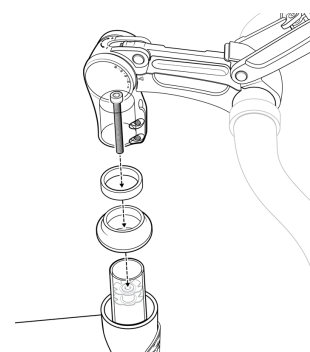
To add or reduce tension, follow these steps.

1. **Evenly loosen the stem clamp bolts** (see the illustration [“Stem clamp bolts”](#)).
2. **Open the stem adjustment lever.**
3. **Turn the built-in top cap bolt 1/4 turn** using the extra-long 5 mm Allen wrench. See the illustration [“Fine-tune the headset tightness”](#).
4. **Test whether the headset is too loose or too tight** as described above.
5. **If needed, repeat steps 3 and 4 until you have achieved ideal headset tightness.**
6. **Close the stem adjustment lever.** Ensure the lever is centered and that the stem release button clicks closed. Test that the stem release button is secure by pulling up on the stem adjustment lever, which should not open unless you press the stem release button.

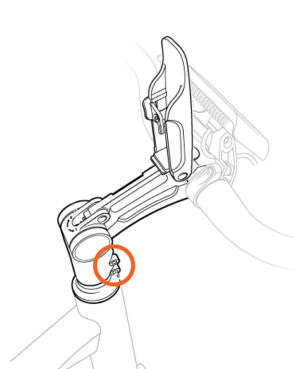
If you’re unsure whether you have tightened the headset correctly, consult a certified, reputable bike mechanic.

Over time, the headset can loosen. Periodically check the headset tightness and, if necessary, adjust the top cap bolt as explained above.

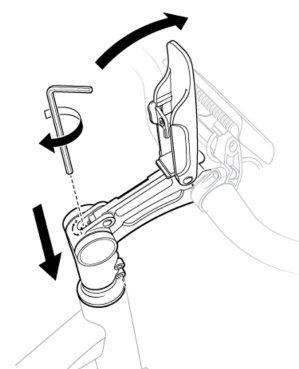
**! CAUTION:** Riding a bike with a headset that is too loose or too tight can cause damage to the headset and other bike components. To prevent this damage, periodically check your headset for ideal tightness.



Stem and headset components



Stem clamp bolts



Fine-tune the headset tightness

## Ensure all hardware is tightened properly

Ensure all hardware is tightened properly according to the values in [“Tools and recommended torque values” below](#). This is a critical safety step that you must not skip. If you do not own a torque wrench and have the skills to check the tightness of your hardware, consult a local, certified, reputable bike mechanic for help.

## Tools and recommended torque values


The tool sizing listed below is a general guide, but it is possible that the head of a particular bolt on your bike may vary, requiring a different tool (e.g., a 4 mm Allen wrench instead of a 5 mm Allen wrench). If so, use whatever tool fits the bolt head. Such differences will not affect the recommended torque for that piece of hardware.

		Tool	Rec. torque
Handlebar area	Stem clamp bolts	5 mm Allen	10 Nm
	Brake lever clamp bolts	5 mm Allen	6 Nm
	Twist power assist clamp bolt	3 mm Allen	3 Nm
	Deflopilator mounting bolt	4 mm Allen	6 Nm
Brake area	Calliper adapter to frame	5 mm Allen	6–8 Nm
	Calliper to adapter	5 mm Allen	6–8 Nm
	Cable pinch bolt on calliper arm	5 mm Allen	6–8 Nm
	Brake rotor to hub	T25 Torx bit	7 Nm
Seat area	Seat adjustment bolt	5 mm Allen	10 Nm
Rear dropout area	Rear axle nut	18 mm Allen	40 Nm
	Torque arm bolt	4 mm Allen	5 Nm
	Derailleur hanger mounting bolt	4 mm Allen	10 Nm
	Derailleur cable clamp bolt	5 mm Allen	6–8 Nm
Bottom bracket and crank area	Pedal into crank arm	15 mm pedal wrench	35 Nm
	Crank arm removal info	Crank puller for square taper bottom bracket	n/a
	Crank arm bolt into bottom bracket spindle	8 mm Allen	35 Nm
	Chainring bolts	6 mm Allen	10 Nm
	Kickstand mounting bolt	8 mm Allen	50 Nm
	Bottom bracket and cups	BBT-22 Park Tool	60 Nm
Accessories	Headlight/front fender/mudguard mounting bolt	5 mm Allen and 10 mm wrench	6 Nm
	Fender/mudguard mounting bolts (except at headlight)	4 mm Allen	6 Nm
	Optional running board mounting bolts	6 mm Allen	20 Nm
	Optional RadWagon passenger peg mounting bolts	6 mm Allen	20 Nm
	Optional caboose mounting bolts	4 mm Allen	30 Nm
	Optional deckhand mounting bolts	4 mm Allen	30 Nm

If you are installing accessories from Rad Power Bikes on your RadWagon, any necessary instructions, important safety information, and torque specifications will come with your accessory and/or be available online at [www.radpowerbikes.eu/help](http://www.radpowerbikes.eu/help).


# Battery information


The battery that comes with your RadWagon is a state-of-the-art, lithium-ion battery that's designed to give you years of power with proper care and use. Follow the recommendations here for the best possible performance.

 **WARNING:** Charging your battery with a charger other than one supplied by Rad Power Bikes and designed for your specific bike serial number can cause damage to your bike's electrical system or create a fire hazard. Only use a battery charger designed for your bike and supplied by Rad Power Bikes.

- The battery should be fully recharged after each use. That way, you'll get the maximum range on your next ride and reduce the chance that you'll over-discharge the battery, which can reduce its lifespan. There is no memory effect on this type of battery, so charging after short rides will not cause damage.
- Charging the battery after a ride generally takes 3 to 7 hours (see ["Estimated charging time" on page 12](#)) unless you're performing battery balancing (see ["Balancing the battery" on the next page](#)). In rare cases, charging may take longer to allow the battery management system to balance the battery, particularly when the bike is new, after long periods of storage, or if the battery has been completely depleted.
- Do NOT operate the bike with the key in the keyport, or injury to your leg or damage to the electrical system can occur.

**NOTICE:** Failure to follow the battery-charging best practices outlined here and in the following sections could result in unnecessary wear to the charging components, battery, and/or charger, and could lead to an underperforming or non-functional battery. Batteries damaged due to improper care will not be replaced under warranty.

 **WARNING:** Using a damaged battery or charger can create additional bike damage or a fire hazard. Stop using your battery and charger and contact Rad Power Bikes immediately if any of the following occur: (1) Your battery or charger is physically damaged, non-functional, or performing abnormally, (2) Your battery or charger experienced a significant impact from a fall or crash, with or without obvious signs of damage, or (3) Your charger becomes too hot to touch (it's designed to get warm with normal use), makes a funny smell, or shows other signs of overheating. Store the damaged battery in a safe location and, as soon as possible, recycle or otherwise dispose of it according to local rules. Contact Rad Power Bikes if you have any questions or to purchase a compatible replacement battery.

 **DANGER:** Never open the battery housing, which will void the warranty and can result in battery damage. It can also expose you to caustic substances and electrical shock or it could create a fire hazard, which can lead to serious injury or death.

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## Removing and installing the battery

You can charge your battery either when it's on or off your bike. If you choose to remove it for charging, storage, transportation, security, or some other reason, keep the following tips in mind to prevent battery damage.

### BATTERY REMOVAL

- To remove the battery, turn its key to the off and unlocked position (see ["Start-up procedure" on page 15](#)) and remove the key from the keyport. Carefully pull the battery forwards and up until the battery detaches from the battery mount.
- Be careful not to drop or damage the battery when loose from the bike.

**NOTICE:** When the battery is off its mount, protect the battery connector terminals from damage and be sure not to touch the "+" and "-" terminal contacts. If terminals are damaged, please discontinue use and contact Rad Power Bikes Product Support immediately.

### BATTERY INSTALLATION/MOUNTING

- To install the battery, make sure the key port is in the off/unlocked position and the key is removed.
- Do not force the battery into the battery mount; carefully align and slowly slide the battery down until it's in place.
- Ensure the battery is properly secured to the bike before each ride by locking the battery (see ["Start-up procedure" on page 15](#)) and then carefully pulling up on it with both hands to test the security of the battery's attachment to its mount.

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## Before you charge

Any time you charge your battery, whether you're following the instructions in [“Balancing the battery” below](#) or [“Routine charging procedure” below](#) make sure you first check the battery, charger, and electrical cables for signs of damage, and follow the guidelines below.

### CHARGE IN A SAFE, APPROPRIATE LOCATION

Store and use the charger in a safe place—away from children, direct sunlight, dirt, debris, tripping hazards (including electrical cords), or any materials that could ignite in the unlikely event of a charger or battery malfunction. Position the charger and battery where they're not at risk for falls or other impacts.



