

COPENHAGEN WHEEL **USER MANUAL**



superpedestrian

This User Manual contains important safety guidelines, general installation and setup procedures, handling and maintenance, hardware recycling/disposal and regulatory information.

For the latest downloadable version of this User Manual visit the Superpedestrian Support Center at:
superpedestrian.com/support.

A printed version is available upon written request to: 84 Hamilton St., Cambridge, MA 02139 USA.

The following symbols are used throughout this User Manual:


WARNING

 **If the warning is not heeded, it can result in death or serious injury.**

CAUTION

 **If the precaution is not taken, it may cause minor or moderate injury.**

NOTICE

 **If the notice is not observed, it may result in occurrences other than personal injury, like damage to the Wheel, bicycle or other property.**

From this point on, these symbols will be used without any further explanation. However, they will always stand for the content or warning they are placed next to.

Carefully read all instructions and safety information prior to installing your Copenhagen Wheel. Failure to follow these instructions could result in electric shock, fire or other injury to you or damage to your bike, the Wheel or other property.

Keep this manual in a safe location for future reference.

Index

1	Bicycle Riding Safety	p. 4
2	How Your Wheel Works	6
3	Installation and Setup	10
4	Single-speed Setup	12
5	Multi-speed Setup	20
6	Use Your Wheel	28
7	Handling and Transport	32
8	Usage, Storage and Cleaning	34
9	Maintenance and Modification	37
10	Built-in Battery and Charging	42
11	Troubleshooting and Help	45
12	Other Information	47

Bicycle Riding Safety

Before Your First Ride

⚠️ Once the Copenhagen Wheel is installed, always activate the brakes of your bicycle before you put your foot onto the pedal. The motor starts assisting immediately after you step onto the pedal. This assistance can be unfamiliar and may lead to injury or accidents in road traffic. Be sure to familiarize yourself with your Copenhagen Wheel in a safe environment, away from road traffic.

⚠️ Do NOT turn on your Wheel until it has been properly installed on your bicycle.

Before Any Ride

⚠️ For a safe ride on any bicycle, it's important that the bike is well-maintained and in good working order. Always inspect your Copenhagen Wheel and bicycle before each ride by performing the following checks:

- Check your tire pressure and, if necessary, inflate to the recommended pressure listed on the tire's sidewall.
- Check both the Copenhagen Wheel and front wheel for any loose spokes, nuts or other damage.
- Check your brakes and make sure they are operating properly before getting on bike.
- Check that the Copenhagen Wheel's torque arm is secure to the frame and in good condition.
- Check the rim braking surfaces for wear. Rims wear with use and rim failures can result in serious injury or death.

- Perform all pre-ride checks listed in your bicycle's original owner's manual.

⚠️ Any form of crack, scratch or change of coloring in highly stressed areas may indicate that the life of the component has been reached and it should be replaced. If you find an indication like this on your bicycle or the Copenhagen Wheel, stop riding, get it inspected by our service partners at a Superpedestrian Hub (superpedestrian.com/partners/locator) and repair if necessary.

While You Ride

⚠️ When riding a bicycle, whether or not it's equipped with a Copenhagen Wheel, it is important to follow general safety guidelines:

- Always wear a helmet when riding a bicycle. In some jurisdictions, the use of a helmet is required by law.
- Do not interact with mobile electronic devices while riding. Pay attention to traffic at all times.
- Follow all applicable local traffic regulations.
- Keep in mind that other cyclists, pedestrians (non-Super) and motor vehicles may underestimate the speed of your electrically powered bicycle.
- Always follow general safety guidelines and use appropriate hand signals when in traffic.
- Always keep both hands on the handlebars while riding your bicycle.
- Use caution while riding your bicycle in inclement weather or at night. Braking distances may increase in wet weather.
- Use safety lighting and reflectors at all times. In some jurisdictions, this is required by law.
- Do not ride while under the influence of drugs or alcohol to ensure the safety of those around you.

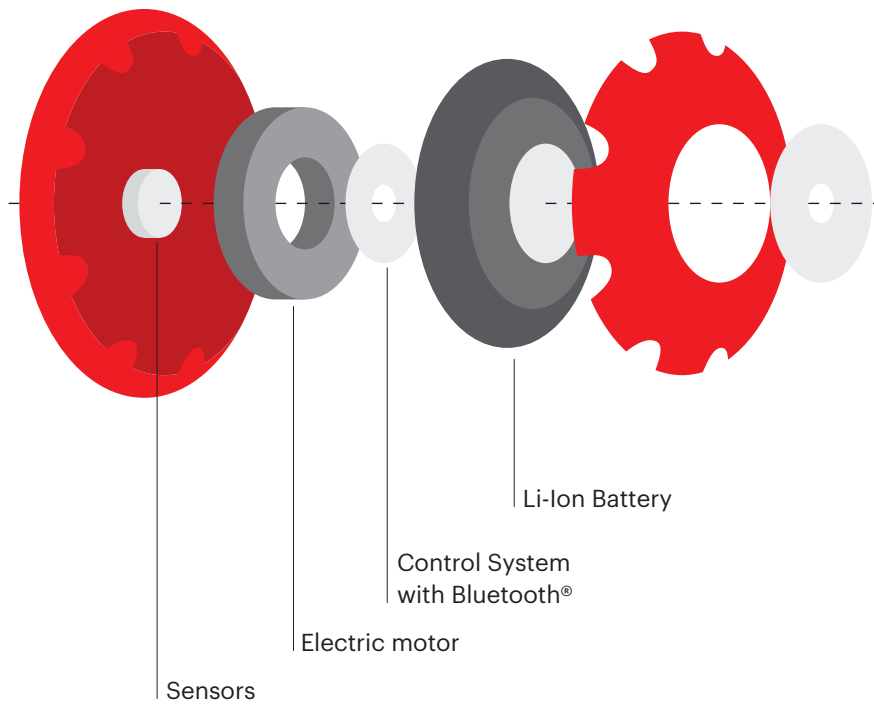
How Your Wheel Works

The Copenhagen Wheel quickly and easily transforms your bicycle into a smart electric hybrid. But how does it do this? Magic? Genetically modified hamsters running in unison? Well...no. But we think the actual technology is even cooler.

We'll break it down for you: your Wheel contains a motor, a battery, multiple sensors, Bluetooth® connectivity and an embedded control system. It responds to how you pedal and integrates seamlessly with your motion, giving you a boost when you need it without the need for a throttle. It makes hills feel flat and distances shrink, so you can cycle faster, farther and more easily.

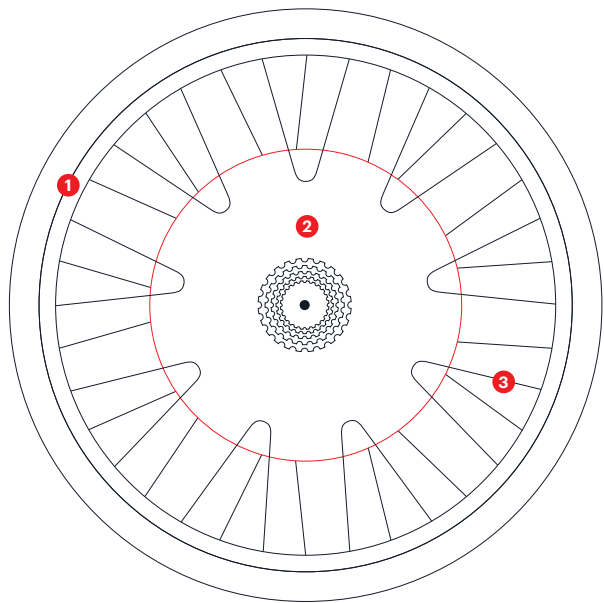
As you pedal, the Wheel senses your motion and, using the embedded control algorithms, calculates how much assistance to give. When you pedal harder, like you do when you go up a hill, the Wheel pushes with increasing thrust. When connecting to the Wheel with the Wheel app, you can vary the level of powered assist...a helpful feature that we'll get to a little later.

