

# **RADWAGON<sup>®</sup>**

ELECTRIC CARGO BIKE

## Welcome

Thank you for purchasing the RadWagon® 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.

If you have questions after reading this manual, please reference the Rad Power Bikes Help Center, contact us by email, and/or give us a call on the phone.

**We are here to help!**

**Please visit:**

**Website:** [www.radpowerbikes.eu](http://www.radpowerbikes.eu)

**Help Center:** [www.radpowerbikes.com/help](http://www.radpowerbikes.com/help)

**Contact us:**

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

**Call:** +31-85 7470430

Thanks for Riding RAD!

## Using This Manual

This manual contains details of the product, its equipment, and information on operation, maintenance, and other helpful tips for owners. Read it carefully and familiarize yourself with the RadWagon before using it to ensure safe use and prevent accidents. Be sure to retain this manual as your convenient RadWagon information source. More information is available at [www.radpowerbikes.eu](http://www.radpowerbikes.eu).

This manual contains many warnings and cautions concerning safe operation and consequences if proper setup, operation, and maintenance are not performed. All information in this manual should be carefully reviewed and if you have any questions you should contact Rad Power Bikes immediately. The notes, warnings, and cautions contained within the manual and marked by the triangular Caution Symbol (depicted at right) should also be given special care. Users should also pay special attention to information marked in this manual beginning with **NOTICE**.



Because it is impossible to anticipate every situation or condition which can occur while riding, this manual makes no representations about the safe use of bikes under all conditions. There are risks associated with the use of any bike, which cannot be predicted or avoided, and which are the sole responsibility of the rider. You should keep this manual, along with any other documents that were included with your bike, for future reference, however all content in this manual is subject to change or withdrawal without notice. Visit [www.radpowerbikes.com/help](http://www.radpowerbikes.com/help) to download the latest version. Rad Power Bikes makes every effort to ensure accuracy of its documentation and assumes no responsibility of liability if any errors or inaccuracies appear within. Assembly and first adjustment of your bike from Rad Power Bikes requires special tools and skills and it is recommended that this should be done by a certified, reputable bike mechanic if possible.

Table of Contents

**Using this Manual ..... 1**

**General Info ..... 3**

**Assembly Instructions..... 7**

**Battery Charging ..... 14**

**Operation ..... 19**

**Maintenance ..... 33**

**Troubleshooting..... 38**

**Warnings and Safety..... 40**

**Warranty ..... 44**

**Links to Assembly Video and Online Resources ..... 46**

## General Info

### RadWagon Vehicle Category

The RadWagon is a type approved L1e-A powered cycle. Please check relevant legislation in the locations you intend to ride for a full understanding of all necessary legal requirements for operating your RadWagon.

### License Plate Installation

Depending on the location of use, a driving permit/license and insurance/number plate may be required to operate the RadWagon L1e-A Powered Cycle. The license/number plate mounting bracket included on the RadWagon is sized to accommodate most license/number plates designed for L1e-A type vehicles. Please inform yourself regarding all applicable legislation before using your powered cycle and ensure a license/number plate, if required, is properly secured.

### Mandatory Equipment and Use Locations

Before all rides, ensure you have all required and recommended safety equipment and are following all laws pertaining to using an electric bike in your region. For example, these laws may include the need for mandatory equipment, use of hand signals, and where you can ride.

### Assembly and Fit

Correct assembly and fit are essential elements of ensuring your bicycling safety, performance, and comfort. If you have the experience, skill, and tools to complete these essential steps before your first ride, Rad Power Bikes recommends having a certified, reputable bike mechanic check your work.

**NOTICE:** If you do not have the experience, skill and tools to complete assembly and fit, Rad Power Bikes highly recommends having a certified, reputable bike mechanic complete these procedures as well as any future adjustments or tuning.

**NOTICE:** A critical aspect of assembling your bike from Rad Power Bikes is securing the front wheel and checking the tightness of the rear wheel axle nuts. All bikes by Rad Power Bikes use a quick release front wheel mounting mechanism and the rear wheel is bolted on. Both wheels need to be properly secured before operating your bike.

## Safety Check Before Each Ride

Always check the condition of your bike before you ride in addition to having regular maintenance performed. If you are unsure of how to conduct a complete check of the condition of your bike before every ride, you should consult a certified, reputable bike mechanic for assistance. See the Pre-Ride Safety Checklist section of this manual for more information.

## Electrical System

The electrical system on your RadWagon offers various levels of power assistance and lighting for different operating conditions and user preferences. It is critical that you familiarize yourself with all aspects of your RadWagon's electrical system and check to see that it is working correctly before every ride. The front and rear brake levers contain safety power cutoff switches, which disable the hub motor's assistance when applied, and both levers should be checked for correct operation. The throttle should provide smooth acceleration when gradually applied. If the throttle, brake lever cutoff switches, pedal assistance, or lighting is not functioning normally, intermittent, or not working, please discontinue use of your RadWagon immediately and contact the Rad Power Bikes Technical Support for assistance.

## Brakes

Ensure brakes are working correctly, all braking system components are free from damage, and properly secured. When you fully squeeze the brake levers, ensure neither the front or rear brake levers touch the handlebar. Take your bike to a certified, reputable bike mechanic to have the brakes repaired if you find a problem.

## Tires and Wheels

Your wheels should always spin straight and must be repaired or replaced if they wobble side to side or up and down when spinning. If your wheels become untrue or spokes loosen, do not attempt to true or tighten them unless you have adequate knowledge, tools, and experience. It is recommended that a certified, reputable bike mechanic performs all wheel tuning and truing operations on your bike from Rad Power Bikes. Ensure your tires and inner tubes are in good working condition without any visual damage and have the correct amount of air pressure. Always replace tires and inner tubes with punctures, cuts, or damage before you ride. Tires without the correct amount of air pressure can reduce performance, increase tire and component wear, and make riding your bike unsafe.

## Quick Release Levers

Quick release levers are located throughout the RadWagon for securing the seat post and the front wheel to the bike. These provide convenience to the user since they allow the front wheel to be removed, and the seat post to be adjusted without tools. Since quick release levers can be loosened during transportation, or accidentally between or during rides, it is important that you regularly check to ensure these components are properly secured.

## Handlebar, Grips, and Seat Adjustments

Check to ensure the handlebar, handlebar stem, and seat post are properly fastened, aligned, and fitted to the user. Ensure all the hardware securing the handlebar and seat are properly tightened, including all quick release levers. Loose, worn, or damaged handlebar grips should be replaced before you ride.

## Battery Charged, Secured, and Unplugged

Ensure the battery is fully charged and operating properly. The battery gauge on the LCD display and battery mounted charge status indicator should read similarly. The battery MUST be locked onto the frame battery mount properly before use. Ensure the battery charger is unplugged from the battery and put away before you ride.

## Accessories, Straps, and Hardware

Ensure all hardware is secured and all approved accessories are properly attached per the specific component manufacturer's instructions. It is good practice to look over all hardware, straps, and accessories before each ride and if you do discover something is wrong or find something you are not sure about, please have it checked by a certified, reputable bike mechanic.

## Changing Components or Attaching Accessories

The use of non-original components or spare parts can jeopardize the safety of your RadWagon, void your warranty, and in some cases cause your RadWagon to not conform with laws pertaining to your bike.



**The replacement of original components or installation of third-party accessories or accessories from Rad Power Bikes not explicitly recommended for your bike model, is at your own risk. Using aftermarket accessories or components that have not been tested by Rad Power Bikes for safety and compatibility may void your warranty, create an unsafe riding condition, damage your bike or property, or result in serious injury and/or death.**





# Assembly Instructions

**NOTICE:** The following assembly steps are only a general guide to assist in the assembly of your bike from Rad Power Bikes and is not a complete or comprehensive manual of all aspects of assembly, maintenance, and repair. We recommend you consult a certified, reputable bike mechanic to assist in the assembly, repair, and maintenance of your bike.

**Step 1:** Remove bike from carton and carefully set out all contents of the box. Remove packaging material protecting the bike frame and components. Ensure the following pieces are included in the package.

RadWagon	Front Wheel	Anti-rotation spring (deflopilator)	Kickstand
Manual(s) and Assembly Toolkit	Charger	Pedals (marked left and right)	Left and Right Running Boards
Quick Release (in fork protector plate)	Front Fender	Headlight	Keys (two, identical)

If there are any missing parts, please contact Rad Power Bikes for help replacing missing pieces.

**Step 2:** Install Kickstand onto bike using provided hardware as shown in the assembly video at [www.radpowerbikes.com/help](http://www.radpowerbikes.com/help).