**WARNING:** Letting the charger's plug contact metal objects could cause a power discharge (a spark), which could injure you or create a fire hazard.



**WARNING:** Letting a battery charge unattended increases the risk that a charging problem will go undetected and lead to component damage or a fire hazard. Always charge your battery where you can monitor it.

Your battery needs to charge at room temperature or a bit cooler (10° C–25° C (50° F–77° F)). It generates heat while charging, but it's designed to air-cool; keep it uncovered and the lights facing upwards on a flat, stable, hard surface.

**NOTICE:** Charging your battery in excessively hot or cold conditions or interfering with its ability to air-cool can damage your battery or charger. Always charge your battery in temperatures between 10° C–25° C (50° F–77° F), keep the battery and charger uncovered, make sure the charger is on a hard, flat, stable surface, and use the charger right-side-up (with charging lights facing upwards).

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## Balancing the battery

**After each of your first three rides**, follow the special charging procedure outlined below, which will ensure the cells that power the battery are balanced. After the third balance charge and your fourth ride, begin routine charging procedures as described in [“Routine charging procedure” below](#).

**Note:** Your battery should arrive with between 50% and 75% of a charge, so it's ready for a first ride (see [“Start-up procedure” on page 15](#)).

1. **Begin this and every charging procedure** by following the advice in [“Before you charge” above](#).
2. **Charge your battery for as close as possible to 12 hours (but not longer)**, regardless of how far you travelled. This might require leaving the charger attached to the battery and outlet even after one of the charger's red lights turns green (during routine charging, this green light will be your indicator that charging is complete—see [“Routine charging procedure” below](#) for more information).
3. **Disconnect the charger first from the outlet, and then from the battery.** Store the bike until you're ready to ride.
4. **Ride the bike again** with power assistance as normal, discharging part (or all) of the battery capacity.

Repeat battery balancing steps only after a period of long-term battery storage (see [“Long-term battery storage” on page 13](#)), if experiencing noticeable range decline, if instructed to do so by Rad Power Bikes Product Support, or up to once per month with frequent use as explained in [“Recommended service intervals” on page 22](#). Do not perform battery balancing more than once per month. For routine charging, follow the steps in [“Routine charging procedure” below](#).

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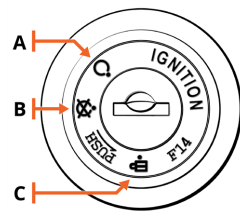
## Routine charging procedure

When you first get your bike, follow the special charging instructions in [“Balancing the battery” above](#). For routine charging, mind the advice in [“Before you charge” above](#) and then follow these steps.

1. **Ensure the battery is off.** Align the keyport with the appropriate off position by inserting the key into the keyport and rotating to align the key with one of the off icons:

**For charging with the battery on the bike,** align the keyport with the "off, locked" icon (position B in the illustration).

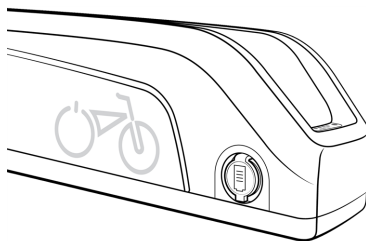
**To remove the battery for charging,** align the keyport with the "off, unlocked" icon (position C in the illustration), remove the key, and remove the battery.



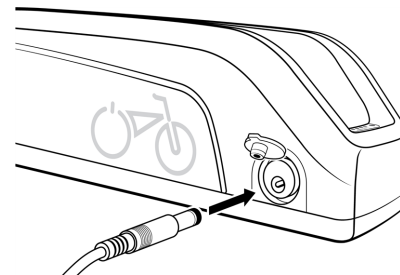
#### Keyport & key positions

	Description
A	On, locked to frame
B	Off, locked to frame
C	Off, unlocked from frame (for battery installation and removal)

2. **Open the rubber cover on the charging port** on the opposite side of the battery from the keyport (see ["Charging port with rubber cover in place"](#)). Note that the keyport does *not* have a cover.



Charging port with rubber cover in place



Charging port, cover open, with charger output plug positioned for insertion

3. **Plug the charger into the battery's charging port.** With the battery installed onto or uninstalled from the bike, place the charger on a flat, secure surface with the charging indicator lights facing up, and connect the DC output plug from the charger (round barrel connector) to the charging port on the side of the battery.
4. **Plug the charger into a power outlet.** Connect the charger input plug (110/220-volt plug) to the power outlet. Charging should initiate and will be indicated by both LED charge status lights on the charger turning red. When charging is complete, one indicator light will turn green and the other will remain red.
5. **Unplug the charger from the outlet, then the charging port.** Once fully charged, indicated by one charging indicator light turning green (and one remaining red), unplug the charger from the wall outlet first and then remove the charger output plug from the battery charging port. Be sure to pull gently on the plugs, not on the cables themselves.

**NOTICE:** The charger is designed to stop charging automatically when the battery is full. Nevertheless, leaving your battery charging longer than necessary can cause needless wear. We recommend you remove the charger from the battery within one hour of the green light indicating a complete charge. Store the charger carefully, making sure its plug does not come in contact with liquids, dirt, debris, or metal objects, which can damage the plug and interfere with future operation.

**WARNING:** Charging your battery with a charger other than one supplied by Rad Power Bikes and designed for your specific bike serial number can cause damage to your bike's electrical system or create a fire hazard. Only use a battery charger designed for your bike and supplied by Rad Power Bikes.

## Estimated charging time

The time the charger takes to fully charge the battery depends on distance travelled, riding characteristics, terrain, payload, battery age, and other factors. The table provides a rough estimate of charge time based on common distances travelled in regular operation.

**NOTICE:** The battery may take longer to charge when fully depleted, when very new, and after 3–5 years of regular use. If your battery doesn't seem to be charging normally, is taking longer to charge than expected, or you're experiencing substantial reduction in range, discontinue use and contact Rad Power Bikes.

Distance	Recharge time
8 km (5 mi)	1 hour
16 km (10 mi)	1.5 hours
24 km (15 mi)	2.5 hours
32 km (20 mi)	3.5 hours
40 km (25 mi)	4.5 hours
48 km (30 mi)	5.5 hours
72 km (45 mi)	7 hours

## Long-term battery storage

If storing your bike from Rad Power Bikes for longer than two weeks at a time, follow the recommendations below to maintain the health and longevity of your battery.

- Charge (or discharge) the battery to approximately 75% charged.
- Power off the battery either locked to the frame or unlocked and removed from the frame for storage (see [“Start-up procedure” on page 15](#) for key-position details).
- Store the battery in a dry, climate controlled, indoor location between 10° C–25° C (50° F–77° F).
- Check the battery monthly, and if necessary, use the charger from Rad Power Bikes to charge the battery to 75% charged.

**NOTICE:** Incorrect storage of your battery can result in a damaged or non-functional battery. Follow the above instructions to reduce such risk. Batteries damaged by improper use, charging, or storage will not be replaced under warranty.

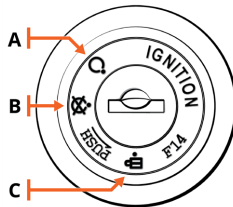
## Operation

**WARNING:** Incorrect assembly, maintenance, or use of your RadWagon can cause component or performance failure, loss of control, serious injury, or death. Even if you're an experienced bike rider, **you must read and understand the entire manual and any documentation provided for subcomponents or accessories before riding.** If you are not sure you have the experience, skills, and tools to correctly perform all assembly steps in the manual and the assembly video at [www.radpowerbikes.eu/help](http://www.radpowerbikes.eu/help), consult a local, certified, reputable bike mechanic.

### Battery key positions

Familiarize yourself with the keyport and key positions before riding the bike. **Always remove the key before getting on your bike to ride it.**

- Any time the battery is in key position A, (on, locked to the frame) the display remote MODE button will turn the bike on and off, and the battery cannot be removed.
- If the battery is in key position B, (off, locked to the frame) no buttons or controls can be activated, the bike will remain off, and the battery cannot be removed.
- Any time the battery is in key position C, (off, unlocked from the frame) the battery must be removed from the bike before moving or riding the bike. Ensure the key is removed before sliding the battery out of the mount.