Before you try the Wheel out though, please safely install it on your bicycle.

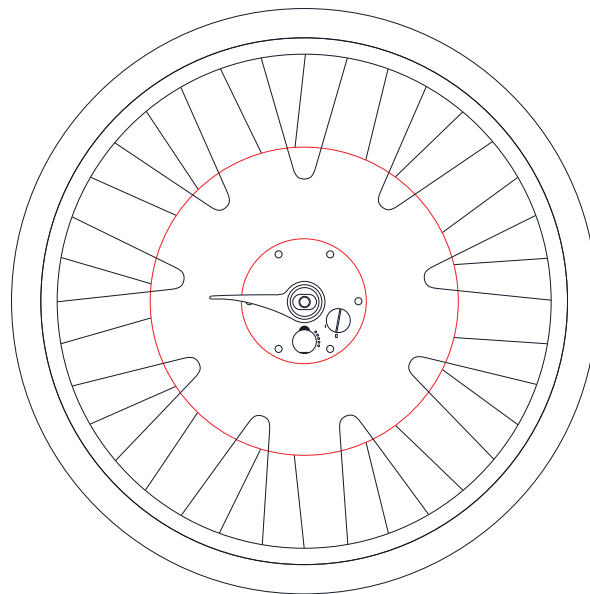


Meet Your Wheel

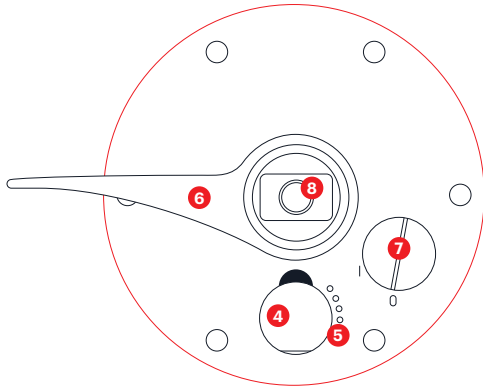
DRIVE SIDE



NON-DRIVE SIDE



CONTROL PLATE (ZOOM)



LEGEND

- ❶ Rim With Tire and Tube
- ❷ Copenhagen Wheel Hub
- ❸ Custom Spokes
- ❹ Charge Port
- ❺ Status LEDs
- ❻ Adjustable Torque Arm
- ❼ On/Off Switch
- ❽ Axle

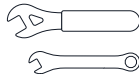
TOOLS



Dropout Spacers
(single-speed only)



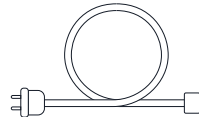
Axle Nuts



Tools



Metal Straps
(2 sizes) with
rubber protectors



AC Adapter (country specific)




Battery Charger


Installation and Setup

General Installation


Every installation will be different depending on the make and model of your bike. The instructions in this User Manual and on our support website (superpedestrian.com/support) are general guidelines only and are intended to be used by bicycle mechanics or those who possess similar tools, skills and technical comprehension of bicycles.

We know not everybody is a bicycle whiz, so we've partnered with top-tier local bicycle shops to help you with this installation process and any future bicycle service you may need. We call them Superpedestrian Hubs and you can find the closest one at superpedestrian.com/locator.

 Do NOT turn on your Wheel until it has been properly installed on a bicycle.

 We strongly recommend the Copenhagen Wheel be professionally installed at a Superpedestrian Hub. In order to safely install the Copenhagen Wheel on your bicycle, you must be comfortable performing advanced bicycle maintenance and repair, including, but not limited to: adjusting your brakes, adjusting chain tension or derailleur, removing and replacing rear wheels, installing hardware, checking spoke integrity and tension and checking and adjusting tire pressure.

We recommend using appropriate tools, such as a torque wrench, to tighten fasteners to the recommended torques.

 **The torque arm is an integral part of the Copenhagen Wheel. Failure to appropriately attach the torque arm to the bicycle frame, or inappropriate installation, can result in injury to the rider or damage to your bicycle or the Copenhagen Wheel.**



We recommend installation and use only on bicycles that meet all legally applicable standards including Consumer Product Safety Commission Standards (found at 16 CFR Part 1512), EN14764 and/or ISO 4210:2014.

If you are unable to do the installation and setup yourself, but do not have a Superpedestrian Hub nearby, you can take these instructions to your local bicycle mechanic to get your Copenhagen Wheel professionally installed.

If you do plan to install the Wheel yourself, please follow the instructions for single-speed or multi-speed bicycles in Sections 4 or 5, respectively.

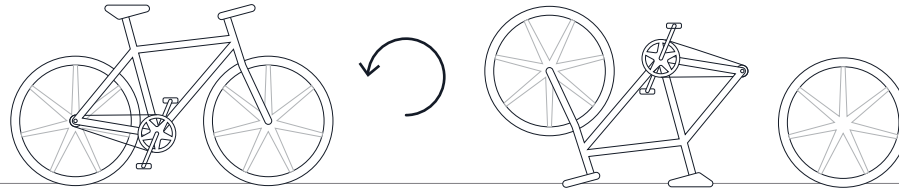
Should you have any questions about this installation or bicycle compatibility, please contact us at superpedestrian.com/support.

Single-speed Setup

This is a general guide for installing your Copenhagen Wheel on a single-speed bicycle, but every bicycle is different. These instructions assume you have the knowledge, skills and tools to safely install the Copenhagen Wheel. If you need more information you can go to superpedestrian.com/support or contact your nearest Superpedestrian Hub.

For information on how to install the Copenhagen Wheel using a bike stand please go to superpedestrian.com/support.

See Section 5 for multi-speed setup.

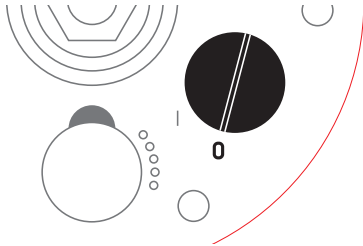


1 Turn your bike upside down.

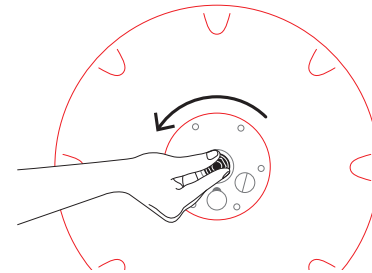
For this installation guide we have presumed that you know how to remove your current wheel from your bicycle, so please start by doing this. Turn your bicycle over so that it's balanced on the handlebars and seat.

⚠ Do not touch hydraulic brake levers (if bike is so equipped) while the bike is upside down or while the wheel is removed.

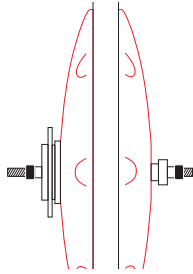
💡 The following diagrams (4-10) show the bike in an upside-down position (as seen above).



2 Make sure the power switch is OFF (0) on your Copenhagen Wheel.

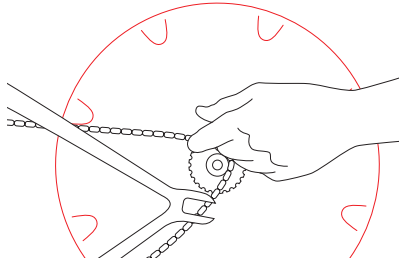


3 Remove the axle nuts from both ends of the axle.

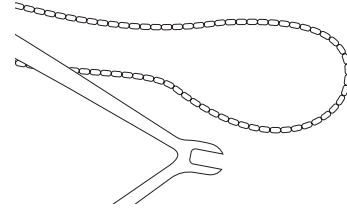


4 Add spacers to the axle.

For 130-135 mm dropout spacing, place one axle spacer on each side of the hub. Spacers are not required for 120 mm dropouts.