**Step 3:** Install handlebar onto the stem as shown in the assembly video for the RadWagon available at [www.radpowerbikes.com/help](http://www.radpowerbikes.com/help). Be sure to center the handlebar and ensure hardware is properly secured. Before fully securing the handlebar to the stem, adjust the stem angle using the hex screws on the side of the stem. Once you have the desired handlebar height, rotate the handlebar in the stem until finding the ideal wrist angle and securely fasten all hardware.



**Step 4: Install the front wheel components.** Install the front fender, headlight, and front wheel onto the front fork as shown in the assembly video at [www.radpowerbikes.com/help](http://www.radpowerbikes.com/help). Ensure front wheel and quick release are properly secured before moving on to the next step. When properly installed, the front wheel should be fully seated in the dropouts of the front fork, and the quick release lever should be fully and properly secured.



Carefully align and connect the waterproof connector joining the headlight to the wiring harness. The headlight angle should be adjusted to provide illuminate the road ahead and not blind oncoming traffic. The headlight is equipped with a light sensor which will automatically dim the headlight when riding during day to save power. The sensor is covered by a switch on the back of the headlight (depicted at right). When the small opaque sensor is covered, the headlight, when on, will be full brightness, daytime and nighttime. If the sensor is exposed as shown (at right), the headlight, when on, will automatically dim during the day, and fully bright when it is dark out. Select either option based on preference.



**Step 5: Install the pedals.** Locate the pedal marked with an “L” at the pedal axle end and notches on the outside of the pedal axle (1, at right). The pedal marked “L” with notches goes on the crank on the left side of the bike (which is the same as a rider’s left side when riding). **The left pedal is reverse threaded and tightens counterclockwise.** Carefully thread the pedals by hand slowly. Do not cross thread or damage the threads. **Tighten securely using a pedal wrench to avoid damage caused by wider wrenches,** as shown in assembly video.



**The right pedal is threaded so that it is tightened by turning clockwise,** has an “R” stamped into the pedal axle end, and a smooth exterior on the outside of the pedal axle (2, above). Carefully thread the right pedal onto the crank on the right side of the bike (the side with the drivetrain gears) slowly and by hand. Do not cross thread or damage the threads. **Tighten securely using a pedal wrench to avoid damage caused by wider wrenches.**



**Step 7: Install the Running Boards** using the provided hardware and using the steps shown in the assembly video at [www.radpowerbikes.com/help](http://www.radpowerbikes.com/help). Running Boards should be level once secured. If they are sitting at an angle, loosen the mounting hardware and hold the Running Boards in a horizontal orientation, while alternating between bolts, tightening each bolt a partial turn at a time.



**Step 7: Inflate tires** to desired PSI. Recommended pressure 50-60 PSI (3.45-4.14 Bar) for the front and rear tires on the RadWagon. Recommended tire pressure is indicated on the tire sidewall. Do not overinflate or underinflate tires.



**Step 8: Set desired seat height.** Adjust the seat post up and down to a comfortable height and secure all hardware and the quick release lever to lock the seat post in place. Ensure the seat post is inserted into the seat tube of the frame above the minimum insertion point, marked on the seat post. Secure tightly with the quick release lever at the desired height. See the seat adjustment sections in this manual (Adjusting the Seat Height and Adjusting the Seat Position and Angle) for more detailed instructions on adjusting seat height, position, and angle.



**Step 9: Install the deflopilator** (front fork anti-rotation spring) and plastic cover as shown in the assembly video available from [www.radpowerbikes.com/help](http://www.radpowerbikes.com/help).



**STEP 10: Review the remainder of the manual.** Once the bike has been assembled per the above instructions and the assembly video available from [www.radpowerbikes.com/help](http://www.radpowerbikes.com/help), read, understand, and follow the procedures outlined in the remainder of the manual before operating the bike.

**NOTICE:** If you have any questions regarding the assembly of your bike, contact Rad Power Bikes. If you are not able to ensure all the assembly steps in the assembly video are performed properly, or you are unable to view the assembly video, please consult a certified, reputable local bike mechanic for assistance in addition to contacting Rad Power Bikes for help.

**NOTICE:** Ensure all hardware is tightened properly following Recommended Torque Values and all safety checks in this manual are performed before the first use of the bike.



**Do not extend any components including the handlebar stem, seat post, or seat saddle beyond any minimum insertion marking etched into the components. Ensure that all hardware is properly tightened (to the recommended torque values listed below) and secured before moving on to next step otherwise damage to the bike, property, serious injury, or death could occur.**

**NOTICE:** Ensure all hardware is tightened properly and all safety checks in the following sections are performed before first use. Contact Rad Power Bikes if you have any questions regarding the assembly of your bike. If you are not able to ensure all the assembly steps in the assembly video are performed properly, or you are unable to view the assembly video please consult a certified, reputable local bike mechanic for assistance in addition to contacting Rad Power Bikes for help.

## Recommended Torque Values

Hardware Location	Hardware	Torque Required (Nm)
Handlebar Area	Handlebar Stem Clamp Bolts	10
Handlebar Area	Stem Faceplate Bolts	6
Handlebar Area	Brake Lever Clamp Bolt	6
Handlebar Area	Shifter Clamp Screw	6
Brakes	Caliper Adapter to Frame	6-8
Brakes	Caliper to Adapter	6-8
Brakes	Brake Cable to Caliper Clamp	6-8
Brakes	Brake Rotor to Hub	7
Seat Post Area	Seat Adjustment Bolt	20
Rear Dropout Area	Rear Axle Nuts	40
Rear Dropout Area	Rear Torque Arm Bolt	5
Rear Dropout Area	Derailleur Hanger Mounting Bolt	6
Rear Dropout Area	Derailleur Mounting Bolt	10
Rear Dropout Area	Derailleur Cable Pinch Bolt	6-8
Rear Dropout Area	Kickstand Mounting Bolts	12
Rear Dropout Area	Running Board Mounting Hardware	8
Bottom Bracket and Crank Area	Bottom Bracket and Lockring	60
Bottom Bracket and Crank Area	Crank Arm Bolt into BB spindle	35
Bottom Bracket and Crank Area	Pedal into Crank Arm	35
Bottom Bracket and Crank Area	Chainring Bolts	10
Bottom Bracket and Crank Area	Controller Mounting Bolts	6
Fenders	All Fender Mounting Bolts and Hardware	6

## Adjusting the Seat Height

For most users, the seat height should be set by placing the ball of their foot on the pedal when the crank is at its lowest point. In this orientation their leg should almost be fully extended.

- 1) Open the quick release lever by swinging the lever open and outwards to about 180 degrees.
- 2) Move the seat up and down by sliding the seat post in or out of the seat tube. Set the desired seat height.
- 3) After tightening the adjustment nut (opposite the quick release lever) on the seat post quick release properly, close the quick release lever by swinging the lever back about 90 degrees until it looks like the image at right and the seat cannot move up, down, to the left, or right.



**Before using the bike, always check to ensure all latches, levers, and quick releases are properly secured and undamaged. Check that they are correctly secured before every ride and after every time the bike is left unsupervised, even for a short time. Otherwise, the handlebar stem and/or seat post may come loose and can result in loss of control, damage to the bike, property, serious injury, and/or death.**

## Adjusting the Seat Position and Angle

To change the angle and horizontal position of the seat:

- 1) Use a hex wrench to undo the seat adjustment bolt (pictured at right) underneath the seat on the clamp positioned immediately underneath the seat, above the rear wheel.
- 2) You can now move the seat backwards or forwards in the guide and adjust the angle of the seat. A seat position horizontal to flat ground is desirable for most riders. There are white limit markings on the seat rail, which show the minimum and maximum horizontal movement allowed for this component, do not exceed these limits.
- 3) While holding the seat in the desired position, use a hex wrench to tighten the seat adjustment bolt securely.



**NOTICE:** Prior to first use, be sure to tighten the seat clamp via the seat adjustment bolt properly. A loose seat clamp or seat post adjustment bolt can cause damage to the bike, property, loss of control, a fall, serious injury or death. Periodically check to make sure that the seat clamp is properly tightened.

**NOTICE:** Ensure seat post and seat are properly adjusted before riding. DO NOT raise the seat post beyond the minimum insertion marking etched into the seat post tube (as shown at right). If the seat post projects from the frame beyond these markings (shown far right), the seat post or frame may break, which could cause a rider to lose control and fall. Ensure the minimum insertion markings on the seat post are inside the seat tube of the frame.