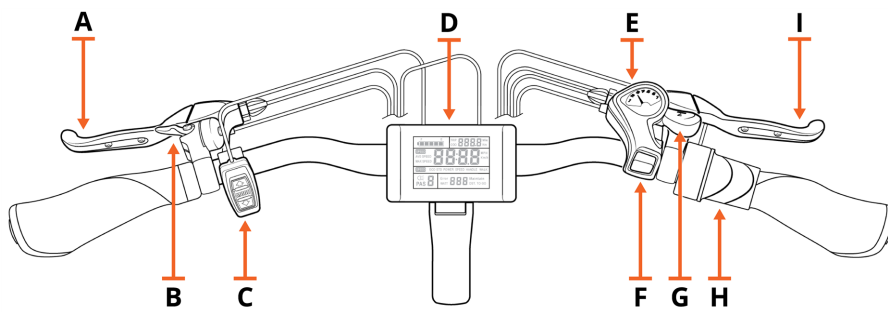
#### Keyport & key positions

	Description
A	On, locked to frame
B	Off, locked to frame
C	Off, unlocked from frame (for battery installation and removal)

**CAUTION:** An unlocked battery can fall off a moving bike, causing damage or injury. Always check that the battery is locked to the frame before moving or riding your bike.

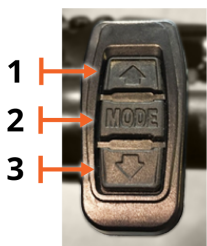


## Handlebar features

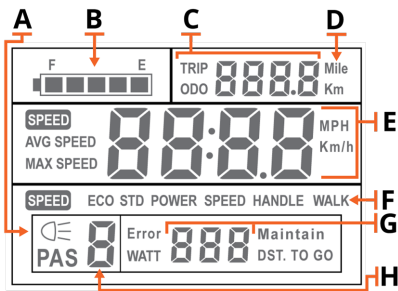


A	Left brake lever (for front brake)
B	Lever for bell
C	LCD display remote
D	LCD display
E	Shifter
F	Up-shift button
G	Down-shift lever
H	Twist power assist
I	Right brake lever (for rear brake)

## LCD display and electric controls



LCD display remote



LCD display

A	"Headlight on" indicator
B	Battery charge indicator
C	Distance (odometer, trip odometer)
D	Distance unit—kilometres (km) or miles (mi)
E	Speed & speed unit—miles per hour (MPH) or kilometres per hour (km/h)
F	Operation mode
G	Watt meter, error code indicator
H	Pedal assist level

Using the LCD display remote (above) and other bike features, you can power your bike on or off, toggle certain information on your LCD display (above), and control other electrical functions.

Bike on/off	Turn bike on	Press and hold MODE (2) button on LCD display remote until the bike turns on (you'll see the LCD display information appear).
	Turn bike off	Press and hold MODE (2) button on LCD display remote until the bike turns off (you'll see the LCD display go blank).
LCD display controls	Toggle odometer, trip odometer	Press and release MODE (2) button on LCD display remote.
	Toggle current speed, average speed, and max speed	Press and hold UP (1) until speed display changes on LCD display remote.
Pedal assist level	Increase pedal assist one level	Press and release UP (1) button on LCD display remote.
	Decrease pedal assist one level	Press and release DOWN (3) button on LCD display remote.
Light controls	Turn off headlight, taillight, and LCD display backlight	Your headlight, taillight, and LCD display backlight will turn on whenever you power up your bike. If you want them off, press and hold MODE (2) and UP (1) on the LCD display remote until your lights go off.
	Activate brake light	When bike is on, squeeze either or both brake levers.
	Activate flash mode on taillight	When bike is on, press rubber button on bottom left of taillight.
Other	Turn on walk mode	While dismounted, press and continue to hold DOWN (3) button on LCD display remote.
	Charge a USB device using the LCD display's USB port*	Locate USB port on LCD display edge closest to rider. Open its rubber cover. ❶ Power off the bike by pressing and holding MODE until power the LCD display turns off, ❷ Plug USB charging cable (not included) into USB port on LCD display and your USB device (not included), ❸ Power the bike back on.

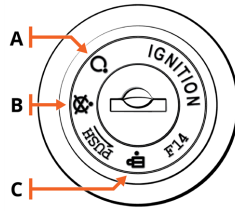
**CAUTION:** Using walk mode inappropriately can cause you to lose control of the bike, causing bike damage or injury. Use walk mode only while dismounted from the bike, with both hands on the handlebar, and with at least one hand on a brake lever so that you can quickly cut off power to the motor if necessary.

\* The USB charging port can charge many, but not all, USB devices. Some devices (e.g., large phones) that require higher power to charge may not indicate that they're charging when plugged in. If the LCD display reads "USB," but the USB device doesn't display its charging indicator, the device is receiving supplemental power more slowly than it's using power—so the device's state of charge may decrease, but not as quickly as it would if it weren't plugged in.

## Start-up procedure

After the bike has been properly assembled according to the assembly video, all components are secured correctly, a certified, reputable mechanic has checked the assembly, and you have read this entire manual, turn on the bike and select a pedal assist level following the steps below:

1. **Familiarize yourself with the key positions.** The "[Keyport & key positions](#)" illustration shows the keyport in position A, in line with the small open circle icon. In key position A, the battery is on and locked to the frame, ready for a ride.



### Keyport & key positions

	Description
A	On, locked to frame
B	Off, locked to frame
C	Off, unlocked from frame (for battery installation and removal)

2. **Check that the battery is locked securely.** Ensure the keyport is aligned with the circle containing an "X," in the "Off, locked" position (B) indicating the battery is off and locked to the battery mount. If needed, insert the key and align with the "Off, locked" icon (B). Remove the key and carefully use both hands to pull up on the battery to test that the lock is secure.
3. **Turn on the bike.** With the battery locked in place, insert the key and turn clockwise to the open circle icon, which is the "On, locked" position (A), as shown in the image above. Remove the key by pulling directly backwards without twisting so the key position remains in the "On, locked" position. Locate the LCD display remote (near the left handlebar grip). Hold down the centre "MODE" button for approximately 2 seconds until power is delivered to the LCD display and the headlights turn on.

**CAUTION:** Getting onto the bike or riding it with the key left in the battery can cause injury to your leg and damage to the key or battery. Always remove the key before riding the bike.

4. **Try out your bell** if you haven't already! It's an important safety tool for alerting others to your presence, especially when passing. The bell is integrated into the left brake lever on your handlebar. To ring it, flick the bell lever, which should be near your left index finger when you're holding the handlebar; see the illustration "[Handlebar features](#)" on [the previous page](#).
5. **Select your desired level of pedal assistance (PAS)** between 0 through 5 using the up and down arrows on the display remote. Level 0 provides no pedal assistance, level 1 provides the lowest amount of pedal assistance, and level 5 provides the highest amount. Start in PAS level 0 or 1 and adjust from there.

**WARNING:** Engaging the pedal assist feature, especially at a high setting, will cause acceleration that may be greater than expected, especially for relatively new riders, and that can cause loss of control, serious injury, or death. To minimize risk, start at PAS level 0 or 1.

6. **Begin riding carefully.** With the proper safety gear and rider knowledge, you may now operate your bike from Rad Power Bikes. Begin by pedalling the bike in the appropriate gear with pedal assist level 0 or 1. You may also use the twist power assist to accelerate and maintain your desired speed.
7. **Use the twist power assist** (next to the right handlebar grip) by slowly and carefully rotating it towards the rider. Do not use the twist power assist unless you're on the bike, and note that the twist power assist can be activated with a twist any time the bike is powered on.

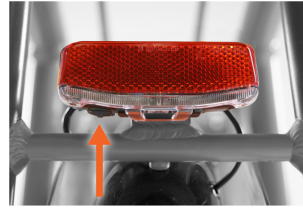
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## Brake light features and operation

The RadWagon is equipped with a taillight/brake light that is integrated into the electrical system. Any time the bike is powered on, depressing one or both brake levers on the handlebar will activate the brake light.

For increased visibility, the taillight's "solid mode" can be turned on by using the LCD display remote by pressing and holding the MODE and UP buttons when the bike is powered on (this will also turn on the headlight).

When in solid mode, the taillight will illuminate, and when the brake levers are depressed, the brightness of the taillight will increase as the brake light activates.



The flash mode button is on the bottom left of the taillight housing.

The taillight also has a "flash mode" you can activate. To do so, power on the bike, and then, while dismantled from the bike, press the rubber flash-mode button on the bottom left side of the taillight housing. When in flash mode, the taillight will flash continuously, and depressing the brake lever(s) will illuminate a brighter, solid brake light. Flash mode will continue if the headlight is turned off. But if you turn the bike off and back on, you'll need to re-activate flash mode. Please note that flashing lights may not be legal in some areas. It is your responsibility to know and obey all applicable laws where you ride your ebike.

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## Battery capacity display

The display on the handlebar of your RadWagon features a battery capacity gauge (like a fuel gauge on a car). This gauge calculates the remaining battery charge based on the current battery power output (instantaneous voltage reading), and can fluctuate while riding as power demand and/or output changes.

Once one bar is left on the display, users should charge the battery as soon as possible. At lower states of charge, the bike may limit power output to make the remaining power last a little bit longer, which also reduces wear on the battery. When the battery is fully depleted, the last bar will begin to flash, alerting the user that they're about to lose all electrical power. Any time your power is off or depleted, you can still propel your bike by pedalling it.