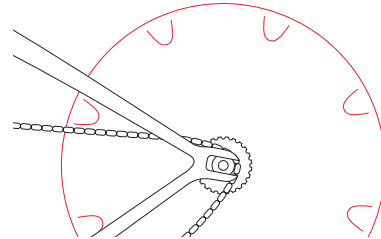


B Rest the chain on the axle between the cog and the Copenhagen Wheel to prevent it from getting in the way.

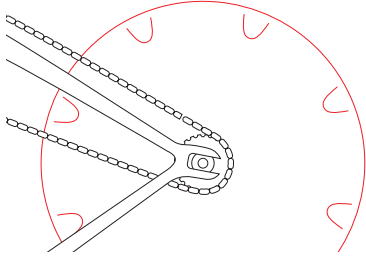


5 Maneuver the Wheel into the frame.

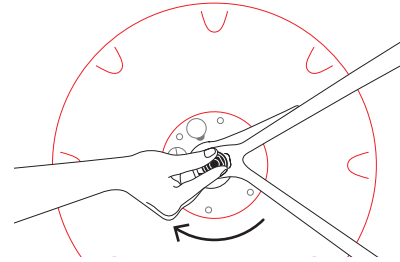
A Ensure the dropouts are clean and free of debris.



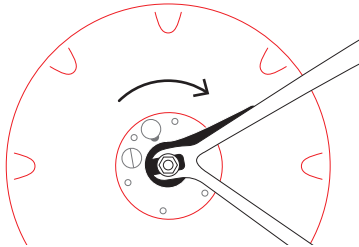
c Slip the Copenhagen Wheel in between the frame's rear dropouts and insert its axle into the dropouts.



D Place the chain over the cog and make sure the Wheel is secure.

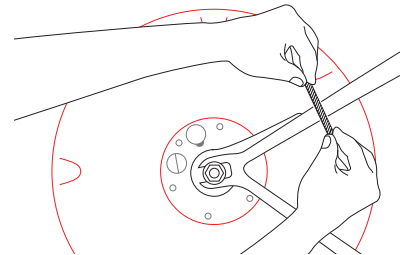


6 Loosely thread the axle nuts.
Alternately **hand-tighten** axle nuts on each side.

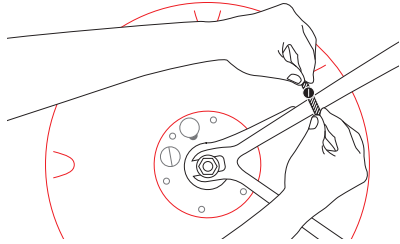


7 Attach the torque arm to the frame.

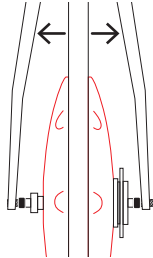
A Rotate the torque arm until it rests on the underside of the chainstay.



B Select the appropriately sized metal strap (included in the box) for your chainstay. Use the smallest size that will fit.

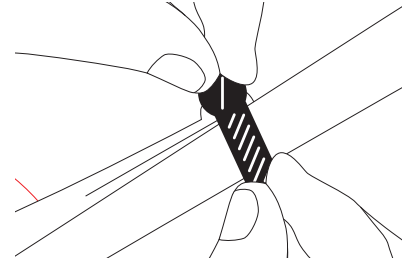


C Wrap the metal strap around the chainstay so that the screw is on top of the frame underside and facing out (towards you), as shown. Insert the end of strap into the captive screw.



8 Straighten the Wheel.

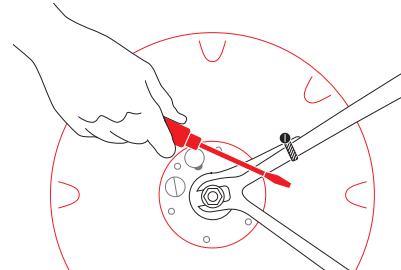
Rotate the pedals forward as if you're riding and make sure the Wheel is centered. Adjust if necessary.



D Slide the metal strap onto the torque arm and seat it in the groove. Turn the screw with a screwdriver to take up slack in the strap.

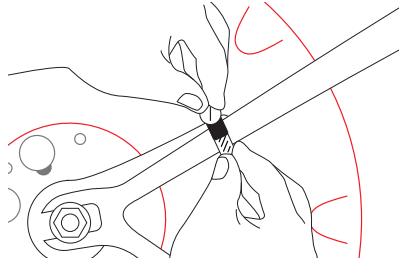


Do not tighten.

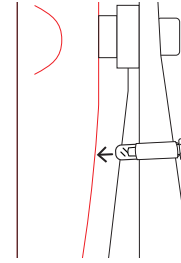


9 Adjust and tighten the metal strap.

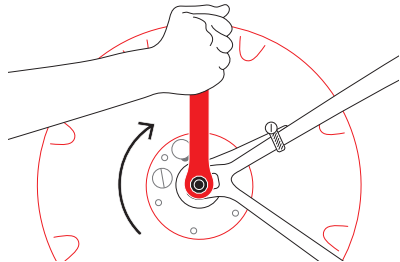
A Ensure the screw is positioned in the groove and is perpendicular to the hub. Tighten the strap firmly (6-8 Nm).



B Add a rubber protector to the end of the metal strap.

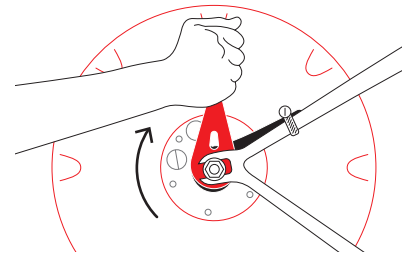


C Ensure there is NO contact between the metal strap and the Wheel hub. If contact exists, readjust the Wheel within the dropouts.

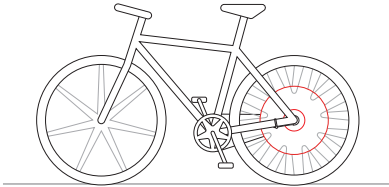


10 Tighten axle and torque arm nuts.


A Tighten the axle nuts on both sides securely (30-44 Nm) using a 15 mm torque wrench.

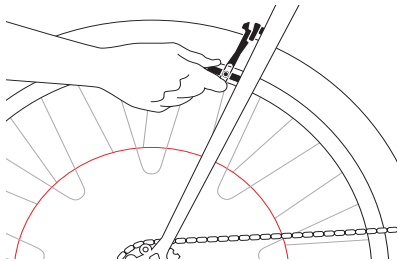


B Tighten the torque arm nut firmly (30-44 Nm) using a 22 mm torque wrench.



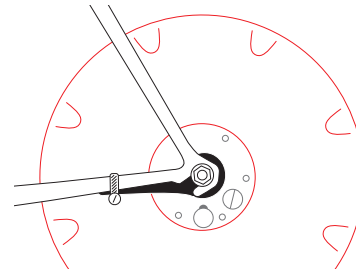
11 Flip your bike right-side up.

 Use caution when flipping it upright as the Copenhagen Wheel adds additional weight to the rear of your bicycle.

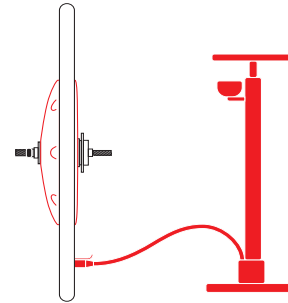


13 Readjust your brakes.

Always make sure your brakes are working properly before you ride.



