

Front Hub Motor E-Assist System

System Components:



a) Front and Rear Hubs (Front w/motor)

b) Motor Extension Cable

c) Pedal Assist Sensor (PAS)

d) Battery Bag / 36v Battery Inside**

e) System Controller Bag/ Controller inside**

f) Power Extension Cable**

g) Handlebar Control Console

h) Speedometer Sensor and Magnet*

*May also be located on rear wheel.

*Not All systems require an external speed sensor.

i) Fork

j) Drive side = Chain side

** Several 36v battery systems are available. Position and appearance of batteries and associated accessories will vary.

We designed electric assist bikes for cyclists with these values:

- We believe that pedaling is an essential part of cycling and keeping control of the bike. Therefore, you must be pedaling for the e-assist to work.
- Bike Friday E-assist systems are “**Class One**” pedal assist bikes.
- The system must be complimentary to your riding needs, be built for everyday use, and it must be light in weight.
- We want all Bike Friday products to deliver the best value when considering weight, function, and cost for an overall high-quality investment.

Each of the Electric Assist Systems Bike Friday installs:

- Are 36 Volt nominal systems. (42 volts full charge/ 30 volt cut-off)
- The nominal voltage of a system is **the value assigned to a system or circuit of a given voltage class for the purpose of convenient designation**. The actual voltage may vary above or below this value. This is managed by the batteries **BMS** (Battery Management System).
- All systems are Pedal Assist only so there is no electric assist without pedaling (this is key for laws in some countries). Our bikes do not have a throttle.
- From the factory, we program the controller to support your local government “**Class One E-bike**” laws.

****IMPORTANT INFORMATION****

Assist Level use 1-5:

➔ For extended climbs use only levels 1-3. Levels 4 and 5 are only designed for flat sections, rolling hills, and descents at speed. Level 3 will suit best for maximum climb. Use lower gears.

➔ Extended climbing in levels 4 or 5 may overheat the controller, quickly drain your battery, and can cause damage to the system. Basically, you would need much larger and heavier batteries than you would want to carry.

Assembling Your e-assist Components:

1. Charge Battery(s)

NOTE: Battery(s) will be delivered in a partially-discharged state due to shipping regulations. Please fully charge battery(s) before your first ride. **Red** light on charger indicates it has connected to the battery, and it needs a charge. When LED shows **Green**, you have a full charge.

(See “Lithium Battery Care Guidelines” section for more information on Page 10)

2. Installing Front Wheel With Hub Motor



Your bike will come with (1-3) **Washers**. These are examples of how they may look.

NOTE: There needs to be at least one washer between the axle nut and the dropout.



Your bike will come with (1 or 2) **Tab Washers**. These are examples of how they may look.

NOTE: Tabs need to be captured by the fork dropouts. Tab washers should always face “**tab-side DOWN**” within the dropout.

(“**See Examples below**”).





Your bike will come with (2) **Axle Nuts**. Here are examples of how they may look.

(Domed Axle Nuts requires split washers)

NOTE: You do not need to remove the axle nuts entirely to remove your wheel. The nuts go on the outside end of the axle.