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## Driving range

We suggest that you select a lower pedal assistance level when you're getting to know your RadWagon and travel routes. Once you become familiar with your range requirements and the capabilities of your bike, you can adjust your riding characteristics if you desire.

The table in this section provides range estimates under example conditions to help owners understand the factors that can increase or decrease range. Rad Power Bikes makes no claims about the range that individual users might experience in a particular situation.

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<b>40 km (25 mi):</b>	<ul style="list-style-type: none"><li>• Hilly terrain</li><li>• Windy</li></ul>	<ul style="list-style-type: none"><li>• Light pedalling</li><li>• Heavy payload</li></ul>	<ul style="list-style-type: none"><li>• High pedal assist level, high twist power assist use</li></ul>
<b>52 km (32 mi):</b>	<ul style="list-style-type: none"><li>• Flat terrain</li><li>• Not windy</li></ul>	<ul style="list-style-type: none"><li>• Light pedalling</li><li>• Normal payload</li></ul>	<ul style="list-style-type: none"><li>• Low pedal assist level, minimal twist power assist use</li></ul>
<b>88 km (55 mi):</b>	<ul style="list-style-type: none"><li>• Flat terrain</li><li>• Not windy</li></ul>	<ul style="list-style-type: none"><li>• Moderate to heavy pedalling</li><li>• Normal payload</li></ul>	<ul style="list-style-type: none"><li>• Low pedal assist level, minimal twist power assist use</li></ul>

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## Best practices for extending range and battery life

Follow the best practices listed below to help extend your range and battery life.

- Whenever possible, avoid applying full twist power assist when the bike has slowed to very low speeds, has stalled, or stopped.
- Reduce your power consumption whenever possible.
- Do not climb hills steeper than 15% in grade.
- Avoid sudden starts and stops.
- Accelerate slowly.

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## Carrying loads

The total maximum weight limit (payload capacity) of the RadWagon, listed below, includes the weight of the rider as well as clothing, riding gear, cargo, accessories, passengers, etc. The kickstand is not designed to be used for loading cargo. Do not assume the bike is stable and balanced when using the kickstand; always hold onto the bike when cargo or a passenger is being loaded or in place. See [“Carrying children” on the next page](#) for more safety information about passengers. Any optional accessories listed below are available for purchase at [www.radpowerbikes.eu](http://www.radpowerbikes.eu).

Total maximum payload: 158 kg (350 lb)

Optional front rack maximum payload: 10 kg (22 lb)


Rear rack maximum payload: 54 kg (120 lb)


Optional running boards: 13,6 kg (30 lb) per side


Kickstand: 45 kg (100 lb)

Optional RadWagon passenger pegs: 13,6 kg (30 lb) per peg

The maximum payload capacity of specific accessories (racks, etc.) and other important safety information will come with the accessories and/or be available online at [www.radpowerbikes.eu/help](http://www.radpowerbikes.eu/help).


 **WARNING:** Never exceed the payload limit of any accessory or component of your bike even if you attach to it an accessory that carries a higher weight limit. Overloading any component can cause component failure, loss of control, serious injury, or death.

 **WARNING:** Loading cargo or passengers without holding onto the RadWagon can cause the bike to tip, leading to damage or serious injury. The kickstand is designed to hold up an unoccupied, unloaded bike on a hard, flat, stable surface, not to support the weight of the rider, passengers, or cargo. Always hold onto your RadWagon when loading or unloading cargo or passengers.

 **WARNING:** Failure to ensure that cargo or passengers can't interfere with the rider's control of the bike can lead to serious injury or death. The rider is always responsible for securing loads, loose straps, and assessing passenger's ability to ride safely. Please see [“Carrying children” on the next page](#) for more information.

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## Carrying cargo

 **WARNING:** Carrying cargo significantly affects braking, acceleration, turning, and balancing, which can increase the risk of falls and other accidents, potentially leading to property damage, serious injury, or death. To minimize such risk, practise riding in a flat, open area with light cargo before attempting to carry heavier cargo, especially on roads or hills and in wet conditions.

The following list provides important tips for the safe operation of the RadWagon when used for carrying cargo.

- Cargo should be loaded as low as possible to keep the bike's centre of gravity low and improve stability, but cargo should not interfere with any moving components or the ground.
- Ensure cargo loads are properly secured and periodically check that nothing loosens, risks interfering with any moving parts, or risk touching or dragging on the ground.
- Your hill-climbing ability, steering, and braking will be affected when cargo is loaded onto your bike, so plan your routes accordingly. Hills that are normally easy to climb or descend without cargo can become challenging or even dangerous once cargo is loaded onto the bike. With the extra weight, it's even more important than ever to use both front and rear

brakes, and **always engage the rear brake first** to prevent excessive strain on the front wheel and fork and to prevent loss of control.

## Carrying pets

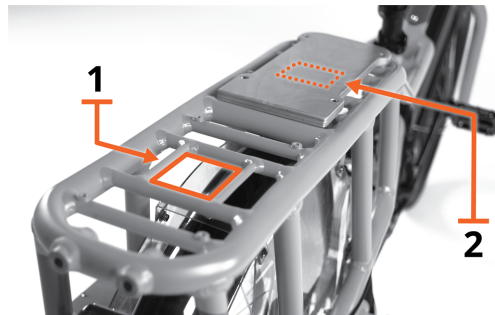
Rad Power Bikes understands that you may want to bring your pet along on your bike adventures, and we urge you to take great care to protect your furry friend and yourself. We cannot recommend any pet carrier or restraint system that we have not tested for compatibility and safety with your bike from Rad Power Bikes.

**WARNING:** Transporting a pet using any bike puts you and your pet at risk of injury or death, especially if the pet distracts you, affects your balance, interferes with moving bike parts, etc. It's impossible to anticipate every situation that can occur while riding with a pet. If you carry a pet on any bike, you assume any and all inherent risks.

## Carrying children

The use of certified and approved child seating and equipment is required whenever carrying children. Check all regulations in the area where you operate the RadWagon to ensure carrying passengers, children, or cargo is allowed. Follow the stated weight limits for the bike and accessories; do not overload the RadWagon.

The RadWagon is designed to be operated by those at least 16 years of age, but an adult parent or legal guardian should always decide whether their child should operate or ride as a passenger on the RadWagon or any other vehicle. Children younger than four or incapable of riding a bike should not ride as passengers on the RadWagon unless seated in a properly fitted and approved child safety seat.



Thule Yepp mounting windows on the RadWagon rear rack. In this photo, one of the wooden cargo decks is removed so you can see one Yepp window exposed (1). The other Yepp window (2) is under the remaining wooden cargo deck.

The RadWagon rear deck is equipped with two mounting windows for the Thule Yepp Maxi child seat. The “Yepp windows” are located under the wooden cargo decks, which need to be removed if you want to install Thule Yepp seats. The optional caboose can be installed with the wooden cargo decks or around one or two Yepp Maxi seats (shown below). Please visit [www.radpowerbikes.eu](http://www.radpowerbikes.eu) to learn more about accessories available for purchase, including deckpads, Thule Yepp child seats, running boards, RadWagon passenger pegs (foot pegs), bags, baskets, caboose, deckhands, and much more.

For installation instructions, safety notices, general information, and tips on safe operation of the Thule Yepp Maxi child seat accessory, visit the manufacturer’s website online at [www.thule.com](http://www.thule.com) or contact Rad Power Bikes.

**DANGER:** Using your RadWagon to transport passengers who are not the appropriate size or age for your child seat or rear rack, or who do not have the health, motor control, or impulse control to ride safely as passengers, can lead to serious injury or death of the rider or passengers. Read and understand the specifications of any child seat you purchase and all safety-, cargo- and passenger-related information in this manual. It is your responsibility to assess the ability of potential passengers to ride safely. If you’re not certain, consult a physician.

The following list provides important tips for using the RadWagon to carry children and other passengers.


- Never exceed the payload capacity of your rear rack, which is 120 lb (54 kg) on the RadWagon 4.
- Do not allow passengers to sit sideways or backwards on the rear rack.
- Do not allow passengers to stand or kneel on the rear rack, optional running boards, or optional RadWagon passenger pegs.
- Increased weight from passenger(s) will increase the time it takes to slow the bike when braking; please plan your stops accordingly. Ensure both front and rear brakes are properly adjusted, maintained, and applied.
- When carrying passenger(s) 4 years of age or older you must have the running boards, rear wheel skirts, and an appropriate handle accessory such as a deckhand or caboose, available from [www.radpowerbikes.eu](http://www.radpowerbikes.eu). An alternative to the running boards can be the RadWagon passenger pegs (also available at [www.radpowerbikes.eu](http://www.radpowerbikes.eu)), but the child passenger must be tall enough to rest their feet comfortably on the pegs and must be instructed not to climb or stand on




Rear rack with two optional Thule Yepp seats installed

them—each has a payload capacity of 18 kg (30 lb).