12 Ensure the torque arm is installed correctly on the chainstay.



14 Inflate your tire.

Inflate your tire to the recommended pressure shown on the tire's sidewall.



Do not over-inflate.

Post-installation Checks

⚠ Once you have finished the installation, and before your first ride, make sure you or your bicycle mechanic perform the following checks:

Ensure the torque arm is installed correctly on the chainstay.

Check that both front and rear brakes are adjusted and working properly.

Check chain tension and adjust if needed.

Check spoke integrity and tension.

Check tire pressure and inflate if necessary.

Check saddle, handlebar and wheels for correct and safe installation.

Check quick-releases (if any) for safe and correct closure.

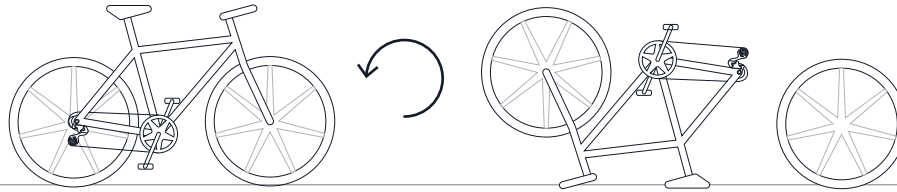
Ensure there is no contact between the frame and any part of the Wheel's red hub.

Multi-speed Setup

This is a general guide for installing your Copenhagen Wheel on a multi-speed bicycle, but every bicycle is different. These instructions assume you have the knowledge, skills and tools to safely install the Copenhagen Wheel. If you need more information you can go to superpedestrian.com/support or contact your nearest Superpedestrian Hub.

For more information on how to install the Copenhagen Wheel using a bike stand please go to superpedestrian.com/support.

See Section 4 for single-speed setup.

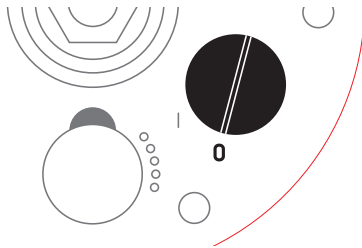


1 Turn your bike upside down.

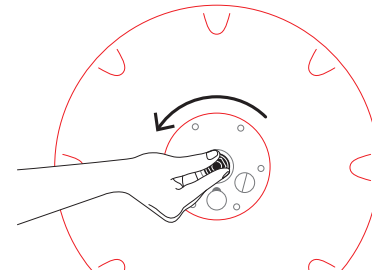
For this installation guide we have presumed that you know how to remove your current wheel from your bicycle, so please start by doing this. Turn your bicycle over so that it's balanced on the handlebars and seat.

⚠ Do not touch hydraulic brake levers (if bike is so equipped) while the bike is upside down or while the wheel is removed.

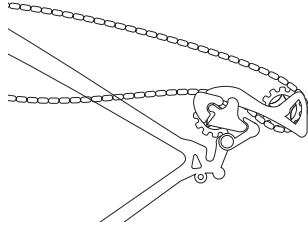
💡 The following diagrams (4-10) show the bike in an upside-down position (as seen above).



2 Make sure the power switch is OFF (0) on your Copenhagen Wheel.

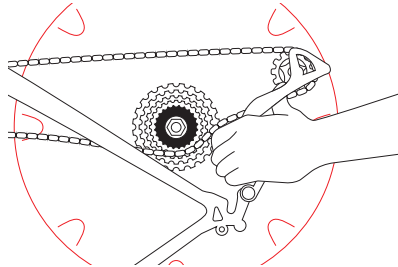


3 Remove the axle nuts from both ends of the axle.

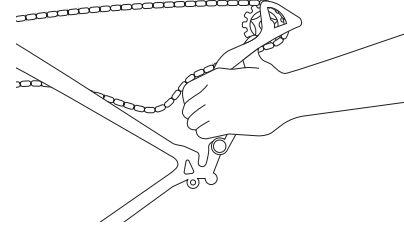


4 Maneuver the Wheel into the frame.

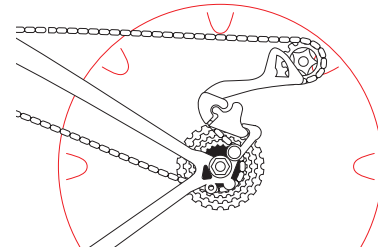
A Ensure the dropouts are clean and free of debris.



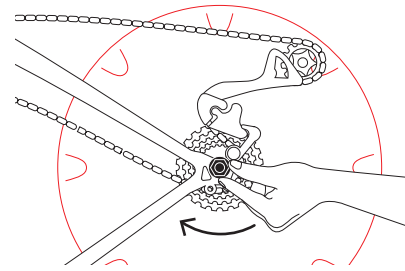
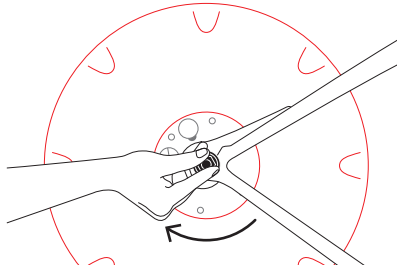
C Place the chain over the smallest cog and slip the Copenhagen Wheel in between the frame's rear dropouts.



B Hold the derailleur back with your fingers and thumb to prevent it from getting in the way.

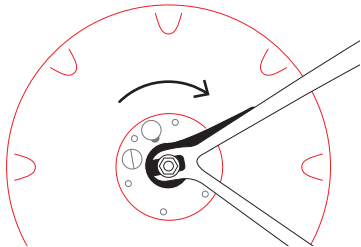


D Insert the axle into the dropouts and make sure the Wheel is secure. Slowly release the derailleur back into place.



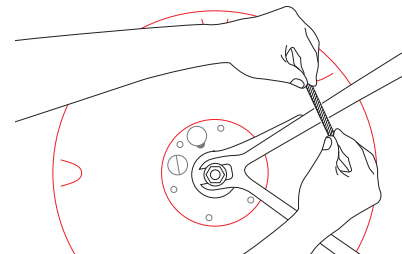
5 Loosely thread the axle nuts.

Alternately **hand-tighten** the axle nuts on each side.

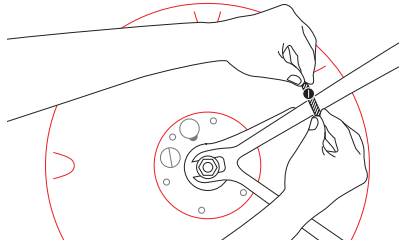


6 Attach the torque arm to the frame.

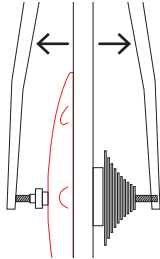
A Rotate the torque arm until it rests on the underside of the chainstay.



B Select the appropriately sized metal strap (included in the box) for your chainstay. Use the smallest size that will fit.

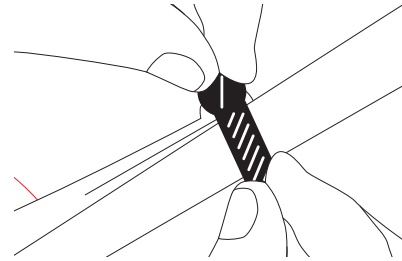


C Wrap the metal strap around the chainstay such that the screw is on top of the frame underside and facing out (towards you), as shown. Insert the end of strap into the captive screw.