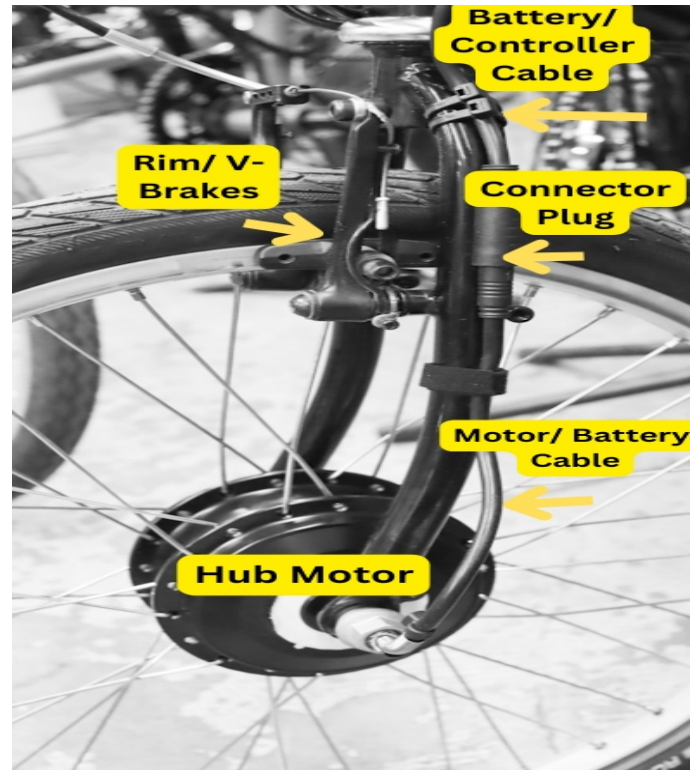
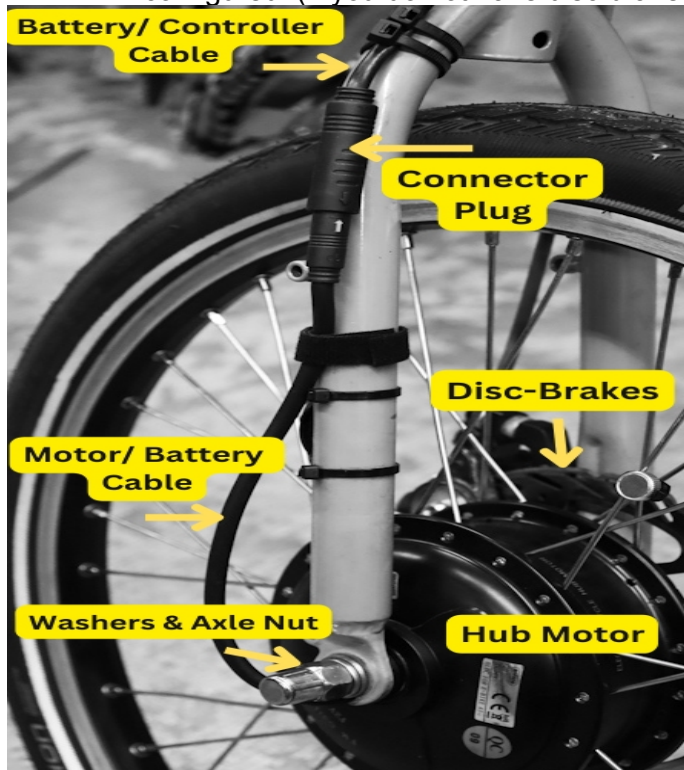
Axle Nut Torque Specifications

15 ft-lbs or 20 N-m

3. Install front wheel into frame:

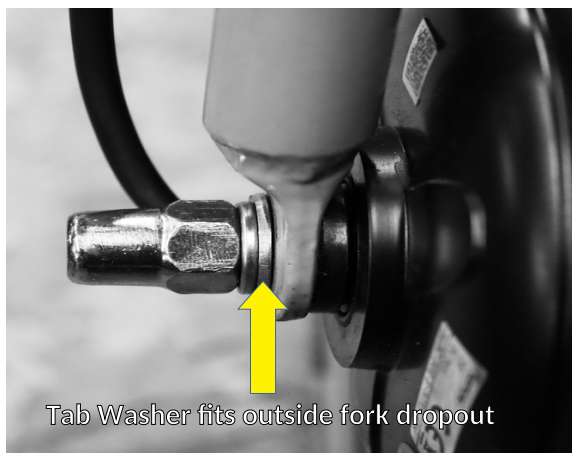
To assure the fork and wheel are always in the correct forward position:

- Disc brakes should always be installed on the **left or Non-Drive Side**. (Opposite side of bike from your chain.)
- V-brakes/ rim brakes should always face **front** on the fork. Loosen brakes to clear the tire when installing the front wheel.
- **Remember to reattach cables and check the brake on the rim before riding your bike.****
- The cable from your hub motor should be on the **same side** of the fork as the zip-tied battery/ controller cable. This can either be on the left or right side of the fork depending on your motor type. Always remember which side of your bike the cable is configured. (If you do not have disc brakes.)