- Always check child seats, clothing, and cargo for loose straps or other items that could dangle and interfere with the wheels and other moving parts.
- Passengers too large for a child seat but incapable of riding a bike on their own should not ride as passengers. Use your best judgment as a parent or guardian to keep passengers safe.
- Hold onto the bike when loading cargo and/or passengers.
- Ensure that passengers are safely seated before beginning to ride.
- If using a single child seat, mount it in the forward-most position if possible, as this will help centre weight on the bike. No more than 18 kg (40 lb) should be loaded over the rear 1/3 of the RadWagon's rear rack.
- Ensure that the rider and any passenger(s) are wearing a properly fitted and approved helmet.
- Since passengers sit behind the rider, they cannot see bumps or upcoming turns; instruct passengers to brace for bumps and be prepared for turns, braking, and other manoeuvres.

 **WARNING:** Removing the clear rear wheel skirts from your RadWagon can cause passenger hands, feet, clothing, or loose items to get caught in the rear wheel, which can lead to damage, injury, or death. Do not remove the clear rear wheel skirts from your RadWagon and ensure hands, feet, loose straps, and other cargo are always kept away from wheels and the drivetrain when the bike is in motion.

 **DANGER:** Leaving children unattended on a bicycle creates a VERY HIGH RISK of the bike tipping over, causing serious injury or death. Always remove children from the bike before you look away or walk away from the bike.

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## Parking, storage, and transport

Please follow these tips to ensure your bike is well cared for when you're not using it.

### PARKING AND STORAGE

- Park in accordance with local rules and regulations if you're in a public place.
- Park indoors whenever possible. If you must park outdoors in rain or wet conditions, do not do so for an extended period of time, and afterwards park in a dry location to allow the bike systems to dry out. When any bike is exposed to wet conditions, it will need a more frequent maintenance schedule to prevent rust and corrosion and to ensure all systems work safely. See [“Guard against rust, corrosion, and electrical damage” on page 25](#) for more information.
- Avoid parking or storing your bike in direct sunlight and/or excessive heat, such as inside of a parked car on a hot day.
- Switch the power and any lights off to conserve battery power. Remove the key from the bike and ensure the battery is locked to the frame in the off position or use the key to remove the battery and bring it with you for security.
- Lock up your bike to reduce risk of theft. You can purchase a lock from our website at [www.radpowerbikes.eu](http://www.radpowerbikes.eu) or consult a local, certified, and reputable bike shop, which is also a good source for recommendations on regional bike registries. Registering your bike can increase the odds of getting it back in the unfortunate event it's stolen.

### TRANSPORTING

- When pushing or carrying the bike, turn off the power to avoid accidental acceleration from the motor, e.g. by mistakenly twisting the twist power assist. Another option is to keep the bike powered on and use “walk mode”—see [“LCD display and electric controls” on page 14](#) for more information.
- Only use racks (i.e., a bike rack for your car or other vehicle) designed for the size and weight of your ebike. Pay particular attention to whether the rack can accommodate the width of your ebike tyres.
- When carrying your ebike on a rack for transport, remove the battery, and place/wrap it securely inside your vehicle, making sure it can't roll around and that its plugs and connectors are protected. This will reduce the weight of the bike, make lifting and loading it easier, and keep your battery safer.
- Do not leave a battery in direct sunlight or any location that is or may become excessively hot or cold, like a parked car, for extended periods.
- Before using public transportation—buses, trains, etc.—to transport your ebike, check with the relevant transportation authority for any rules governing weight limits, tyre widths, lithium-ion batteries, or any other rules that might pertain to ebikes.

- Avoid transporting bike(s) from Rad Power Bikes on a vehicle rack during rain, which may cause water damage to the electrical components. Contact Rad Power Bikes Product Support if you have questions.

## Maintenance

To ensure safe riding conditions you must properly maintain your bike from Rad Power Bikes. Follow these basic guidelines to ensure your bike is safe and fun to ride.

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### Check and service your bike regularly

On any bike, certain parts need to be replaced periodically due to wear, and sometimes parts become damaged for various reasons. Check your bike before each ride by following the directions in [“Safety checklists” below](#). Have your bike regularly serviced by a certified, reputable bike mechanic. See [“Recommended service intervals” on page 22](#) for more information.

Components of the RadWagon are subject to higher wear when compared to bikes without power assistance. This is because the RadWagon can travel at higher average speeds than regular bicycles and has a greater weight. Higher wear is not a defect in the product and is not subject to warranty. Typical components affected are the tires, brake pads and rotors, suspension forks, spokes, wheels, and the battery.

If you need to replace a part on your bike, visit [www.radpowerbikes.eu](http://www.radpowerbikes.eu). If you want something that isn't listed there, contact Rad Power Bikes Product Support. Be extremely careful about using parts or accessories that Rad Power Bikes has not tested for safety and compatibility with your specific bike model.



**WARNING:** Using aftermarket accessories or components (trailers, stands, vehicle racks, etc.) that have not been tested by Rad Power Bikes for safety and compatibility with your specific bike may void your warranty, create an unsafe riding condition, result in bike/property damage, or cause serious injury or death. If you use replacement parts or accessories not tested and recommended by Rad Power Bikes, you do so at your own risk.

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### Safety checklists

#### BEFORE YOUR FIRST RIDE

- Make sure handlebar cables were routed correctly when the handlebar was installed. Turn the handlebar fully to the left and right and make sure this doesn't pull any of the cables or wires taut.
- Make sure your pedals are secure using a pedal wrench. Torque to 35 Nm.
- Check that the cable connectors on the bike are all plugged in securely and that nothing loosened in shipping.
- Check the brake functions per the directions in [“Tyre and wheel care” on page 24](#), but note that brakes can rub a little the first few times you ride. This is okay and normal; any squeak or noise should go away with use.
- Check everything on the “Before every ride” list below.

#### BEFORE EVERY RIDE

Before every ride or every 40–72 km (25–45 miles), follow the safety checklist in the table below. If you find anything amiss with your bike, don't ride it until you're sure it's fixed. Consult a local, certified, and reputable bike mechanic or call Rad Power Bikes Product Support if you have any questions.

##### Fasteners

- Ensure all fasteners are correctly tightened according to the specifications in [“Tools and recommended torque values” on page 9](#).
- Check that all quick release levers, including the quick release on the front wheel and both quick releases on the seatpost, are tight and properly secured. Ensure the front-wheel quick release lever is positioned so that the front fork lower doesn't prevent it from closing fully.
- Check that the fasteners on any accessories you've added are properly tightened according to the manufacturer's instructions.

##### Brake system

- Check brake pads and ensure the brake pad material isn't thinner than the backing plate it attaches to.

- Ensure brake pads are correctly positioned in relation to the brake rotors.
- Ensure brake cables are lubricated, correctly adjusted, and show no obvious wear.
- Ensure brake levers are properly positioned and tightly secured to the handlebar.
- Ensure the brake cable tension is appropriate.
- Check that the taillight brightens when you squeeze each brake lever.
- Use the techniques in [“Checking brakes & motor cutoff switches” on page 23](#) to test the brake levers, brakes, and motor cutoff switches.

### Wheels & tyres

- Ensure tyres are holding air and inflated to within the recommended limits displayed on the tyre sidewalls.
- Ensure tyres have good tread, have no bulges or excessive wear, and are free from any other damage.
- Ensure rims run true and have no obvious wobbles, dents, or kinks. See [“Tyre and wheel care” on page 24](#).
- Check each wheel spoke. If any are loose or broken, seek help from a certified, reputable mechanic.
- Check the axle nuts on the rear wheel to ensure they are correctly tightened (see [“Tools and recommended torque values” on page 9](#)).
- Ensure the locking lever on the front-wheel quick release is positioned so that the front fork doesn't prevent it from closing fully.

### Steering

- Ensure the handlebar and stem are correctly aligned, adjusted, and tightened for proper steering.
- Perform a handlebar twist test to ensure the stem clamp bolt is secure. See [“Handlebar twist test” on page 25](#).
- Ensure the handlebar is set correctly in relation to the fork and the direction of travel.
- Ensure the handlebar grips are secure and undamaged.

### Bearings

- Check that headset, wheel, pedal, and bottom-bracket bearings are lubricated, run freely, and display no excess movement, grinding, or rattling.

### Drivetrain: cranks, pedals, chain, derailleur, shifter

- Ensure pedals are securely tightened to the cranks. See [“Tools and recommended torque values” on page 9](#).
- Ensure the cranks are not bent and are securely tightened to the bottom bracket. See [“Tools and recommended torque values” on page 9](#).
- Ensure the chain is clean, oiled, and runs smoothly. Take extra care with chain maintenance if bike is used in wet, salty, dusty, or otherwise damaging conditions.
- Check that the derailleur is adjusted and functioning properly.
- Ensure the shifter is attached to the handlebar securely and is shifting properly.