7 Straighten the Wheel.

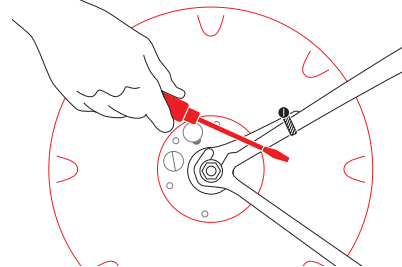
Make sure the Wheel is centered and straight by rotating the pedals forward, as if you're riding. Adjust if necessary.



D Slide the metal strap onto the torque arm and seat it in the groove. Turn the screw with a screwdriver to take up slack in the strap.

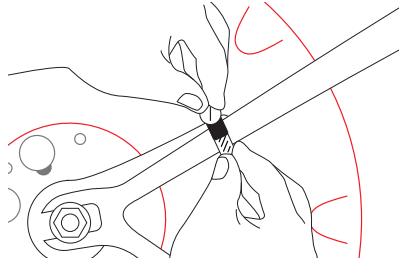


Do not tighten.

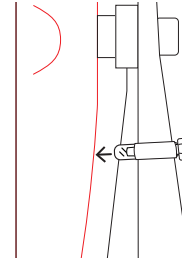


8 Adjust and tighten the metal strap.

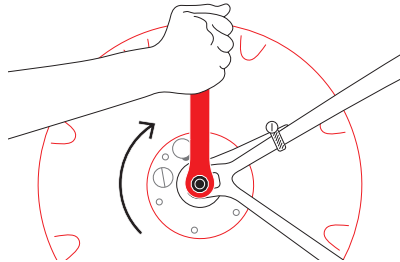
A Ensure the screw is positioned in the groove and is perpendicular to the hub. Tighten the strap firmly (6-8 Nm).



B Add a rubber protector to the end of the metal strap.

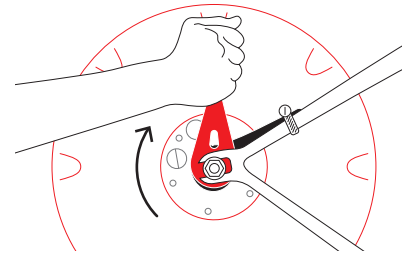


C Ensure there is no contact between the metal strap and the hub. If contact exists, readjust the Wheel within the dropouts.

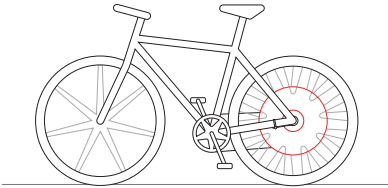


9 Tighten the axle and torque arm nuts.


A Tighten the axle nuts on both sides securely (30-44 Nm) using a 15 mm torque wrench.

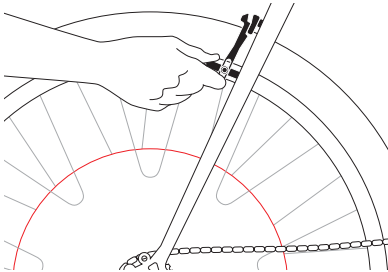


B Tighten the torque arm nut firmly (30-44 Nm) using a 22 mm torque wrench.



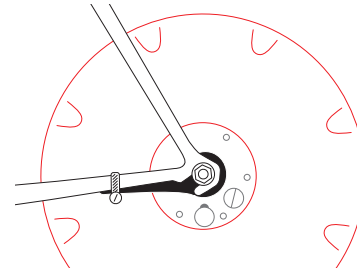
10 Flip your bike right-side up.

 Use caution when flipping it upright as the Copenhagen Wheel adds additional weight to the rear of your bicycle.

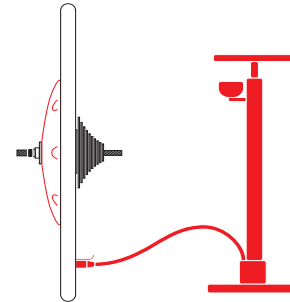


12 Readjust the brakes and derailleur.

Always make sure your brakes and gears are working properly before you ride.



11 Ensure the torque arm is installed correctly on the chainstay.



13 Inflate your tire.

Inflate your tire to the recommended pressure shown on the tire's sidewall.



Do not over-inflate.

Post-installation Checks

 Once you have finished the installation, and before your first ride, make sure you or your bicycle mechanic perform the following checks:

Ensure the torque arm is installed correctly on the chainstay.

Check that both front and rear brakes are adjusted and working properly.

Check derailleur limits and adjust if needed.

Check spoke integrity and tension.

Check tire pressure and inflate if necessary.

Check saddle, handlebar and wheels for correct and safe installation.

Check quick-releases (if any) for safe and correct closure.

Ensure there is no contact between the frame and any part of the Wheel's red hub.

Use Your Wheel

Charging Your Wheel

Your Copenhagen Wheel contains a rechargeable battery and comes with a battery charger.

For safe shipping we have shipped your Copenhagen Wheel with a partial charge in the battery.

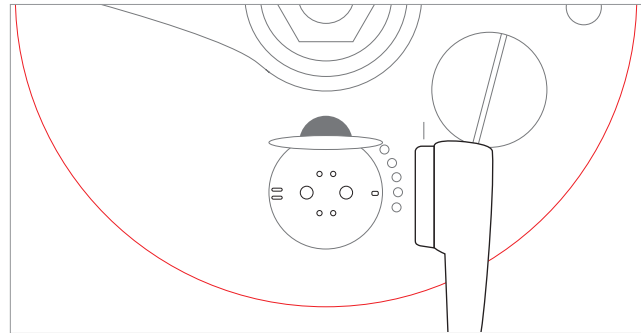
 **For best performance and range, be sure to fully charge your Wheel before riding for the first time.**

Attach the AC power cord to the charger brick and plug the AC cord into the wall.

The opposite end with the round charge connector plugs directly into the charge port on the Wheel hub. This is located under the charge port cover below the axle.

Lift the cover, and insert the round magnetic charge connector into the charge port. It should snap into place. You can use the magnet of the charge connector to help lift open the charge port cover.

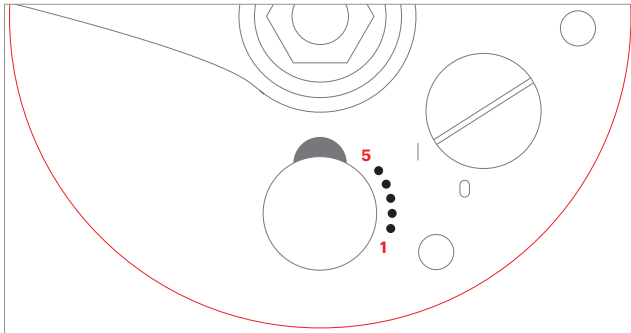
 **The battery is not removable. Only use the charger provided.**



Claiming Ownership

Now that your Wheel is installed on your bike and is charging, it's time to make you its owner. Claiming ownership will protect your Wheel from unauthorized use and allow you to record your trips and other riding stats. To do this, you'll need to wirelessly connect your Wheel to your smartphone:

- If you haven't done so already, download the Wheel app from Google Play™ or the App StoreSM.
- Remove the safety sticker and turn the Wheel's power switch to ON (I).



When you turn your Wheel on, you'll notice some LEDs light up around the charging port. These are quick indicators of the Wheel's battery level and status.

When all five LEDs are lit, it is fully charged. Other status alerts, like whether your Wheel is asleep or awake, will be indicated when the LEDs are flashing. See Section 10 for more information.

- Ensure Bluetooth® is enabled on your mobile device.
- Open the app and follow the instructions to create a Superpedestrian account and claim ownership of your new Copenhagen Wheel.



Please note: You will need a valid email address to complete this process.

- Once your Wheel has been added to your account, the app will automatically check for firmware updates for the Wheel and prompt you to update if necessary.

Once paired with the Copenhagen Wheel, your smartphone becomes its 'key.' You'll need it to enable the assistance, share your Wheel with friends and get the most out of your riding experience.