## Rider Comfort

To obtain maximum comfort, riders should not overextend their arms' reach when riding. To obtain the most comfortable riding position and offer the best possible pedaling efficiency, the seat height should be set correctly in relation to the rider's leg length as briefly described above. The correct seat height should not allow leg strain from over extension and the hips should not rock from side to side when pedaling. While sitting on the bike with one pedal at its lowest point, place the ball of the foot on that pedal. The correct seat height will allow the knee to be slightly bent in this position. A bike fitting professional, such as a certified, reputable bike mechanic who specializes in bike fit, should be consulted if you have any questions regarding proper bike fit to avoid strain on the rider.

## Battery Charging

### Charging Procedure

Refer to the image below and follow these steps for charging your bike from Rad Power Bikes:

1. **Turn the battery off by using the key.** Insert the key into the key port (1, below) on the left side of the battery and rotate to align the key with the “OFF” icon located on the lock cylinder faceplate, the small circle with an “X” inside.
2. **Remove the rubber cover on the charging port** (2, below) on the opposite side of the battery from the key switch.
3. With the battery on or off the bike, place the charger in a flat, secure place, 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 the outlet, then the charging port.** Connect the charger input plug (110/230-volt plug) to the power outlet. Charging should initiate and will be indicated by the LED charge status light on the charger turning red.
5. **Unplug the charger from the outlet, then the charging port.** Once fully charged, indicated by the charging indicator light turning green, unplug the charger from the wall outlet first and proceed to remove the charger output plug from the battery charging port.



**Always charge your battery in temperatures between 10°C - 25°C (50°F - 77°F) and ensure the battery and charger are not damaged before initiating charge. If you notice anything unusual while charging, please discontinue charging and use of the bike and contact Rad Power Bikes for help.**





## Basic Battery Charging Tips

- Check the charger cables, charger, and battery for damage before beginning each charge.
- Always charge in dry, indoor locations away from direct sunlight, dirt, or debris.
- Charge in a clear area away from potential to trip on the charging cords or for damage to occur to the bike, battery, or charging equipment while parked and/or charging.
- The battery can be recharged on or off the bike.
- To remove the battery, turn the key to the off and unlocked position (see the Start-Up Procedure section of this manual for more details) and then carefully pull the battery forward and up until the battery detaches from the receptacle.
- The battery should be recharged after each use, so it is ready to go the full range per charge next ride. There is no memory effect, so charging the battery after short rides will not cause damage.
- The charge indicator light on the charger will stay red while the battery charges and turn green when charge is complete.
- The charger will automatically stop charging when the battery is full.
- Charging the battery fully normally takes 3-7 hours. In rare cases, it may take longer to allow the battery management system to balance the battery, particularly when the bike is new or after long periods of storage.
- Do not charge the battery for more than 12 hours at a time or leave a charging battery unattended.



**Do not cover up the charger when plugged in or charging. It air cools and needs to be on a hard, flat surface in an open space. Use the charger with indicator the light facing upwards. Do not use with the charger inverted, which can inhibit cooling and reduce charger lifespan.**



**If the battery is physically damaged, non-functional, or performing abnormally, please discontinue use and contact Rad Power Bikes immediately.**



**Do not open the battery housing, which will void the warranty and can result in damage to the battery, property, serious injury, and/or death.**

## When the Battery Is Removed

- Ensure the battery is turned off whenever it is being removed or off the bike.
- Do not touch the “+” or “-” terminal contacts on the bottom of the battery when the battery is removed from the bike.
- Be careful not to drop or damage the battery when loose from the bike.
- Be careful to avoid damaging the exposed connector terminals and keep them clear of debris.



**Use caution to avoid damage to battery connector terminals, which are exposed when the battery is unlocked and removed from the frame of the bike. In the case of damage to the terminals or battery mounts, please discontinue use and contact Rad Power Bikes Technical Support immediately.**

## When Installing the Battery onto the Bike

- Ensure the battery is turned off before sliding the battery into the frame mount receptacle.
- Do not force the battery onto the receptacle; slowly align and carefully push battery down into the receptacle.
- Ensure the key is in the locked position before riding and check that the battery has been properly secured to the bike before each use by pulling upwards and testing the security of the attachment of the battery to the mount.

## Charging Time

When the input and output terminal are connected properly, and the battery is not fully charged, the red charging indicator light should illuminate, showing that the battery is charging. The time that the charger takes to fully charge the battery is dependent on various factors including distance traveled, riding characteristics, terrain, payload, and battery age. The following table provides an estimate of charge time based on most common distances traveled in regular operation:

Distance Traveled	Charge Time to Fully Recharge
8 km	1 hour
16 km	1.5 hours
24 km	2.5 hours
32 km	3.5 hours
40 km	4.5 hours
48 km	5.5 hours
72 km	7 hours

**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 does not seem to be charging normally, taking longer to charge than expected, or you are experiencing substantial reduction in range, please discontinue use and contact Rad Power Bikes immediately.

## Charger Safety Information

- The charger should only be used indoors in a dry, ventilated area, on a flat, stable, hard surface.
- Avoid charger contact with liquids, dirt, debris, or metal objects. Do not cover the charger while in use.
- Store and use the charger in a safe place away from children and where it cannot suffer damage from falls or impact.
- Fully charge the battery before each use to ensure it is ready to go the full range per charge, to extend the life of the battery, and help reduce the chance of over-discharging the battery pack.
- Charge the battery with the charger originally supplied with the bike from Rad Power Bikes, or a charger purchased directly from Rad Power Bikes, designed for use with your specific bike serial number, as approved by Rad Power Bikes.
- Do not charge the battery with any chargers other than the one originally supplied from Rad Power Bikes or a charger purchased directly from Rad Power Bikes, designed for use with your specific bike, as approved by Rad Power Bikes.
- The charger works on 110/230V 50/60 Hz standard home AC power outlets and the charger automatically detects and accounts for incoming voltage. Do not open the charger or modify voltage input.
- Do not yank or pull on the cables of the charger. When unplugging, carefully remove both the AC and DC cables by pulling on the plastic plugs directly, not pulling on the cables.
- The charger will get hot when operating as designed. If the charger gets too hot to touch, you notice a strange smell, or any other indicator of overheating, discontinue charger use immediately and contact Rad Power Bikes Technical Support.



**Please take special care in charging your bike from Rad Power Bikes in accordance with the procedures and safety information detailed in this manual. Failure to follow proper charging procedures can result in damage to your bike, the charger, personal property, and/or serious injury or death.**

## Long-Term Battery Storage

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

- Charge (or discharge) the battery to approximately 75% charged.
- Power off the battery by inserting the key into the key port on the left side of the battery and turning counter clockwise to the small icon of the circle containing an “X” on the lock cylinder faceplate (to keep the battery locked onto the frame in the off position). To power off the battery and remove it from the bike to store off the bike, push the key into the key port and push and rotate counter clockwise until the key is aligned with the small lock icon; use both hands to carefully lift the battery off the bike and bring the battery to the storage location. See the Start-Up Procedure section of this manual for more information on key positions.
- Store the battery in a dry, climate controlled, indoor location between 10°C - 25°C (50°F - 77°F).
- Check the battery every month, and if necessary, use the charger from Rad Power Bikes to charge the battery to 75% charged.



**Please follow the above instructions for storing your bike and battery from Rad Power Bikes. Failure to follow proper battery storage procedures can result in a non-functional battery and replacement will not be covered under warranty.**

## Operation

**NOTICE:** Do not perform any of the steps in the Operation section of this manual until you have read this entire manual, since there are important details in the following sections related to safety.



**Users must follow the instructions and warnings contained in this manual for safety. Do not attempt to operate your bike from Rad Power Bikes until you have adequate knowledge of its control and operation. Damage caused by failing to follow instructions is not covered under warranty and could result in personal injury to you and others, and damage to property and/or your bike from Rad Power Bikes. Contact Rad Power Bikes if you have any questions about assembly or operation.**



**Users must become accustomed to the power control system of the bike before operating. The throttle mechanism allows full power to be activated from a stop and inexperienced users should take extra care when first applying the throttle. The pedal assistance feature is also a powerful option and users should fully research and understand how to operate it before first use. Not taking care to familiarize yourself and practice the operation of the power system on your bike from Rad Power Bikes can lead to death or serious injury, please heed this warning.**

## Start-Up Procedure

After your bike has been properly assembled following the assembly video, and all components are secured correctly, you may turn the bike on and select a power level following the steps outlined below:

1. Familiarize yourself with the key port and key positions depicted below. The photo below shows the key port aligned in **key position 1**, in line with the small open circle icon. In key position 1, the battery in the “ON” position, with the battery locked to the frame, ready to ride. See the table below for each key position and the location of the Key Identifier Code icon (4).