### Frame, fork, and seat

- Check that the frame and fork are not bent or broken.
- Check that the seat is adjusted properly, both of the seatpost quick release levers are securely tightened, and the seat does not move when the levers are closed. Ensure that the seatpost minimum insertion marking is fully inserted into the frame.

### Motor drive assembly & twist power assist

- Ensure the hub motor is spinning smoothly and is in good working order.
- Ensure the power cable running to the hub motor is secured and undamaged.
- Check the axle nuts to ensure they are correctly tightened (see [“Tools and recommended torque values” on page 9](#)).
- Ensure the torque washers, torque arm, and torque arm bolt are in place and secured.
- Ensure the twist power assist and pedal assistance are operating normally.

### Battery

- Ensure the battery is charged.
- Ensure there is no damage to the battery.
- Lock the battery to frame and check that it is secured. Remove the key before riding.
- Ensure the battery gauge on the LCD display and the charge status indicator on the battery read similarly.




## Cables

- Look over electrical cable connectors to make sure they are fully seated and free from debris or moisture.
- Check cables and cable housing for obvious signs of damage.
- Ensure cables are secured away from moving parts.
- Ensure headlight, taillight, and brake light are functioning, adjusted properly, and unobstructed.

## Accessories & safety gear

- Ensure all reflectors are properly fitted and not obscured.
- Ensure all accessories and components installed on the bike are properly secured and functioning according to their manufacturer's specifications.
- Check all safety gear, clothing, cargo, and accessories for loose or potentially loose straps/elements and secure them.
- Ensure rider and any passenger(s) are wearing a helmet and other required riding safety gear, and inspect these items for signs of damage.
- If your bike has fender/mudguards: Ensure they are centred over the wheels, adjusted properly, properly secured (see [“Tools and recommended torque values” on page 9](#)), and have no cracks or holes.

 **WARNING:** Riding your bike when any component's useful life is surpassed can cause that component to fail, resulting in loss of control, serious injury, or death. Pay attention to signs of wear such as cracks, scratches, component colour change, and operational changes that could indicate a component needs replacing. Before each ride, check your bike using the [“Safety checklists” on page 20](#). Perform regular maintenance according to [“Recommended service intervals” below](#). If you're not sure you have the experience, skills, and tools to perform safety checks and regular maintenance, consult a local certified, reputable bike mechanic for help.


## AFTER EVERY RIDE

- Store your bike and battery in a dry location and take other sensible precautions as described in [“Parking, storage, and transport” on page 19](#).
- Guard against damage from the elements by following the recommendations in [“Guard against rust, corrosion, and electrical damage” on page 25](#).
- Charge your battery in a temperature-controlled location between 10° C–25° C (50° F–77° F) and follow the other charging recommendations in [“Before you charge” on page 11](#).

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## Recommended service intervals

Regular maintenance of any bike is key to ensuring the best possible performance and reducing wear and tear on systems. Ideal service intervals vary depending on use conditions. We generally recommend inspections, service, and necessary replacements be performed at the time and distance intervals described below, but you should have your bike serviced more frequently if you ride aggressively, with heavy payloads, or in harsh conditions. Have your bike inspected immediately if you notice problems or your bike has been involved in a fall or other accident.

 **WARNING:** Have your bike inspected by a certified, reputable bike mechanic after any fall, crash, or accident, as these can cause damage (visible or internal/not readily apparent), make your bike unsafe, and lead to serious injury or death. Be particularly cautious about using a battery that has experienced a significant impact from a fall or crash; a damaged battery may not show external signs of damage. Using a damaged battery or charger can create additional bike damage or a fire hazard. For more information, see [“Battery information” on page 10](#).

## AFTER BREAK-IN PERIOD OF 80–160 KM (50–100 MILES)

- Inspect
- Check all cables and the chain for stretch.
  - Check spoke tension and the trueness of the wheels.
  - Check all bolted connections for loosening and ensure they are tightened to recommended torque values (see [“Tools and recommended torque values” on page 9](#)).
- Service
- Have a certified, reputable bike mechanic perform a thorough tune-up.

 **WARNING:** Certain components can stretch or loosen during any bike's break-in period, which can lead to component failure and potential injury or death. Be sure to have a certified, reputable bike mechanic perform a



thorough tune-up after this break-in period or sooner if you notice any problems or ride aggressively, with heavy payloads, or in harsh conditions.

### WEEKLY, 160–320 KM (100–200 MILES)

- Inspect**
  - Check hardware for proper torque—see [“Tools and recommended torque values” on page 9](#).
  - Check drivetrain for proper alignment and function (including chain, freewheel, chainring, and derailleur).
  - Check wheel trueness and spoke tension, and check for quiet wheel operation (without spoke noise).
  - Check frame for any damage.
- Service**
  - Clean frame by wiping frame down with damp cloth.
  - If needed, adjust the derailleur and/or brake cable tension.
  - Clean and grease the chain.
- Replace**
  - Replace any components confirmed to be broken or damaged beyond repair by Rad Power Bikes Product Support or a certified, reputable bike mechanic.

### MONTHLY, 400–1200 KM (250–750 MILES)

- Inspect**
  - Check brake pad alignment and brake cable tension.
  - Check for proper shifting and proper derailleur cable tension.
  - Check chain stretch.
  - Check brake and shifter cables for corrosion and fraying.
  - Check wheel trueness and spoke tension, and check for quiet wheel operation (without spoke noise).
  - Check accessory mounting (e.g., rack mounting bolts and fender/mudguard hardware) and alignment.
- Service**
  - Clean and lubricate drivetrain.
  - Check crankset and pedal torque.
  - Clean brake and shift cables.
  - Tension spokes and true wheels if any loose spokes are found.
  - Optional: Balance the battery. This is not necessary if you've been charging your battery after nearly every use and haven't been storing it long term. See [“Balancing the battery” on page 11](#) for more information.
- Replace**
  - Replace brake and shift cables if necessary.
  - Replace brake pads if necessary (typically when the pad material is thinner than the backing plate).

### EVERY 6 MONTHS, 1200–2000 KM (750–1250 MILES)

- Inspect**
  - Inspect drivetrain (chain, chainring, freewheel, and derailleur).
  - Inspect all cables and housings.
- Service**
  - Standard tune-up by certified, reputable bike mechanic.
  - Grease bottom bracket.
- Replace**
  - Replace brake pads.
  - Replace tyres if necessary.
  - Replace cables and housings if necessary.

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## Checking brakes & motor cutoff switches

All vehicles, including your RadWagon, need reliable brakes. Test your brake levers, brakes, and motor cutoff switches for proper functioning before every ride. If anything seems wrong, take your bike to a local, certified, and reputable bike mechanic, refer to our Help Centre ([www.radpowerbikes.eu/help](http://www.radpowerbikes.eu/help)), or contact Rad Power Bikes Product Support.

### 1. Test the brake levers.

- a. Fully squeeze each lever, and ensure neither the front nor rear brake lever touch the handlebar grips.

- b. Ensure both brake levers are properly lubricated. If they are, they'll be reasonably easy to squeeze without feeling as though there's grit in the mechanism, and when you release them, they will immediately go back to their original position.
  - c. Make sure each lever is properly oriented and firmly secured to the handlebar.
2. **Test each brake.**
- a. Squeeze the left brake lever to lock the front brake, and then try to push the bike forwards using the handlebar. The front wheel should not spin.
  - b. Squeeze the right brake lever to lock the rear brake. Again, push against the handlebar to try moving the bike forwards. The rear wheel should not spin.
3. **Test the motor cutoff switches.** The front and rear brake levers contain motor cutoff switches, which cut off power from the motor whenever the brakes are applied.
- a. In a clear, open area, turn on the bike. With appropriate safety gear and clothing, sit on the bike.
  - b. Squeeze the left brake lever to engage the front brake.
  - c. Lightly apply the twist power assist. The bike should not move since the brake is applied.
  - d. Release the twist power assist.
  - e. Release the brake.
  - f. Test that the twist power assist now operates with the brake not engaged.
  - g. Release the twist power assist.
  - h. Perform steps "a"–"g" again, this time with the rear brake lever (on the right side of the handlebar).


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## Tyre and wheel care

The RadWagon uses 22" x 3" rubber tyres with inner tubes. The tyres are designed for durability and safety for regular cycling activities. Wheels and tyres need to be checked before each use for proper condition. Always replace tyres and inner tubes with punctures, cuts, bulges, damage, or excessive wear before you ride.

### TYRE INFLATION

Inflate tubes and tyres to within the pressure range printed on the tyre sidewall, 35–65 PSI (2.4–4.5 bar). For additional information about tyre pressure, please consult our online Help Centre at [www.radpowerbikes.eu/help](http://www.radpowerbikes.eu/help).