While your Wheel is topping up its charge, be sure to explore the app and understand its features.

Your First Ride and Wheel Setup

Now that your Copenhagen Wheel is installed and charged, it's time to get out on the road. The Wheel is equipped with multiple sensors that respond to you, your bicycle and your riding conditions. Your first ride is critical in teaching the Wheel about your body and your bike.

You will not get assist until the setup is complete.

Turn your Wheel on, connect with the Wheel app and then perform the following steps in a safe location away from road traffic:

- 1 Put your helmet on and start riding normally.
- 2 Once you're up to a comfortable speed, begin pedaling backwards.
- 3 Continue backpedaling until you've completed 3 to 4 revolutions of the pedals. You may feel the Wheel's electronic braking activate.

That's it! Once the setup has been completed, your Wheel's assist will kick in when you start pedaling forward again. Be safe and enjoy your ride!

Riding Modes

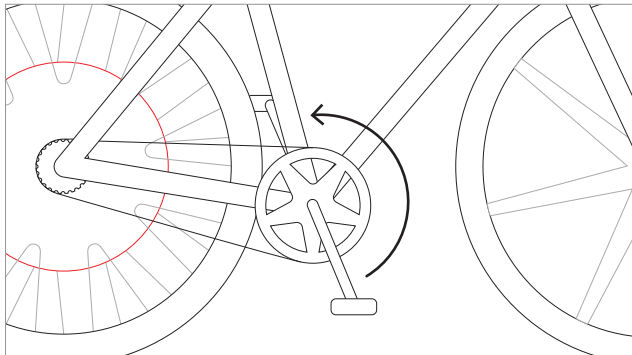
The Wheel app lets you vary the level of assistance provided by the Wheel.

Each riding "mode" provides assistance or resistance by sensing how you pedal. Before your ride, or while safely stopped, you can easily switch between modes to customize your riding experience.

Electronic Braking Assistance

Briefly pedaling backwards activates your Wheel's electronic braking feature. Instead of using the motor to propel you forwards, the Wheel will use it to help slow you down. At the same time, it will recapture energy to help charge the battery. This way, red lights and hills turn into opportunities to extend your range.

⚠️ Electronic braking will not function when the battery is fully charged or is too cold. This feature is not intended to replace the function of your bicycle's existing brakes, and should not be used in any emergency. When you need to come to a quick stop, be sure to use your bicycle's brakes.



Connect With Your Wheel

The Copenhagen Wheel isn't just about getting you from A to B quickly and easily. It's also about finding fun ways to explore your city. The Wheel app is designed to make these connections a reality, while supporting and enhancing your riding experience.

When paired to the Wheel app, your Copenhagen Wheel can utilize its internal sensors to track personal usage statistics including pedaling behaviors, power and torque stats, trip routes, distances traveled and elevations climbed. You can review, compare and share this information with friends in the app.

One great thing about becoming a Superpedestrian is your new ability to improve your city by anonymously sharing data with our larger community of riders.

To help you do this, the app will continue to evolve along with your Wheel.


We have described the use of your information in the End User License Agreement and our Privacy Policy published at superpedestrian.com/legal.

Handling and Transport

Proper Handling


While the Copenhagen Wheel has been designed for use in normal cycling conditions, it is an electro-mechanical piece of equipment which should be used as directed. It contains sensitive electronic components and a high-powered battery.

The Copenhagen Wheel can be damaged if dropped, burned, punctured or crushed. Do not disassemble the hub of the Copenhagen Wheel and do not attempt to repair it yourself. Disassembling the Copenhagen Wheel hub may damage it or cause injury to yourself or others. Do not use a damaged Copenhagen Wheel on your bicycle, such as one that has been involved in an accident, as it may cause injury to yourself or others. If the Copenhagen Wheel hub does get damaged, please contact Superpedestrian or visit a Superpedestrian Hub before using it again.

 **If you observe any leaking, rattling, dents, cracks, separation of the hub shell or missing screws, IMMEDIATELY DISCONTINUE USE and contact Superpedestrian at superpedestrian.com/support.**

Transporting Your Copenhagen Wheel

It is important that you ensure the bicycle rack on your vehicle is suitable for the increased weight added at the rear of your bicycle by the Copenhagen Wheel. An incompatible bicycle rack can damage the Copenhagen Wheel and/or your bicycle, or car. Please consult your local bicycle shop when choosing a rack for your vehicle to carry a bicycle with the Copenhagen Wheel.

 **When traveling by air, it is important to understand that a lithium ion battery is classified as a dangerous good and **MUST** be transported by a qualified handler. Always check with your airline before traveling with the Copenhagen Wheel on commercial passenger flights.**

For more information about shipping lithium batteries see the IATA website.

When shipping the Copenhagen Wheel, you must use the original packaging or buy an approved replacement package from Superpedestrian. Shipping items with lithium ion batteries like the Copenhagen Wheel is highly regulated. For more detailed shipping instructions, please visit superpedestrian.com/support.

Carrying

⚠ In order to prevent injury, always turn the Copenhagen Wheel's power switch to the OFF (0) position before picking up the Copenhagen Wheel.

If the Copenhagen Wheel is not switched off while carrying AND the pedal is rotated forward, the motor will be activated and the Wheel will spin. Anything between the spokes (e.g. loose hair, clothing, fingers, etc.) could also be caught in the Wheel and cause injury.

Keep in mind that the Copenhagen Wheel weighs more than a standard bicycle wheel. Please take this into account and use caution when lifting, especially while the Wheel is attached to your bicycle.

Usage, Storage and Cleaning

Operating Environment

Operating or storing the Copenhagen Wheel outside these ranges may affect performance:

Operating Temperature

-10 to 45 °C (14 to 113 °F)

Storage Temperature

-20 to 55 °C (-4 to 131 °F)

Charging Temperature

0 to 40 °C (32 to 104 °F)

Relative Humidity

5% to 90% (non-condensing)



To protect the battery, electronic braking and regeneration will not function while the battery temperature is below 0 °C (32 °F) or above 40 °C (104 °F).

Recommended Terrain

The Copenhagen Wheel is designed for use in urban environments and is not recommended for off-road use. Riding on rough terrain or unpaved trails may put unnecessary stress on the Wheel and potentially cause damage to the Copenhagen Wheel or injury to the rider.

Water, Inclement Weather and Wet Locations


While the Copenhagen Wheel is tested to an IPX4 rating, it is best practice to protect it from unnecessary dampness or wet weather.

Do not intentionally ride through puddles. We advise that you take the Copenhagen Wheel inside during inclement weather.

 **The Copenhagen Wheel is NOT submersible. DO NOT submerge the Copenhagen Wheel in liquid of any kind.**


Magnetic Materials

The torque sensor used within the Wheel is sensitive to external magnetic fields. Exposure to magnetic fields can change the calibration of the sensor, potentially rendering the Wheel unusable or possibly cause permanent damage to the sensor.

 **Never place magnets or magnetic materials on or close to the Wheel, particularly the axle, chain or cassette. Don't attach the magnetic charger anywhere but the charge port.**

Medical Conditions

If you have any medical conditions that you believe could be affected by the Copenhagen Wheel, or use of the Copenhagen Wheel, consult your physician prior to using the Copenhagen Wheel.

 **All riders must be physically and mentally able to ride a bicycle.**

Recommended Minimum Age


No person under the age of 16 should operate a bicycle with the Copenhagen Wheel. Always observe all federal, state and local laws. If you are unclear of the laws and regulations in your region, please contact your local officials.

Recommended Maximum Weight

The total rider, cargo and bicycle weight combined must not exceed 150 kg (330 lbs).