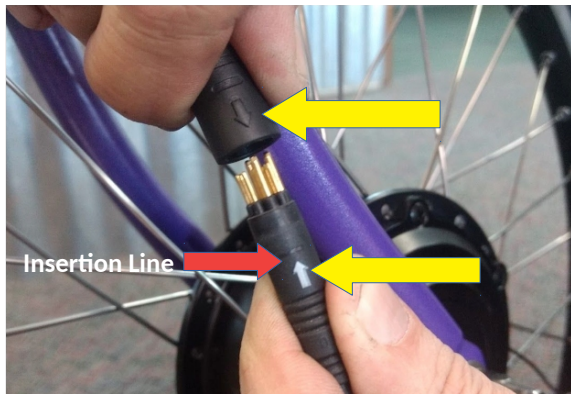
How to know everything is in the correct place:

When hub axle is inserted into the fork dropout with washers in place, no threads should show between the fork and the hub. If any of the threads show, this indicates that the tab washer must be moved to the inside of the fork. (“**See Examples below**”)



NOTE: It is important to pay attention to the washer configuration that was assembled onto your front hub motor from the factory, as some motors may have slightly different washer configurations. Keep washers on the axle/ hub when packing or disassembling your bike. When removing the front wheel, you only need to loosen the nuts enough for the wheel to drop out. You do not need to completely take off nuts and washers. This can also help ensure you keep the proper washer configuration.

4. Connect hub motor control cable:



****Be careful when laying bike on ground on motor cable side.****

→ The arrows must be aligned for the 9-pin connector to properly engage.

→ Ensure plug is inserted all the way to the insertion line.

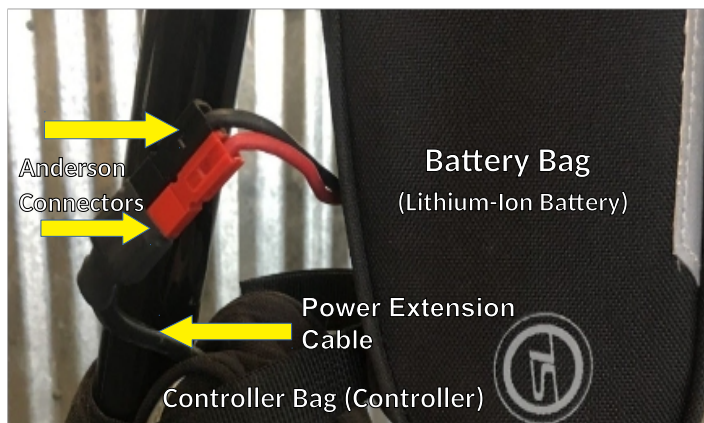
ATTENTION: Connector plugs may require additional brute force to ensure they are properly connected due to fitting snug to form a water proof seal. If they are NOT securely connected, your system will not work properly. It may power on, but you will get no power. This is a common problem as the water proof connector is quite tight the last 1/8".

5. Install and Connect Battery:

- a. Install Lithium-Ion battery bag under saddle, and controller bag behind the seat mast.



b. Connect **RED** and **BLACK** Anderson connectors from battery to controller **RED** and **BLACK** connectors. Store extra cable length inside battery and/or controller bag.



Anderson Connectors,
Controller & Battery Bags



Lithium-Ion Battery

(See “Lithium Battery Care Guidelines” section for more information on Page 10.)

6. Operate Handlebar Control Console



- 1.) Up Button (Increases assist level)
- 2.) Power/ Start Button/ Additional Displays
- 3.) Down Button (Decreases assist level)
- 4.) Battery Charge Capacity Indicator
- 5.) Riding Speed
- 6.) Trip/ Ride Time (TM)
- 7.) Distance/ Odometer/ Voltage
- 8.) Pedal Assist Level

Your E-Assist System will come with (1) **display monitor**. Below are examples of what they may look like.