Key Position/ Icon	Description
1	ON, Locked to Frame
2	OFF, Locked to Frame
3	OFF, Unlocked from Frame (for battery removal)
4	Key Identifier Code

2. Inspect battery key port on the left side of the battery (depicted here). Ensure key port is aligned with the open circle icon, in the “ON” position indicating the battery is on and locked onto the frame mount. If needed, insert the key and align with the “ON, Locked” icon (1). Remove the key and carefully use both hands to pull up on the battery to test that the lock is secure.



3. Once the battery lock has been verified, locate the LCD Display Remote (near the left handlebar grip). Hold down the center “mode” button for approximately 2 seconds then release to power on the LCD Display.
4. Select your desired level of pedal assistance (PAS) between level 0 through 5 using the up and down arrows on the LCD Display Remote. Level 1 corresponds to the lowest level of pedal assistance, and level 5 corresponds to the highest level of pedal assistance. Level 0 indicates pedal assistance is inactive. Start in PAS level 0 or 1 and adjust from there.
5. To turn on the headlight, once the LCD Display is on, hold down the top (up arrow) and middle (mode) buttons located on the LCD Display Remote for approximately 2-3 seconds until the light illuminates.
6. With the proper safety gear, rider knowledge, and understanding you may now proceed to operate your bike from Rad Power Bikes. You can begin by pedaling the bike in the appropriate drivetrain gear with pedal assist level 0 or 1. You may also use the throttle to accelerate and maintain your desired speed.
7. The throttle is used by first ensuring the black button on the throttle assembly is depressed, then slowly and carefully rotating the throttle backwards towards the rider. If the throttle button is not depressed, the throttle is off. The black button on the throttle is a latching type switch, so once depressed, you do not need to hold it down. With the button depressed, the throttle can be used whenever the bike is turned on. Do not use the throttle unless you are on the bike.

**NOTICE:** Even if you are an experienced bike user, please take the time to read and implement the guidelines described in the owner’s manual accompanying your RadWagon, and any other manuals that may be included with specific components.

### Handlebar Features

Location on Handlebar	Component
1	LCD Display Remote
2	LCD Display
3	Shifter
4	Throttle Power Switch



### LCD Display Controls

The display is controlled using the 3-button LCD Display Remote mounted on the left side of the handlebar (depicted at right). The top button shows an arrow pointing UP (1), the middle button is labeled “MODE” (2), and the bottom button shows an arrow pointing DOWN (3). Reference the LCD Display Operations table in this manual for instructions on how to perform various operations using these buttons and, when applicable, other components of the bike.





### LCD Display Information

The table and image below show the various features and information displayed on the LCD Display.

Location	Information on Display
1	Battery Charge Indicator
2	Distance (Odometer, Trip Odometer)
3	Distance Unit (kilometers (km), miles (mi))
4	Speed Unit (kilometers per hour (km/h), miles per hour (MPH))
5	Operation Mode
6	Watt Meter, Error Code Indicator
7	Pedal Assist Level



## LCD Display Operations

Operation	Directions
Turn ON bike	Press and hold MODE (2) until power engages
Turn ON Headlight, Taillight, and LCD Display Backlight	Press and hold MODE (2) and UP (1) until light illuminates
Activate Brake Light	When bike is ON, squeeze Brake Lever
Increase Pedal Assist (PAS) Level	Press and release UP (1)
Decrease Pedal Assist (PAS) Level	Press and release DOWN (3)
Toggle Odometer, Trip Odometer	Press and release MODE (2)
Toggle Current Speed ("Speed"), Average Speed, and Max Speed	Press and hold UP (1) until speed display changes
Turn ON Walk Mode	While dismounted, Press and continue to hold DOWN (3)
Charge Device Using USB Port	Locate USB Port on LCD edge closest to rider and unplug rubber cover. With LCD powered OFF, plug USB charging cable (not included) into USB Port on LCD Display and device (not included), turn ON bike by pressing and holding MODE until power engages.



**Walk mode should only be used while dismounted from the bike and with both hands on the handlebar. Always keep at least one hand on a brake lever to allow quick cutoff of the motor assistance if necessary and to maintain control of the bike.**

**Notice:** The USB Charging Port charges many, but not all, devices. The USB charge rate from the display will supply power to many phones, but larger phones, which require higher power in order to charge, may not register charging. If the display indicates "USB" it will supplement battery power for the phone, but the state of charge of the phone may still decrease.

## Brake Light Features and Operations

All bikes from Rad Power Bikes come equipped with a taillight/brake light that is integrated into the electrical system.

Anytime the bike is powered on, squeeze one or both brake levers on the handlebar to illuminate the brake light.

For increased visibility, turn on the taillight by using the LCD Display remote when the bike is powered on. To turn on the taillight, press and hold the MODE (2) and UP (1) buttons at the same time, for approximately 3 seconds, until the taillight illuminates.



Taillight



Brake Light

## Regenerative Braking

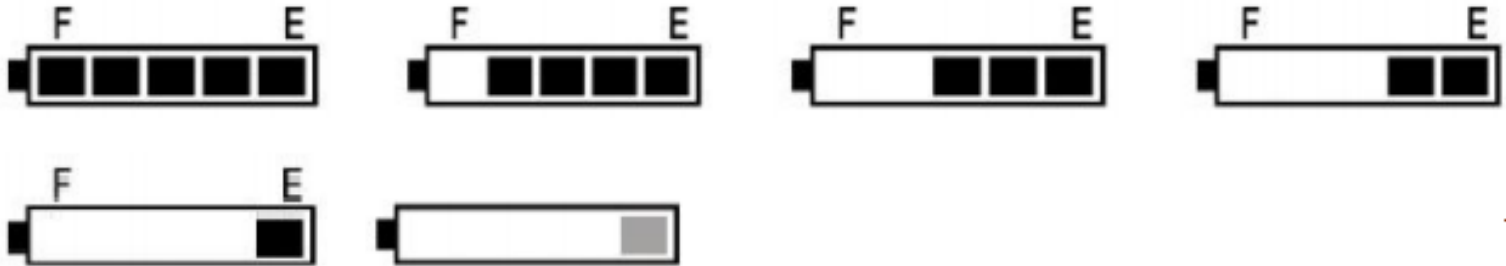
Regenerative braking is active on the RadWagon whenever the front and/or rear brake lever is applied, which flips an electronic switch, turning the motor into a brake. This feature recharges the battery pack when coming to a stop and travelling downhill.



**The force of the motor acting as a brake can slow down your bike by Rad Power Bikes more rapidly compared to a standard bike without regenerative braking. Because of this, riders should proceed with caution and practice using this helpful feature before traveling on public streets and hilly terrain.**

## Battery Capacity Display

The LCD Display on the handlebar of your bike features a battery capacity gauge (like a fuel gauge on a car). This gauge calculates battery life based on the battery power output (instantaneous voltage reading) and can fluctuate while riding if 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 prevent damage to the battery. When the battery is fully depleted, the last bar will begin to flash, warning the user to charge the battery as soon as possible.



## Best Practices for Extending Range and Battery Life

**Notice:** It is recommended that users pay close attention and ride within the following limitations to ensure the hub motor does not overheat or become damaged from excessive loading.

- To ensure adequate airflow to cool the electric components, keep the bike moving over 10 mph, or under 500 watts.
- Pedal to assist the motor when climbing hills and accelerating from a stop.
- Do not climb hills steeper than 15% in grade.
- Avoid sudden starts and stops.
- Accelerate slowly.

## Driving Range

The range of your bike from Rad Power Bikes is the distance the bike will travel on a single full charge of the onboard battery. The range values in this manual are estimates based on Rad Power Bikes expected usage characteristics. Some of the factors which effect range include changes in elevation, speed, payload, acceleration, number of starts and stops, tire pressure, terrain, and ambient air temperatures.

We suggest that you select a lower assistance level (0 or 1) when you first get your bike from Rad Power Bikes, while getting to know your bike and travel routes. Once you become familiar with the range requirements of your travel routes and the capabilities of your bike from Rad Power Bikes, you can then adjust your riding characteristics if you desire.

The following table provides general estimates and outlines various factors effecting range and their combined estimated effects on range. This table is meant to help owners understand the factors that can contribute to decreased range, but Rad Power Bikes makes no claims to the range that individual users might experience in a particular use case, conditions, or riding characteristics.