Storing the Copenhagen Wheel

If you are going to store the Copenhagen Wheel for an extended period of time, keep it in a cool, dry location (ideally, 20 to 25 °C (68 to 77 °F)) and store the Copenhagen Wheel at a 40 to 60% state of charge. The Copenhagen Wheel should always be stored with the power switch in the OFF (0) position and the charger unplugged. Charge the battery to 50% at least once every 6 months to maintain proper battery health.

 **Be sure to take the Copenhagen Wheel inside for long-term storage (e.g. winter). Never store the Copenhagen Wheel in temperatures below -20 °C (-4 °F) or above 55 °C (131 °F). Storing the battery outside of this temperature range can cause your battery to stop operating or significantly reduce its capacity.**

For more information on long-term storage, please visit superpedestrian.com/support.

Cleaning the Copenhagen Wheel

When cleaning the Copenhagen Wheel hub, be sure the battery charger is unplugged, the power switch is turned to the OFF (0) position and the charging port cover is in place.


The hub is rated to IPX4; however, we recommend that you wipe the Wheel down with a clean cloth when it gets dirty, rather than hose it off. Avoid getting moisture in any openings. Do not use aerosol sprays, solvents or abrasives that might damage the finish. Avoid the use of any metal scrapers or hard plastics as well.



Never use a pressure washer to clean the Copenhagen Wheel.

Maintenance and Modification

Proper Maintenance


 **Check tire pressure and spoke integrity prior to each ride.**

We strongly recommend having the tension of the spokes on the Copenhagen Wheel, as well as the torque of both axle nuts, checked after your first 100 miles. Recommended tension and torque values can be found at superpedestrian.com/support. If you do not know how to check the tension or torque, we recommend going to an authorized Superpedestrian Hub.

We recommend the Copenhagen Wheel be checked for spoke tension and axle nut torque once every 6 months or 800 miles (whichever comes first) and, if required, be properly serviced. It is critical to keep the Copenhagen Wheel appropriately tensioned and trued for a safe and enjoyable ride.

Be sure to maintain proper tire pressure at all times (as indicated on the sidewall of the tire). Additionally, maintaining a clean and well-lubricated drivetrain is a best practice for all bicycles. If you notice buildup or dirt on your Copenhagen Wheel or other parts of your bicycle, cleaning is recommended as described in the previous section.

Occasionally, you may be instructed to update the firmware wirelessly through the Wheel app.

 **Please note the addition of the Copenhagen Wheel may increase wear of some components in comparison to those on bicycles without a motor drive, in particular on the brakes and tires.**

Modification

⚠ ALWAYS turn the Copenhagen Wheel's power switch to the OFF (0) position when uninstalled, installed but off the ground (i.e. in a bike stand or upside down) and when doing maintenance or modification to your bicycle.

Only Superpedestrian should rebuild or replace internal components of the Copenhagen Wheel.

Any unauthorized tampering or modification of the Copenhagen Wheel, including changing rims or cassettes, will void the warranty.

The components of the Copenhagen Wheel that are user-replaceable include the tire, tube and metal strap. All other components should be changed by Superpedestrian or a Superpedestrian Hub. Detailed information about changing tires and tubes is located on our support center at superpedestrian.com/support.

Ongoing maintenance

To guarantee that your bicycle continues to operate safely and at peak performance, it must be kept clean, lubricated, and routinely serviced (every six months or so). How much of this servicing and maintenance you can do yourself will depend on your level of skill and experience, and whether you have access to the required tools.

If you have any doubts about your ability to complete the following tasks, we recommend that you seek the assistance of a properly skilled bicycle mechanic. You can find some of the best mechanics through Superpedestrian's Partner Hubs. For help finding a Hub near you, visit: superpedestrian.com/locator.

Torque specifications

Carefully observe the the required torque specifications for each part of your bicycle. For specific torque measurements for your bike, please visit: superpedestrian.com/support.

We recommend using a torque wrench to ensure that the correct torque is achieved when tightening these nuts and bolts.

Initial break-in period

Most bicycles require a brief 'break-in' period before hard riding. While this is much more of an issue for precision racing and mountain bikes, we still recommend riding gently at first. Expect the chain, brake cables, and gear cables to stretch over the first few months of riding. Be prepared to provide minor adjustments as necessary.

Lubrication

Lubrication will prevent rust and reduce friction on moving parts. Accordingly, keeping your bicycle well lubricated will ensure it remains in good shape. All bearings and other moving parts require regular lubrication (check every month or two):

- Grease-based lubricants: Bearings in headset, wheels, bottom bracket, and pedals (all will require disassembly to lubricate).
- Oil-based lubricants: Brake and derailleur pivot points and jockey wheel, chain, freewheel.
- Tires and tubes
- Routinely inspect treads for wear and cracking.
- Remove any debris from tires.
- Routinely check that tire pressure is correct.

Tires and tubes

- Routinely inspect treads for wear and cracking.
- Remove any debris from tires.
- Routinely check that tire pressure is correct.

Wheels & wheel hubs

- Check your rims to ensure that they are true (straight) and that your spokes are evenly tensioned.
- Clean the braking surface on the rim.
- Immediately replace any dented or broken spokes. Replacement spokes for the Copenhagen Wheel are available from Superpedestrian.
- Check front hub bearings for excess play or binding. Re-lubricate when necessary.
- Ensure that wheel axle bolts are tight.

Chain

- Routinely clean and lubricate the chain.
- Check chain tension for either over-tautness or excess slack. Ideally, there should be only minimal up and down movement (no more than 0.5 cm). To adjust chain tension, loosen the two rear wheel nuts and pull the rear wheel back to reduce the slack in the chain before re-tightening the wheel nuts. Make sure that the wheel is centered correctly in the dropouts/frame before tightening all the way. You may find it easier if you stuff a rag or old towel between the rear wheel and seat tube to keep the wheel in position as you make the necessary adjustments.

Brakes

- Check brake pads for wear and replace if necessary.
- Check that the caliper and lever bolts are securely tightened.
- Lubricate brake pivot bolts and adjust when necessary.

Gear and brake cables

- Routinely check the cable housing for damage and the inner cable for kinks, fraying, and excess stretch.
- If brakes or gear shifters feel soft or squishy, remove, clean, and relubricate the inner cable.
- It is natural for the gear and brake cables to stretch with use. Regularly check that the brakes and gears are adjusted using the barrel and/or cable anchor bolts to compensate for this cable stretch.

Cranks and chainrings

- Check that the bolts attaching the crank arms to the bottom bracket spindle are tight.
- Clean chainrings and check that they are true and have no excessively worn or broken teeth.

Headset

- Check headset for excess play or movement and tighten locknut if necessary.

Pedals

- If pedals are loose, retighten the pedal axle to the crank arm securely.
- Check that pedal straps and toe clips are properly secured (if fitted).

Bottom bracket

- Test the bottom bracket for excess play or binding.
- Check to ensure the locknut is tight.
- Bottom bracket should remain correctly lubricated.

General

- Inspect the frame for alignment and all of the tubes for dents, cracks, or other damage.
- Ensure that all nuts and bolts are secure.

Built-in Battery and Charging

Built-in Battery

Do not remove, or attempt to remove, the battery from the Copenhagen Wheel. The battery should only be replaced or serviced by Superpedestrian or a Superpedestrian Hub. Discontinue use of the Copenhagen Wheel if the Wheel is dropped or appears crushed, bent, deformed or damaged. Do not expose the Copenhagen Wheel to extreme heat sources, such as radiators, fireplaces or open flames.

For information about battery recycling and replacement, see superpedestrian.com/support.