 **WARNING:** Underinflating your tyres can result in loss of control. Overinflating can make tyres burst. Either scenario can lead to serious injury or death. Always maintain the correct air pressure of your tyres, which is listed on the tyre's sidewall, and use a regulated air source with pressure gauge so that you can measure pressure accurately.

### WHEEL "TRUENESS"


Your wheels should always spin straight ("true") and must be repaired or replaced if they wobble side to side or up and down when spinning. To test them, do this:


1. Spin the wheel.
2. Brace a dull pencil against the frame or fork, with the tip just touching the rim.

If the gap between spinning rim and pencil changes more than 5 mm, your wheels may need truing. If your wheels become untrue or if spokes loosen, which can happen with normal use, we recommend that you have a certified, reputable bike mechanic perform wheel tuning and truing operations. Do not attempt to true wheels or tighten spokes unless you have the highly specialized skills and tools to do so.

### TYRE REPLACEMENT

Even tyres equipped with built-in flat-preventative tyre liners, like those that come with your RadWagon, can and do get flats from punctures, pinches, impacts, and other causes. If you get a flat tyre or can see evidence of tyre wear, you must replace your tyres and/or tubes before operating the bike again. Otherwise, you risk bike/property damage, serious injury, or death.


 **CAUTION:** Removing a tube from your wheel rim before the air has been released from it can cause the tube to burst, potentially causing serious injury. Always release air pressure before removing your tube.

 **WARNING:** Aftermarket tyres or inner tubes not provided by Rad Power Bikes may not be compatible with your wheels or the performance requirements of your ebike. Such tyres can fail or create unsafe riding conditions, causing serious injury or death. Always use replacement tyres and tubes that are sized to be compatible with your bike frame. For safety, and if required by law, ensure replacement tyres have sufficient reflective sidewall striping.


For more information on tyre or tube replacement or about tyre inflation, visit [www.radpowerbikes.eu/help](http://www.radpowerbikes.eu/help) or contact Rad Power Bikes Product Support at [eu-support@radpowerbikes.com](mailto:eu-support@radpowerbikes.com) or +31-85 7470430.

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## Handlebar twist test


 **WARNING:** An improperly secured wheel and/or handlebar stem can cause loss of control, accidents, serious injury, or death. Check that the front wheel and handlebar stem are properly secured during assembly and before each ride.

1. **Brace the front wheel.** Stand at the front of the bike, facing the handlebar, and brace the front wheel between your feet and lower legs.
2. **Try to twist the handlebar.** Hold both handlebar grips and push forward with one hand while pulling back with the other. Push and pull at the same time with about 20 lb of force with each hand.
3. **Ensure the handlebar and wheel stay properly aligned.** The handlebar and handlebar stem should be tightly secured perpendicular to the front wheel.
4. **Repeat the twist test pulling/pushing with the opposite hands,** using about 20 lb of force pushing with one hand and 20 lb of force pulling with the other hand.
5. **If needed, align the handlebar and stem and torque the stem clamp bolts evenly.** Instructions for doing so are in [“Assembly instructions for the RadWagon 4” on page 2](#). Be sure to torque the stem clamp bolts evenly to the specification listed in [“Tools and recommended torque values” on page 9](#). After torquing the stem clamp bolts to the proper specification, perform the twist test again. If the handlebar still moves, contact Product Support.

 **WARNING:** If you are not sure you have the experience, skills, and tools to correctly perform all steps to secure and verify the security of the handlebar, front wheel, and handlebar stem you **MUST** consult a certified, reputable bike mechanic to check your work and/or secure those components to the bike properly

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## Guard against rust, corrosion, and electrical damage

 **WARNING:** DAMAGE TO YOUR EBIKE'S ELECTRICAL SYSTEM CAUSED IN ANY MANNER, INCLUDING WATER INTRUSION, CAN LEAD TO BATTERY FAILURE, ELECTRICAL SYSTEM MALFUNCTION, OR ELECTRICAL FIRE AND CONSEQUENT PROPERTY DAMAGE, INJURY, OR DEATH. Follow all recommendations below to minimize chance of water damage. If you have any questions, contact Rad Power Bikes Product Support.

Like any vehicle used outdoors, your RadWagon needs care to ensure it isn't damaged by the elements. Follow these steps for a long, healthy life for your ebike:

- Store under shelter and in an upright position for best drainage; avoid leaving the bike in the rain or exposed to corrosive substances. If exposed to rain, dry your bike afterwards, and apply anti-rust treatment to the chain and other unpainted steel surfaces.
- To clean your bike, wipe the frame with a damp cloth. If needed, apply a mild, non-corrosive detergent mixture to the damp cloth and wipe the frame. Dry by wiping with a clean, dry cloth. Never use the spray from a hose or a high-pressure washer on your bike.
- Avoid riding on the beach or in coastal areas. Doing so exposes your bike to salt, which is very corrosive. Wipe down your bike frequently and wipe or spray all unpainted mechanical parts with anti-rust treatment. Damage from corrosion is not covered under warranty.
- If painted metal parts become scratched or chipped, use touch-up paint or nail polish to prevent corrosion.
- Never immerse or submerge the bike or any components in water or liquid, which can damage the electrical system.
- Exposure to salt water can cause permanent, irreversible damage to electronic components.

# Troubleshooting

Problem	Most common solutions
<b>Bike doesn't work:</b>	
Insufficient battery power	Charge the battery
Faulty connections	Clean and repair connectors
Battery not fully seated in tray	Install battery correctly
Improper turn-on sequence	Turn on bike with proper sequence
Brakes are applied	Disengage brakes
Discharge fuse issue	Replace 40A discharge fuse
<b>Irregular acceleration and/or reduced top speed:</b>	
Insufficient battery power	Charge or replace battery
Loose or damaged twist power assist	Replace twist power assist
<b>When powered on, the motor does not respond:</b>	
Loose wiring	Reconnect or repair
Loose or damaged twist power assist	Tighten or replace
Loose or damaged motor plug wire	Reconnect or replace
Damaged motor	Repair or replace
<b>Reduced range:</b>	
Low tyre pressure	Inflate tyres to recommended PSI
Low battery	Charge battery
Driving with too many hills, headwind, braking, or excessive load	Assist with pedals or adjust route
Battery discharged for long period without regular charges	Balance the battery (see <a href="#">"Balancing the battery" on page 11</a> ); contact Rad Power Bikes Product Support if range decline persists
Brakes rubbing	Adjust the brakes
Faulty, damaged, or aged battery	Contact Rad Power Bikes Product Support to replace battery. Disconnect and store damaged battery in a safe location and recycle or dispose of as soon as possible according to local rules.
<b>The battery won't charge:</b>	
Charger not well connected	Adjust the connections
Charger damaged	Replace
Battery damaged	Disconnect and store battery in a safe location and recycle or dispose of as soon as possible according to local rules. Contact Rad Power Bikes Product Support to replace battery.
Wiring damaged	Repair or replace
Charge fuse issue	Replace the 5A charge fuse

### Wheel or motor makes strange noises:

Loose motor cable connection	Reconnect cable
Damaged wheel spokes or rim	Repair or replace
Damaged motor wiring	Repair or replace motor


## Error detection

Your RadWagon is equipped with an error detection system integrated into the display and controller (see "[LCD display and electric controls](#)" on page 14 for more information). In the case of an electronic control system fault, an error code should appear on the display. The following error codes are the most common and can aid in troubleshooting. If your bike has an error code displayed at any time, we recommend that you cease operation and look up the error code troubleshooting information at [www.radpowerbikes.eu/help](http://www.radpowerbikes.eu/help). Contact Rad Power Bikes Product Support if you have questions.

Error	Definition
21	Abnormal current
22	Twist power assist fault
23	Motor phase fault
24	Motor hall fault
25	Brake switch fault or the brake applied while turning on
30	Communication fault

## Ride as safely as possible

Ride Rad by taking the sensible measures outlined in this section to maximize your safety. Bicycling is an exciting, delightful, and practical way to get around, but like any sport, it involves risk of injury and death. By choosing to ride a bike, you assume responsibility for those risks.


 **WARNING:** Incorrect assembly, maintenance, or use of your RadWagon can cause component or performance failure, loss of control, serious injury, or death. Even if you're an experienced bike rider, **you must read and understand the entire manual and any documentation provided for subcomponents or accessories before riding.** If you are not sure you have the experience, skills, and tools to correctly perform all assembly steps in the manual and the assembly video at [www.radpowerbikes.eu/help](http://www.radpowerbikes.eu/help), consult a local, certified, reputable bike mechanic.

## Be thoroughly educated about your bike before riding it

Practise riding your bike, braking, shifting gears, and using the twist power assist and pedal assist systems in a controlled location before venturing into traffic or other risky conditions.