<b>Expected Range</b>	<b>Operating Condition(s)</b>
34 km (21 mi)	<ul style="list-style-type: none"><li>○ Hilly Terrain</li><li>○ Heavy Payload</li><li>○ Windy</li><li>○ High Pedal Assist Level/ High Throttle Use</li><li>○ Light Pedaling</li></ul>
52 km (302mi)	<ul style="list-style-type: none"><li>○ Flat Terrain</li><li>○ Normal Payload</li><li>○ Not Windy</li><li>○ Medium Pedal Assist Level/ Moderate Throttle Use</li><li>○ Light Pedaling</li></ul>
72 km (45 mi)	<ul style="list-style-type: none"><li>○ Flat Terrain</li><li>○ Normal Payload</li><li>○ Not Windy</li><li>○ Low Pedal Assist Level/ Minimal Throttle Use</li><li>○ Moderate to Heavy Pedaling</li></ul>

## Carrying Loads

### MAXIMUM PAYLOAD CAPACITY FOR RADWAGON

The total maximum weight limit, or payload capacity, of the RadWagon (158 kg or 350 lb) 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 is being loaded or in place. You **MUST** hold onto the bike whenever loading cargo or a passenger or child onto a child seat mounted on the Rear Cargo Deck. The Front Rack is an optional accessory available for purchase at [www.radpowerbikes.eu](http://www.radpowerbikes.eu).

**Total maximum payload: 158 kg (350 lb)**

**Rear Cargo Deck maximum payload: 54 kg (120 lb)**

**Running Boards: 18 kg (40 lb) per side**

**Kickstand: 45 kg (100 lb)**

**Optional Front Rack: 10 kg (22 lb)**



The RadWagon Rear Cargo Deck is designed for no more than 54 kg (120 lb) of total cargo, regardless of any third-party rear rack accessories which might carry a higher weight rating. Heed this 54 kg (120 lb) limit, or damage to the rider, passenger(s), or to your bike from Rad Power Bikes can occur.



You **MUST** hold onto the bike whenever loading cargo and/or passenger(s). 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 is being loaded, in place, or attached to the bike by Rad Power Bikes.

## 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 in the Carrying Loads section of this manual and do not overload the RadWagon. The RadWagon should never be operated by persons under the age of 18 years old. Children incapable of riding a bike independently or under the age of four should not ride as passengers on the back of the RadWagon unless they are seated in a properly fitted and approved Child Safety Seat. The use of certified and approved child seating and equipment is required whenever carrying children.

The RadWagon Rear Cargo Deck is equipped with two mounting windows for the Thule Yepp Maxi Easyfit child carrier. The “Yepp Windows” are located under the included RadWagon Wooden Cargo Deck, which needs to be removed to install the child seats. The optional Caboose can be installed directly on the Wooden Cargo Deck or around one or two Yepp Maxi seats (shown far right).



For installation instructions, safety notices, general information, and tips on safe operation of the Thule Yepp Maxi Easyfit child carrier accessory, visit the manufacturer’s website online at <https://www.thule.com> or contact Rad Power Bikes. Rear wheel guards must be in place whenever carrying passengers to ensure feet and hands are kept away from wheels when the bike is in motion.



**Do not remove the clear rear wheel side covers from your RadWagon. These help to keep hands and feet away from the moving wheels. Contact with the rear wheel can cause injury and damage to occur. Ensure hands and feet are always kept away from wheels when the bike is in motion.**

**Notice:** The following bulleted list provides important additional tips for the safe operation of the RadWagon when used for carrying children and other passengers.

- Do not allow passengers to sit sideways or backwards on the Rear Cargo Deck.
- Do not allow passengers to stand or kneel on the Rear Cargo Deck or Running Boards.
- 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 old or above, you must have the running boards, rear wheel side covers, and an appropriate handle accessory, such as a Deck Hand or Caboose, available from [www.radpowerbikes.eu](http://www.radpowerbikes.eu), installed.
- Children incapable of riding a children's bike should not ride as passengers. Use your best judgement as a parent or guardian to keep children and passengers safe.
- Hold onto the bike when loading and ensure that passengers are safely seated before beginning to ride.
- Ensure that the rider and passenger(s) is/are wearing a properly fitted and approved helmet (adults EN 1078 and children EN 1080).
- 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 maneuvers.
- If using a single child seat, mount it in the forward most mounting position, to ensure passenger weight is as centered as possible.
- Passengers should sit directly over or forward of the rear wheel on the back deck, and no more than 18 kg (40 lb) should be loaded over the rear 1/3 of the Rear Cargo Deck.



**It is always the user's responsibility to ensure the passenger(s) loaded on the RadWagon do not interfere or impact the user's ability to safely operate the RadWagon. Serious injury or death can occur if passenger(s) or cargo impact the user's ability to safely operate the RadWagon.**



**It is the user's responsibility to ensure the passenger(s) on the RadWagon are adequately experienced and healthy enough to safely ride as passengers. Serious injury or death can occur if passengers are inexperienced or in poor health or fitness, which could impact their ability to ride as passengers.**





Never leave the bike unattended with children on the bike. Ensure children are removed from the bike before you look away or walk away from the bike, otherwise the bike could tip over and cause serious injury to your most precious cargo.



You **MUST** hold onto the bike whenever loading cargo. 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 is being loaded, in place, or attached to the bike by Rad Power Bikes.



Do not use the front brake by itself. Use both brakes for all braking operations. Braking with only the front brake can cause excessive stress on components, damage to the bike and parts, and/or loss of control.

## Carrying Cargo

Carrying a cargo load involves additional risks which require special attention and care to mitigate and manage. Braking, acceleration, and balancing are all significantly affected by the addition of cargo loaded on the RadWagon. You must become accustomed to the braking, steering, and operational adjustments required to safely operate the RadWagon with cargo. Users should practice riding on a flat and open area with light cargo before attempting to carry heavier loads.

**Notice:** 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 lower the center of gravity and improve stability, but cargo should not interfere with any moving components or the ground.
- Ensure your loads are properly secured and periodically check that nothing loosens, risks interfering with any moving components, or could risk touching or dragging on the ground.
- Plan your route accordingly since a rider's hill climbing ability, steering, and braking are all impacted when cargo is loaded on the RadWagon. Hills that are normally easy to climb and descend without cargo can become challenging and dangerous once cargo is loaded onto the bike.
- Become proficient at controlling the RadWagon with the cargo load in a flat and open area before riding on roads or hills.

## Parking, Storage, and Transport

Please follow these basic parking, storage, and transport tips to ensure your bike is well cared for on and off the road.

- When pushing or carrying the bike manually, turn off the power to avoid accidental acceleration from the motor.
- Switch the power and any lights off to conserve battery. 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.
- It is recommended to park indoors. If you must park outdoors in rain or wet conditions, you should only leave your bike outside for a few hours and proceed to park the bike in a dry location afterwards to allow all the systems to dry out. Much like a regular bike, use in wet conditions mandates a more regular maintenance schedule to ensure your bike does not become rusty, corroded, and to ensure all systems are always working safely.
- In public places, your bike must be parked in accordance with local rules and regulations.
- The RadWagon is equipped with a rear wheel lock attached to the frame designed to prevent unauthorized use of the bike in medium theft risk areas. This lock does not prevent all bike theft and should not be the only theft prevention method for long periods of time or high theft risk areas. Follow the manufacturer's instructions for using the wheel lock.
- For more information on the wheel lock, the ABUS Shield 5650, see the manufacturer's website: <https://www.abus.com/eng/Mobile-Security/Bike-Safety-and-Security/Locks/Frame-Locks/SHIELD-5650>.
- Locking up your bike with at least one lock other than the rear wheel lock is recommended to ensure your bike is secure and the chance of theft is reduced. Rad Power Bikes makes no claims or recommendations on the proper lock hardware or procedures to secure your bike, but we do recommend you take the appropriate precautions to keep your bike safe from theft.
- Do not park, store, or transport your bike on a rack not designed for the size and weight of the bike.
- Use a rack compatible with the width of tires used on your bike. Some racks may not accommodate all tire widths.
- When storing your bike or carrying your bike on a rack for transport, remove the battery to reduce the weight of the bike, make lifting and loading easier, and to protect the battery by transporting in the cab of a vehicle.
- Avoid transporting bikes from Rad Power Bikes on a vehicle rack during rain, as this may cause water damage to the electrical components. Contact Rad Power Bikes Technical Support if you have questions about preventative measures.

# Maintenance

## Basic Bike Care

To ensure safe riding conditions you must properly maintain your bike from Rad Power Bikes. Follow these basic guidelines and see a certified, reputable bike mechanic at regular intervals to ensure your bike is safe for use and fun to ride. See the Pre-Ride Safety Checklist and Recommended Service Intervals sections of this manual for more detailed information.