Battery Charger Power Specifications

Frequency 50 to 60 Hz, single-phase

Line Voltage 100 to 240 V AC

Output Voltage 54.6 V DC, 2.0 A

Wattage 109 W

To reduce the possibility of overheating the battery charger, do not use extension cords or power strips. Place the battery charger on a flat surface in a well-ventilated location.

Be sure to disconnect the battery charger if:

- You want to clean your bicycle or the Copenhagen Wheel.
- You want to do service of any kind to the Copenhagen Wheel.

- You need to remove the Copenhagen Wheel from the bicycle.
- The power cord or plug becomes frayed or damaged.
- The Copenhagen Wheel has been submerged in liquid for any reason.
- The Copenhagen Wheel or battery charger is exposed to rain, excessive moisture or liquid spills.
- The Copenhagen Wheel or battery charger has been damaged or you suspect that service or repair is required.

Both the charging port and the charge connector contain a magnet that can erase data on a credit card, mobile phone or other devices. Do not place these or other magnetically sensitive materials or devices within 1 inch (25 mm) of the port or connector.

 **To avoid getting debris into the charge port, always make sure it is covered while riding.**

If debris gets into the charge port, turn the Copenhagen Wheel to the OFF (0) position and remove the debris gently with a dry cotton swab or cloth.

The magnet on the charge connector tends to attract magnetic debris. If debris gets on the charge connector, unplug the battery charger from the wall

and remove the debris gently with a dry cotton swab or cloth.



Remember to unplug the charger before riding. Riding off with the charger still connected may result in damage to the Wheel, bike and/or charger.

AC Adapter, Charging and Status LEDs



Use only the approved battery charger that supports the Copenhagen Wheel's battery. Using other battery chargers may cause damage to the battery, serious or fatal injury and/or other dangerous situations.

The battery charger supplied with the Copenhagen Wheel is for INDOOR USE ONLY. Prior to plugging the battery charger into a power outlet, make sure the AC plug or AC power cord is fully inserted into the battery charger. Always charge and store your Copenhagen Wheel and charger in a dry, clean environment.

To charge your battery, connect the battery charger to the charging port on the User Interface (UI) of the Copenhagen Wheel. There are five LEDs that indicate battery level and other status messages on the right side of the charge port. The LED on the charger itself will be RED while charging, and turn GREEN when fully charged. See superpedestrian.com/support for more information.

⚠ Placing any metallic or conductive objects into the charge port other than the charger may cause electric shock, fire or other injury. Do not connect the charger if water, ice or condensation is in the charge port.

For optimum battery longevity, we recommend that you fully charge the Copenhagen Wheel at least once per week.

💡 Electronic braking and regeneration will not function when the battery is fully charged.

💡 If the Copenhagen Wheel's battery is low, and if the charger does not turn RED upon plugging in, the charger may need to be reset. A reset can be done by power cycling the charger (see next page).

Charger Power Cycle

- 1 Unplug the charge connector from the Copenhagen Wheel.
- 2 Unplug the AC adapter from the wall.
- 3 Wait 5 seconds.
- 4 Plug the AC adapter into the wall.
- 5 Plug the charge connector into the Copenhagen Wheel.

If you still experience issues, please contact us at superpedestrian.com/support.

Troubleshooting and Help

Basic Troubleshooting

In the unlikely event the Wheel stops assisting, it is probable that the battery is low or there is a Wheel fault. To check, look at the LEDs next to the charge port on the non-drive side of the Copenhagen Wheel.

If the Wheel's state of charge is low, please plug in the Wheel with the charger.

In the event of a fault, turn the power switch of your Wheel to the OFF (O) position, wait 5 seconds and then turn it back to the ON (I) position.

This process should clear the most common faults.

If the fault still exists after toggling the power switch of the Wheel on and off, please contact Superpedestrian at superpedestrian.com/support or through the Wheel app.

Advanced Troubleshooting

For additional support and troubleshooting procedures, please visit superpedestrian.com/support.

Learning More, Service and Support

Get support directly from your app

Tap on 'Support' and you will have instant access to the User Manual as well as how-to and troubleshooting articles.

Learn more about your Wheel

You can find additional information, how-tos, demos and tutorials and learn even more about your Copenhagen Wheel and its features at superpedestrian.com/support.

Find a Superpedestrian Hub

At superpedestrian.com/locator, you can search a database listing all of our Superpedestrian Hubs, find the nearest one to you and get in touch to schedule a service appointment.

Other Information

End-User License Agreement

Use of the Copenhagen Wheel constitutes acceptance of the Superpedestrian End-User License Agreement and third-party software license terms found at: superpedestrian.com/legal/eula.

Privacy Policy

Details regarding Superpedestrian's use and storage of your data found at superpedestrian.com/legal/privacy-policy.

Limited Warranty

The Copenhagen Wheel includes a limited warranty found at: superpedestrian.com/legal/limited-warranty-for-the-copenhagen-wheel.

Patents and Patents Pending

Superpedestrian makes all of its patents for the Copenhagen Wheel and other products available on our website at: superpedestrian.com/patents.

Disposal and Recycling Information



This symbol indicates that this product and/or battery should not be disposed of with household waste.

Please be aware that it is your responsibility to dispose electronic equipment at recycling centers in order to

help conserve natural resources. When you decide to dispose of this product and/or its battery, do so in accordance with local environmental laws and guidelines.

Regulatory and Compliance Information

FCC Compliance Statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: **1** this device may not cause harmful interference, and **2** this device must accept any interference received, including interference that may cause undesired operation of the device.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to

radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Contains FCC ID: QQQBLE121LR

Canadian Compliance Statement

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: **1** this device may not cause interference, and **2** this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: **1** l'appareil ne doit pas produire de

brouillage, et **2** l'utilisateur de l'appareil doit accepter brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Industry Canada Statement

CAN ICES-3 (B)/NMB-3B This Class B digital apparatus complies with Canadian ICES-003.

Contains IC: 5123A-BGTBLE121LR

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une

communication satisfaisante.

Technical Specifications

Hub Weight	7.6 kg (16.8 lbs)
Motor	250 W (nominal)
Maximum Permitted Weight	150 kg (330 lbs)
Battery	
Capacity	5.81Ah / 279 Wh
Voltage	48 V
Weight	1.89 kg (4.17 lbs)
Type	Lithium Ion

EC DECLARATION OF CONFORMITY

The manufacturer:
Superpedestrian, Inc.
 84 Hamilton St.
 Cambridge, MA 02139 USA
 +1 617 945 1604

hereby declares that the product:

Copenhagen Wheel with serial numbers using
 the format: **XXBBYYDDDDNNNNPPPPPP**

XX	Model Number - 01 or 02
BB	is Build Location - 03
YY	Year of Manufacturer - 17
DDD	Day of Manufacturer
NNNN	Numeric ID
PPPPPP	Reserved

Is in compliance with the essential requirements
 and other relevant provisions from the guidelines:

Machinery directive 2006/42/EC
 Electromagnetic Compatibility 2014/30/EU
 RoHS 2011/65/EU

The relevant provisions of the following standards were
 applied to the product and used to verify compliance:

EN 15194+ A1: 2011	Cycles – EPAC
EN15194:2009 +A1:2011	EMC - Emissions
EN 15194:2009 + A1:2011	EMC - Immunity
EN 61000-4-2:2009	EMC - Immunity
EN 61000-4-3:2006+A2:2010	EMC - Immunity

Technical documentation by:

Superpedestrian Inc.
 84 Hamilton St
 Cambridge, MA 02139
 USA



Robert White, VP Engineering, Superpedestrian, Inc.

EU Representation:

Alura Group BV
 Zwolsestraat 156
 2587 WB The Hague
 Netherlands



Mr. Han Zuyderwijk, Alura Group B.V.

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Please recycle!



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