The electrical system on your ebike (see "[LCD display and electric controls](#)" on page 14) offers various levels of power assistance and lighting for different operating conditions and user preferences. Be sure you understand these features before riding. The twist power assist should provide smooth acceleration when gradually applied. If the twist power assist, pedal assistance, or lighting is functioning abnormally, intermittently, or not at all, please discontinue using your ebike immediately and contact Rad Power Bikes Product Support for assistance.

Take extreme care getting to know and learning to control the pedal assist and brake systems. Your RadWagon is probably heavier than other bikes you've ridden, and it will handle quite differently from lighter bikes, especially when you're accelerating or decelerating. Learn to maintain a comfortable stopping distance from all other objects, riders, and vehicles at different speeds, conditions, and with varying payloads.


 **WARNING:** Using the front brake by itself can cause excessive stress on components, damage to the bike and parts, loss of control, injury, or death. Always apply the rear brake before applying the front brake, using both brakes for all operations.

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## Age and ability requirements

The RadWagon is designed for persons at least 16 years of age, and a parent or legal guardian should always decide whether a child should operate or ride as a passenger on the RadWagon or any other vehicle. Some localities may require ebike riders to be older than 16.

Riders must also have the physical ability, reaction time, and mental capability to understand and obey all local laws governing ebike usage and to manage traffic, variable road conditions, and sudden situations. If you have an impairment or disability (e.g., visual impairment, hearing impairment, physical impairment, cognitive or language impairment, seizure disorder) or any other limitation that could affect your ability to safely operate a vehicle, consult your physician before riding any bike.

 **DANGER:** Riding any bike under the influence of alcohol, drugs, or any substance or condition that could impair your motor function, judgment, reaction time, or ability to safely operate a vehicle puts you at VERY HIGH RISK of serious injury or death. Operate bikes and other vehicles only when you're sober and otherwise physically and mentally prepared to ride safely.

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## Know and obey all relevant local laws

The RadWagon 4 is a 250 watt (W) pedelec. Please check relevant legislation in the locations you intend to ride for a full understanding of all necessary legal requirements for operating your RadWagon 4. This manual will refer to your RadWagon 4 as the "RadWagon 4," "RadWagon," "RadWagon 4 .," "bike," "ebike," or "electric bike." It is your responsibility to know the local laws that govern any type of vehicle you use.

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## Safety check before each ride

Before each ride, you must check your bike to ensure everything is working properly. Follow the instructions on the ["Safety checklists" on page 20](#) and ground your safety checks in a solid understanding of bike maintenance, which is explained in ["Maintenance" on page 20](#), a section that includes an important chart, ["Recommended service intervals" on page 22](#), which you should follow as well.

If you are ever unsure how to check or maintain your bike or if you find any problems with it, take it to a certified, reputable bike mechanic or contact Rad Power Bikes Product Support.


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## Ride appropriately for conditions

Always travel at speeds appropriate for local terrain and conditions as well as your experience level. **When in doubt, slow down.** Always use a low pedal assist level until you are comfortable with your RadWagon and confident about controlling its power, weight, and responsiveness (e.g., during start-up, turns, and braking) at different speeds, in different conditions, and with whatever payloads you might carry.

**Riding with your headlight on** will make you more visible in any conditions. The headlight will turn on when the bike is powered on. We recommend you keep it on whenever you ride.

**Concentrate on the path ahead.** Avoid potholes, gravel, ice, wet or oily roads, wet leaves, curbs, train tracks, speed bumps, drain gates, thorns, broken glass, and other obstacles, hazards, and puncture flat risks.

 **WARNING:** Crossing train tracks or similar grooved or raised surfaces at a diagonal can make the surface "grab" or deflect your wheel, causing your bike to suddenly get stuck or crash, leading to serious injury or death. Always cross such hazards at a perpendicular angle or, when in doubt, dismount and walk your bike across.

### PATH RIDING

Be a good citizen of shared-use paths and facilities. Keep your speed reasonable and below path speed limits, pass carefully and kindly. Use your voice and/or bell to signal your presence to others, especially when passing.

### ROAD RIDING

When riding on streets, obey the same road laws as all other road vehicles as well as local rules governing bike or ebike usage. Sharing the road with other vehicles presents many hazards. Always take these precautions:

- Expect the unexpected such as opening car doors or cars backing out of driveways.
- Be extra careful at intersections and when preparing to pass other vehicles or other cyclists.

- Ride predictably, in a straight line, and with the flow of traffic. **Never ride against traffic.**
- Use correct hand signals to indicate turning, and do so well in advance of turning.
- Ride defensively. To other road users you may be hard to see.
- Increase your visibility by following the tips in [“Low-visibility conditions” below](#).

## OFF-ROAD RIDING

Riding off road requires close attention and specific skills, and it presents variable conditions and hazards. Don't ride off road unless you have the appropriate skills. If you choose to ride off road, wear appropriate safety gear and do not ride alone in remote areas.

## HOT OR COLD CONDITIONS

Riding, parking, or storing your bike in excessively hot conditions can cause damage to the display and other components. Do not park or store your bike in direct sunlight for extended periods. Excessive heat can damage the bike's electronics or the battery, and can cause intermittent power outages, as the battery is designed to shut off automatically to prevent operation at unsafe temperatures. If you ride in hot conditions, using lower PAS levels and less twist power assist can help reduce temperature rise in electrical components.

Riding in very cold conditions can cause battery range to decline (the colder the environment, the greater the range decline). We recommend that you not operate your bike in temperatures less than -4° F (-15° C).

## LOW-VISIBILITY CONDITIONS



**WARNING:** Riding at night or in other low-visibility conditions (dawn, dusk, fog, rain, mist, snow, etc.) makes it harder to see and avoid hazards and makes it harder for others to see and avoid you, which increases risk of accidents, serious injury, or death. Wet, slippery surfaces will compound your risk of injury or death. Avoid these conditions whenever possible. If you must ride in these conditions, following the guidelines below can reduce risk.

- Wear reflective and brightly coloured clothing.
- Slow down.
- Use familiar routes with street lighting if possible.
- Ensure tyre wall, pedal, and other reflectors are installed and unobstructed.
- Ensure headlight and taillight/brake light are functioning correctly and unobstructed. Use them.

## WET CONDITIONS

This electric bike is not meant for use in puddles, heavy rain, or streams. Never immerse or submerge this product in water or liquid as the electrical system may be damaged.




**WARNING:** Riding in wet conditions means slippery hands, feet, and riding surfaces, which greatly increases your risk of accidents, serious injury, or death. Low-visibility conditions (night, dusk, dawn, fog, mist, rain, snow, etc.) will compound your risk of injury or death. If you must ride in wet conditions, following the guidelines below can mitigate risk somewhat.

- Decrease riding speed to help you control the bike in slippery conditions.
- Brake earlier since it will take longer to slow down than in dry conditions.
- Take care to be more visible to others on the road, following the tips in [“Low-visibility conditions” above](#).
- Remember that road hazards are more difficult to see when wet, so proceed with extra caution.

## EXTREME RIDING

There are no appropriate conditions for extreme riding. Although many articles, advertisements, and catalogues depict extreme riding, Rad Power Bikes strongly recommends against such inappropriate and dangerous use of its products.



 **DANGER:** Extreme riding puts you at **VERY HIGH RISK** of serious injury or death. Extreme riding includes but is not limited to jumps, stunts, or any riding that exceeds your capabilities or the strength and integrity limitations of certain bike components and/or otherwise leads to dangerous situations. Never engage in extreme riding or any type of riding that exceeds your capabilities.


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## Wear a helmet and appropriate safety gear

We strongly advise that you and any passengers you carry wear a properly fitting, certified bicycle safety helmet while riding your bike, which may be required by law in your area.

**Wear appropriate safety gear** including closed-toe shoes. If you are wearing loose pants, secure the bottom using appropriate leg clips or bands to prevent the fabric from flapping and getting caught in the chain or other moving parts. Never use items such as headphones or hoods that can compromise your hearing or field of vision. A local, certified, and reputable bike shop can help advise you on what gear is best for the weather and other riding conditions in your area.

**Maximize your visibility** with bright colours and reflective outerwear or vests. Never compromise your ability to be seen or heard by removing your bike's reflectors, blocking or removing the headlight or taillight, or removing the bell.

 **DANGER:** Riding any bike without a helmet puts you at **VERY HIGH RISK** of serious head injury or death. Always wear a properly fitted helmet that covers the forehead. Many locations require specific safety devices. It is your responsibility to familiarize yourself and comply with the laws, rules, and regulations where you ride.

## Limited warranty and other terms

Your bike's warranty and other binding legal terms (e.g., terms of purchase, etc.) are subject to change at any time. To view your terms of purchase, go to [www.radpowerbikes.eu/terms](http://www.radpowerbikes.eu/terms). To view the current warranty, please go to [www.radpowerbikes.eu/warranty](http://www.radpowerbikes.eu/warranty).