1. Properly maintain batteries by keeping them fully charged when between uses of up to two weeks apart. See this manual's Long-Term Battery Storage section for information on storing battery longer than two weeks between rides.
2. Never immerse or submerge the bike or any components in water or liquid as the electrical system may be damaged.
3. Periodically check wiring and connectors to ensure there is no damage and the connectors are secure.
4. To clean, 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.
5. Store under shelter; avoid leaving the bike in the rain or exposed to corrosive materials. If exposed to rain, dry your bike afterwards and apply anti-rust treatment to the chain and other unpainted steel surfaces.
6. Riding on the beach or in coastal areas exposes your bike to salt, which is very corrosive. Wipe down your bike frequently and wipe or spray all unpainted parts with anti-rust treatment. Damage from corrosion is not covered under warranty so special care should be given to extend the life of your bike when used in coastal areas or areas with salty air or water.
7. If the hub and bottom bracket bearings have been submerged in water or liquid, they should be taken out and re-greased. This will prevent accelerated bearing deterioration.
8. If the paint has become scratched or chipped in the metal, use touch up paint to prevent rust. Clear nail polish can also be used as a preventative measure.
9. Regularly clean and lubricate all moving parts, tighten components, and adjust as required.
10. The RadWagon comes equipped with a full fender set as well as a rear rack (Rear Cargo Deck) both of which should be inspected regularly to ensure mounting hardware is properly secured and these parts are in good working condition.

## Safety Checklist

**Notice:** Before every ride, and after every 40-72 km (25-45 miles), we advise following the pre-ride safety checklist in the table below.

### Pre-Ride Safety Checklist

Safety Check	Basic Steps
1. Brakes	<ul style="list-style-type: none"><li>○ Ensure front and rear brakes work properly.</li><li>○ Check brake pads for wear and ensure they are not over-worn.</li><li>○ Ensure brake pads are correctly positioned in relation to the brake rotors.</li><li>○ Ensure brake control cables are tightly secured to the handlebar, correctly adjusted, and display no obvious signs of wear.</li><li>○ Ensure brake control levers are lubricated, tightly secured to the handlebar, correctly adjusted, and display no obvious wear.</li><li>○ Test brake levers are firm and that brake, motor cutoff functions, and brake light are functioning properly.</li></ul>
2. Wheels and Tires	<ul style="list-style-type: none"><li>○ Ensure tires are inflated to within the recommended limits displayed on the tire sidewalls and holding air.</li><li>○ Ensure tires have good tread, have no bulges or excessive wear, and are free from any other damage.</li><li>○ Ensure rims run true and have no obvious wobbles, dents, or kinks.</li><li>○ Ensure all wheel spokes are tight and not broken.</li><li>○ Check axle nuts and front wheel quick release to ensure they are tight. Ensure the locking lever on the quick release skewer is correctly tensioned, fully closed, positioned securely.</li></ul>
3. Steering	<ul style="list-style-type: none"><li>○ Ensure handlebar and stem are correctly adjusted and tightened and allow proper steering.</li><li>○ Ensure the handlebar is set correctly in relation to the forks and the direction of travel.</li></ul>
4. Chain	<ul style="list-style-type: none"><li>○ Ensure the chain is oiled, clean, and runs smoothly.</li><li>○ Extra care is required in wet, salty/otherwise corrosive, or dusty conditions</li></ul>
5. Bearings	<ul style="list-style-type: none"><li>○ Ensure all bearings are lubricated, run freely, and display no excess movement, grinding, or rattling.</li><li>○ Check headset, wheel bearings, pedal bearings, and bottom bracket bearings.</li></ul>
6. Cranks and Pedals	<ul style="list-style-type: none"><li>○ Ensure pedals are securely tightened to the cranks.</li><li>○ Ensure the cranks are securely tightened and are not bent.</li></ul>
7. Derailleurs	<ul style="list-style-type: none"><li>○ Check that the derailleur is adjusted and functioning properly.</li><li>○ Ensure shifter and brake levers are attached to the handlebar securely.</li><li>○ Ensure all brake and shift cables are properly lubricated.</li></ul>

8. Frame, Fork, and Seat	<ul style="list-style-type: none"> <li>○ Check that the frame and fork are properly aligned and free of cracks, scrapes, or damage.</li> <li>○ Check that the seat is adjusted properly and seat post quick release lever is securely tightened.</li> </ul>
9. Motor Drive Assembly and Throttle	<ul style="list-style-type: none"> <li>○ Ensure hub motor is spinning smoothly and motor bearings are in good working order.</li> <li>○ Ensure all power cables running to hub motor are secured and undamaged.</li> <li>○ Make sure the hub motor axle bolts are secured and all torque arms and torque washers are in place.</li> </ul>
10. Battery	<ul style="list-style-type: none"> <li>○ Ensure battery is charged before use.</li> <li>○ Ensure there is no damage to battery.</li> <li>○ Lock battery to frame and check to see that it is secured.</li> <li>○ Charge and store bike and battery in a dry location, between 10 °C- 25 °C.</li> <li>○ Let bike dry completely before using again.</li> </ul>
11. Electrical Cables	<ul style="list-style-type: none"> <li>○ Look over connectors to make sure they are fully seated, free from debris or moisture.</li> <li>○ Check cables and cable housing for obvious signs of damage.</li> <li>○ Ensure headlight, taillight, and brake light are functioning, adjusted properly, and unobstructed.</li> </ul>
12. Accessories	<ul style="list-style-type: none"> <li>○ Ensure all reflectors are properly fitted and not obscured.</li> <li>○ Ensure all other fittings on bike are properly secured and functioning.</li> <li>○ Inspect helmet and other safety gear for signs of damage.</li> <li>○ Ensure rider is wearing helmet and other required riding safety gear.</li> <li>○ Ensure mounting hardware is properly secured.</li> <li>○ Ensure taillight and taillight power wire are properly secured.</li> <li>○ Ensure fender mounting hardware is properly secured.</li> <li>○ Ensure there are no cracks or holes in fenders.</li> <li>○ Ensure the rear wheel lock is secured in the unlocked position before every ride.</li> </ul>



**Your cables, spokes, and chain will stretch after an initial break-in period of 80-160 km (50-100 mi), and bolted connections can loosen. Always have a certified, reputable bike mechanic perform a tune-up on your RadWagon after your initial break-in period of 80-160 km (50-100 mi) (depending on riding conditions such as total weight, riding characteristics, and terrain). Regular inspections and tune-ups are particularly important for ensuring that your bike remains safe and fun to ride.**

## Recommended Service Intervals

Regular inspection and maintenance are key to ensure bikes by Rad Power Bikes function as intended, and to reduce wear and tear on their systems. Recommended service intervals are meant to be used as guidelines. Real world wear and tear, and the need for service, will vary with conditions of use. We generally recommend inspections, service, and necessary replacements be performed at the time or mileage interval that comes first in the following table.

Interval	Inspect	Service	Replace
Weekly, 160-321 km	<ul style="list-style-type: none"> <li>- Check hardware for proper torque: See Recommended Torque Values chart.</li> <li>- Check drivetrain for proper alignment and function (including the chain, freewheel, chainring, and derailleur).</li> <li>- Check wheel trueness and for quiet wheel operation (without spoke noise).</li> <li>- Check condition of frame for any damage.</li> </ul>	<ul style="list-style-type: none"> <li>- Clean frame by wiping frame down with damp cloth.</li> <li>- Use barrel adjuster(s) to tension derailleur/brake cables if needed.</li> </ul>	<ul style="list-style-type: none"> <li>- Replace any components confirmed by Rad Power Bikes Technical Support or a certified, reputable bike mechanic to be damaged beyond repair or broken.</li> </ul>
Monthly, 402-1207 km	<ul style="list-style-type: none"> <li>- Check brake pad alignment, brake cable tension.</li> <li>- Check bike is shifting properly, proper derailleur cable tension.</li> <li>- Check chain stretch.</li> <li>- Check brake and shifter cables for corrosion or fraying.</li> <li>- Check spoke tension.</li> <li>- Check accessory mounting (rack mounting bolts, fender hardware, and alignment).</li> </ul>	<ul style="list-style-type: none"> <li>- Clean and lubricate drivetrain.</li> <li>- Check crankset and pedal torque.</li> <li>- Clean brake and shift cables.</li> <li>- True and tension wheels if any loose spokes are discovered.</li> </ul>	<ul style="list-style-type: none"> <li>- Replace brake and shift cables if necessary.</li> <li>- Replace brake pads if necessary.</li> </ul>
Every 6 Months, 1207-2011 km	<ul style="list-style-type: none"> <li>- Inspect drivetrain (chain, chainring, freewheel, and derailleur).</li> <li>- Inspect all cables and housings.</li> </ul>	<ul style="list-style-type: none"> <li>- Standard tune-up by certified, reputable bike mechanic is recommended.</li> <li>- Grease bottom bracket.</li> </ul>	<ul style="list-style-type: none"> <li>- Replace brake pads.</li> <li>- Replace tires if necessary.</li> <li>- Replace cables and housings if necessary.</li> </ul>

## Tire Inflation and Replacement

The RadWagon employs 26" x 2.3" (66 x 5.8 cm) rubber tires with inner tubes. The tires are designed for durability and safety for regular cycling activities and the tires need to be checked before each use for proper inflation and condition. Proper inflation, care, and timely replacement will help ensure the bike's operational characteristics will be maintained, and unsafe conditions avoided.

Rad Power Bikes recommends **50-60 psi (3.4 - 4.1 bar)** for the front and rear tires on the RadWagon.



**It is critically important that proper air pressure is always maintained in pneumatic tires. Do not underinflate or overinflate your tires. Low pressure may result in loss of control, and overinflated tires may burst. Failure to always maintain the air pressure rating indicated on pneumatic tires may result in tire and/or wheel failure.**



**Inflate your tires from a regulated air source with an available pressure gauge. Inflating your tires from an unregulated air source could overinflate them, resulting in a burst tire.**

Even tires equipped with built-in flat-preventative tire liners, like those that come with 2019 bikes from Rad Power Bikes, can and do get flats from punctures, pinches, impact, etc. When tire wear becomes evident or a flat tire is discovered, tires and/or tubes must be replaced before operating the bike or injury to the operator, damage to your bike and/or property, serious injury and/or death could occur.



**When changing a tire or tube, ensure that all air pressure has been removed from the inner tube prior to removing tire from the rim. Failure to remove all air pressure from the inner tube could result in serious injury.**



**Using aftermarket tires or inner tubes, not provided by Rad Power Bikes may void your warranty, create an unsafe riding condition, or damage your bike from Rad Power Bikes. If required by law, and for adequate visibility, ensure replacement aftermarket tires have sufficient reflective sidewall striping.**

For more information on tire or tube replacement procedures, or questions about tire inflation, visit [www.radpowerbikes.com/help](http://www.radpowerbikes.com/help) and contact Rad Power Bikes Technical Support.

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

Call: +31-85 7470430

# Troubleshooting

## Basic Troubleshooting

**Notice:** It is recommended to contact Rad Power Bikes or use a certified, reputable bike mechanic for repairs.

	Symptoms	Possible Causes	Most Common Solutions
1	<b>It does not work</b>	<ol style="list-style-type: none"><li>1. Insufficient battery power</li><li>2. Faulty connections</li><li>3. Battery not fully seated in tray</li><li>4. Improper turn on sequence</li><li>5. Brakes are applied</li></ol>	<ol style="list-style-type: none"><li>1. Charge the battery</li><li>2. Clean and repair connectors</li><li>3. Install battery correctly</li><li>4. Turn on bike with proper sequence</li><li>5. Disengage brakes</li></ol>
2	<b>Irregular acceleration and/or reduced top speed</b>	<ol style="list-style-type: none"><li>1. Insufficient battery power</li><li>2. Loose or damaged throttle</li></ol>	<ol style="list-style-type: none"><li>1. Charge or replace battery</li><li>2. Replace throttle</li></ol>
3	<b>When powered on the motor does not respond</b>	<ol style="list-style-type: none"><li>1. Loose wiring</li><li>2. Loose or damaged throttle</li><li>3. Loose or damaged motor plug wire</li><li>4. Damaged motor</li></ol>	<ol style="list-style-type: none"><li>1. Repair and/or reconnect</li><li>2. Tighten or replace</li><li>3. Secure or replace</li><li>4. Repair or replace</li></ol>
4	<b>Reduced range</b>	<ol style="list-style-type: none"><li>1. Low tire pressure</li><li>2. Low or faulty battery</li><li>3. Driving with too many hills, headwind, braking, and/or excessive load</li><li>4. Battery discharged for long period of time without regular charges (aged or damaged)</li><li>5. Brakes rubbing</li></ol>	<ol style="list-style-type: none"><li>1. Adjust tire pressure</li><li>2. Check connections or charge battery</li><li>3. Assist with pedals or adjust route</li><li>4. Replace the battery</li><li>5. Adjust the brakes</li></ol>
5	<b>The battery will not charge</b>	<ol style="list-style-type: none"><li>1. Charger not well connected</li><li>2. Charger damaged</li><li>3. Battery damaged</li><li>4. Wiring damaged</li></ol>	<ol style="list-style-type: none"><li>1. Adjust the connections</li><li>2. Replace</li><li>3. Replace</li><li>4. Repair or replace</li></ol>
6	<b>Wheel or motor makes strange noises</b>	<ol style="list-style-type: none"><li>1. Damaged motor bearings</li><li>2. Damaged wheel spokes or rim</li><li>3. Damaged motor wiring</li></ol>	<ol style="list-style-type: none"><li>1. Replace</li><li>2. Repair or replace</li><li>3. Repair or replace motor</li></ol>



## Error Detection

Your bike by Rad Power Bikes is equipped with an error detection system integrated into the display and controller. In the case of an electronic control system fault, an error code should 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, it is recommended that you cease operation and contact Rad Power Bikes immediately.

<b>Error Code</b>	<b>Definition</b>
21	Abnormal Current
22	Throttle Fault
23	Motor Phase Fault
24	Motor Hall Fault
25	Brake Switch Fault or Brake Applied While Turning On
30	Communication Fault

# Warnings and Safety

## General Operating Rules

**Notice:** It is recommended that users pay special attention to all the general operating rules below before operating their bike from Rad Power Bikes.

- Always ensure the rear wheel lock is secured in the unlocked position before beginning to ride.
- When riding, obey the same road laws as all other road vehicles as applicable by law in your area.
- For additional information regarding traffic/vehicles laws, contact the road traffic authority in your area.
- Ride predictably, in a straight line, and with the flow of traffic. Never ride against traffic.
- Use correct hand signals to indicate turning.
- Ride defensively; to other road users you may be hard to see.
- Concentrate on the path ahead. Avoid potholes, gravel, wet or oily roads, wet leaves, curbs, train tracks, speed bumps, drain gates, thorns, broken glass, and other obstacles, hazards, and puncture flat risks.
- Cross train tracks at a 90-degree angle or walk your bike across.
- Expect the unexpected such as opening car doors or cars backing out of driveways.
- Be careful at intersections and when preparing to pass other vehicles or other cyclists.
- Familiarize yourself with all the features and operations of the bike by Rad Power Bikes. Practice and become proficient at shifting gears, applying the brakes, using the power assist system, and using the throttle in a controlled setting before riding in riskier conditions.
- Wear proper riding clothes including closed-toe shoes. If you are wearing loose pants, secure the bottom using leg clips or elastic bands to prevent them from being caught in the chain or gears. Do not use items that may restrict your hearing.
- Check your local rules and regulations before carrying cargo.
- When braking, apply the rear brake first, then the front brake. If brakes are not correctly applied, they may lock up, you may lose control, and you could fall.
- Maintain a comfortable stopping distance from all other objects, riders, and vehicles. Safe braking distances are based on road surface and light conditions among other variables.



**The following safety notes provide additional information on the safe operation of your bike from Rad Power Bikes and should be closely reviewed. Failure to review these notes can lead to serious injury or death.**

- All users must read and understand this manual before their first use of the bike from Rad Power Bikes. Additional manuals for components used on the bike may also be provided and should be read before use in addition to this manual.
- Ensure that you comprehend all instructions and safety notes/warnings.
- Ensure the bike fits you properly before your first use. You may lose control or fall if your bike is too big or too small.
- Always wear an approved bicycle helmet whenever using the bike and ensure all helmet manufacturer instructions are used for fit and care of your helmet. Failure to wear a helmet when riding may result in serious injury or death. See Helmet section of this manual for more information.
- Ensure correct setup and tightening is performed on your bike before first using it and check the setup, tightening, and condition regularly.
- It is your responsibility to familiarize yourself with the laws and requirements of operating this product in the area(s) where you ride.
- Ensure the handlebar grips are undamaged and properly installed. Loose or damaged grips can cause you to lose control and fall.
- Do not use this product with standard bike trailers, stands, vehicle racks, or accessories that Rad Power Bikes has not tested for safety and compatibility and has verified as safe and compatible with the bike. Contact Rad Power Bikes to check if your equipment will work with the bike.
- Off-road riding requires close attention, specific skills, and presents variable conditions and hazards which accompany the conditions. Wear appropriate safety gear and do not ride alone in remote areas. Check local rules and regulations if off-road ebike riding is allowed.
- Engaging in extreme riding is extremely dangerous and should be avoided. Although many articles/advertisements/catalogs depict extreme riding, this is not recommended nor permitted, and you can be seriously injured or killed if you perform extreme riding.
- Bikes and bike parts have strength and integrity limitations and extreme riding should not be performed as it can damage bike components and/or cause or lead to dangerous riding situations in which you may be seriously injured or killed.
- Failure to perform and confirm proper installation, compatibility, proper operation, or maintenance of any component or accessory can result in serious injury or death.
- After any incident, you must consider your bike unsafe to ride until you consult with a certified, reputable bike mechanic for a comprehensive inspection of all components, functions, and operations of the bike.
- Failure to properly charge, store, or use your battery will void the warranty and may cause a hazardous situation.
- You should check the operation of the brake motor cutoff switches before each ride. The brake system is equipped with an inhibitor which cuts off power to the electric motor whenever the brakes are engaged. Check proper operation of brake motor cutoff switches before riding.
- Extreme care should be taken when using the pedal assistance sensor and throttle on this product. Ensure you understand and are prepared for the power assistance to engage as soon as pedaling is underway.

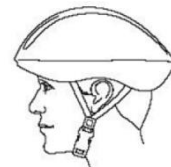
- Users must understand the operation of the twist throttle and pedal assistance sensors before using the bike and take ample care in their usage in respect to traveling at speeds appropriate for the usage area, riding conditions, and user experience level. Always use the lowest assist level until you are comfortable with the bike and feel confident in controlling the power.
- Any aftermarket changes to your bike from Rad Power Bikes not expressly approved by Rad Power Bikes could void the warranty and create an unsafe riding situation.
- Because electric bikes are heavier and faster than normal bikes, they require extra caution and care while riding.
- Take extra care while riding in wet conditions. Feet or hands can slip in wet conditions and lead to serious injury from a fall or death.
- Do not remove any reflectors or the bell.

## Helmets

It is strongly advised that a properly fitting EN 1078 approved bicycle safety helmet is always worn when riding your bike.



**We recommend riders wear a properly fitted EN 1078 helmet that covers the forehead when riding a bike.**



## General Warnings



**Like any sport, bicycling involves risk of damage, injury, and death. By choosing to ride a bike, you assume the responsibility for that risk, so you need to know, and practice the rules of safe and responsible riding and the proper use and maintenance of this bike. Proper use and maintenance of your bike reduces risk of damage, injury, and death.**



**Biking and controlled substances do not mix. Never operate a bike while under the influence of alcohol, drugs, or any substance or condition that could impair motor functions, judgement, or the ability to safely operate a bike/vehicle.**



**The RadWagon is designed for use by persons 18 years old and older. Riders must have the physical condition, reaction time, and mental capability to ride safely and manage traffic, road conditions, sudden situations, and respect the laws governing electric bike use where they ride, regardless of age. If you have an impairment or disability such as a visual impairment, hearing impairment, physical impairment, cognitive/language impairment, a seizure disorder, or any other physical condition that could impact your ability to safely operate a vehicle, consult your physician before riding any bike.**

## Wet Weather



**It is recommended to not ride in wet weather if avoidable. Ride in wet weather only if necessary.**

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.

- In wet weather you need to take extra care when operating this bike.
- Decrease riding speed to help you control the bike in slippery conditions.
- Brake earlier since it will take longer to slow than when operated in dry conditions.
- Take care to be more visible to others on the road. Wear reflective clothing and use approved safety lights.
- Road hazards are more difficult to see when wet; proceed with caution.

## Night Riding



**It is recommended to not ride at night. Ride at night only if necessary.**

- Wear reflective and light-coloured clothing.
- Slow down and use familiar roads with street lighting, if possible.
- Ensure your bike is equipped with a set of correctly positioned and clean reflectors.
- Use a properly functioning lighting set comprised of a white front lamp and red rear lamp.

## A Note for Parents and Guardians

As a parent or guardian, you are responsible for the activities and safety of your child. The RadWagon is not designed for use by children under the age of 18. If you are carrying a passenger in a child safety seat, they must also be wearing a properly fitted, approved helmet (EN 1080). Additional safety information regarding helmets can be found in the Helmet section of this manual. See Carrying Children section of this manual for more information on keeping children safe when being transported in an approved child safety seat attached to the Rear Cargo Deck of the RadWagon.

## Warranty

### Warranty Info

In any nations covered by EU law, Rad Power Bikes accepts liability for material defects for two years after the date of sale. One prerequisite for Rad Power Bikes assuming this liability is the that your RadWagon's use and maintenance was in line with all conditions outlined in the pages of this manual, any model specific tutorials available at <http://www.radpowerbikes.com/help>, and any instructions from component manufacturers.

Liability for material defects does not cover normal wear, which occurs from the manufacturers intended use of the product. Components such as the battery, motor system, braking system, drivetrain system, seat, grips, and pedals are all subject to use-related wear.

Where applicable, every bike is covered under our manufacturer's two-year all-inclusive warranty for the original owner against all manufacturing defects. Rad Power Bikes warrants this product, including all individual components against defects in material or workmanship as follows:

#### RAD POWER BIKES LIMITED 2 YEAR WARRANTY

Warranty details below are subject to change at any time; for the most current warranty version, visit <https://radpowerbikes.eu/pages/warranty>. Rad Power Bikes bike components including frame, forks, stem, handlebar, headset, seat post, seat saddle, brakes, lights, bottom bracket, crank set, pedals, rims, wheel hub, freewheel, cassette, derailleur, shifter, motor, throttle, controller, wiring harness, LCD Display, kickstand, reflectors, and hardware are warranted to be free from manufacturing defects in materials and/or workmanship for a 2-year period from the date of original purchase.

Rad Power Bikes lithium ion batteries are warranted to be free from manufacturing defects in materials and/or workmanship for a 2-year period from the date of original purchase. The battery warranty does not include damage from power surges, use of improper charger, improper maintenance or other such misuse, disassembly, normal wear, or water damage.

## Warranty Exclusions

- Liability for material defects does not cover normal wear and tear, which occurs from the manufacturers' intended use of the product. Components such as the battery, motor system, braking system, drivetrain system, seat, grips and pedals are all subject to intended use-related wear and are not covered under the warranty from normal wear.
- Damage arising from the use of the bike in a competition or other applications outside of normal intended use.
- Damage arising from improper tools, improper assembly, or improper maintenance performed on the bike.
- Damage resulting from adding non-standard equipment, parts, or modifications.

## TERMS OF WARRANTY

This warranty only applies to the original owner of a bike by Rad Power Bikes. This warranty does not apply to rental or commercial use bikes. This warranty is expressly limited to the replacement of defective parts at the sole discretion of Rad Power Bikes. This warranty does not cover any damage or defects resulting from failure to follow instructions in the owner's manual, acts of God, accident, misuse, neglect, abuse, commercial use, alterations, modification, improper assembly, wear and tear, installation of parts or accessories not originally intended or compatible with the bike as sold, operator error, water damage, extreme riding, stunt riding, or improper follow-up maintenance. This warranty does not include consumables or normal wear and tear parts (such as tires, tubes, brake pads, cables and housing, grips). Rad Power Bikes will not be liable and/or responsible for any damage, failure, or loss caused by any unauthorized service or use of unauthorized parts. In no event shall Rad Power Bikes be responsible for any direct, indirect, or consequential damages, including without limitation, damages for personal injury, property damage, or economic losses, whether based on contract, warranty, negligence, or product liability in connection with their products. All claims to this warranty must be made through Rad Power Bikes. Proof of purchase is required with any warranty request.

## Additional Information on Wear

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 cycles 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.



**When the useful life of a component is surpassed it can cause unexpected loss of function, which can result in serious injuries or even death. Therefore, pay attention to wear characteristics such as cracks, scratches, or changes in the colour or operation of components, which could indicate useful life has been exceeded. Worn components should be replaced immediately. If you are unfamiliar with regular maintenance, a certified, reputable bike mechanic should be consulted.**

## Link to Assembly Video and Online Resources

### Assembly Video

Please visit the Rad Power Bikes YouTube Channel to view the official 2019 RadWagon Assembly Video.

### Online Resources

For more information on best practices, please visit the Rad Power Bikes website ([www.radpowerbikes.eu](http://www.radpowerbikes.eu)) or contact Rad Power Bikes Technical Support with any questions.

**We are here to help! If you have questions, please:**

**Visit our website ([www.radpowerbikes.eu](http://www.radpowerbikes.eu)), Help Center ([www.radpowerbikes.com/help](http://www.radpowerbikes.com/help)), or**

**Contact us directly by email to [eu-support@radpowerbikes.com](mailto:eu-support@radpowerbikes.com), or by phone to +31-85 7470430.**

**Thanks for Riding RAD!**