1. a. **Power on/off:**

Hold  until LCD display appears (Hold again to power **OFF**)

b. **Set Assist Level** - Default setting at power on = 0 (no assist)




Tap  /  arrows to set assist level from 0-5

0 = no pedal assist power

1 = minimum pedal assist power

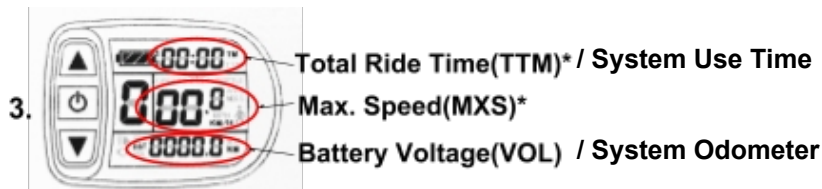
5 = maximum pedal assist power

c. **Adjust Display**




i. Tap  to cycle through display option:



*Resets to Display 1 (TM/Current Speed/DST) after 5 seconds of riding



*Resets to *TM / Current Speed* after 5 seconds of riding. VOL display remains

NOTE: To reset Trip Settings (AVS, DST, TM, and MXS) wait at least **10 seconds** after power on, then simultaneously hold  /  for **2 seconds**. To confirm reset, tap . Otherwise wait **5 seconds** and the display will automatically retain Trip Settings.

d. Back-light: Hold  to toggle on/off display back-light.

Tips for Riding an e-bike:

- ➔ Before each ride, check that brakes are functioning correctly, and that all frame connections and/or quick-release levers are secure.
- ➔ Start without assist for ½ a block, then set a lower assist power setting, especially when the bike is new to you. This is a great reminder of how the “assist” is helping you.
- ➔ Use only as much e-assist power as you need. This will help maximize battery range and keep you aware of situations you encounter. This maximizes the cycling ride and sense of speeds consistent with a strong rider
- ➔ Be aware of obstacles and loose surfaces (sand, gravel, etc.). You may be riding at faster speeds than without electric assist, so give yourself extra time to stop or avoid these conditions. The extra torque from the motor can make it easier to lose traction on loose surfaces.
- ➔ Be mindful of other cyclists, pedestrians, and vehicle drivers who may be surprised by the rapid speed or acceleration of an e-bike rider. When riding with others, best manners are to use the assist to keep up, not to drop others!
- ➔ Charge batteries to full charge to ensure maximum range is available for longer rides.

→ Although wires are coated, they can still be susceptible to damage or cutting. Always be careful when folding/ unfolding, stowing, or disassembling your bike, as this is when damage usually occurs.

Lithium Battery Care Guidelines:

E-bike batteries will rapidly become unusable if stored for extended periods of time in a depleted state. For example, if batteries are left without an optimal charge in Winter for several months. Conversely, with proper care and maintenance your battery will provide years of usable life. If the battery is stored very low, they may never take a charge again.

- During regular use (riding and charging at least once a week), it is okay to leave the battery packs on the bike for convenience when not riding and/or while charging.
- Never store an empty battery. Always ensure the battery has at least a 50% charge before storing. (**Optimal storage charge is between 50-75%**)
- When storing your bike and/or battery(s) without use for a month or more, check that voltage is between **35-39 volts** before plugging the battery into the charger approximately **once a month** to ensure the battery contains an optimal storage charge (50-75%). This will help maintain overall battery health and allow for maximum cycles.

Remember:

- 1.) Ensure the battery is **unplugged** from the system.
 - 2.) Ensure the battery is optimally **charged (50-75% best for storage for 36 volt nominal battery, and between 35-39 volts.)**
- Unplug the battery from the charger between charging sessions. While it is fine to leave a battery on a charger overnight to allow a full charge, do not leave the battery connected indefinitely to a charger. This can be hard on the battery and the charger and has a parasitic load that is wasteful.
 - **NEVER** charge when battery is in freezing temperatures (Below 32 degrees). It is safe to use/ discharge in freezing temperatures. Make sure the battery is no longer colder than 32 degrees before charging. Bring the battery inside and let it sit for 1-2 hours before charging after being in freezing cold. Range will decrease in cold temperatures to 80% capacity.
 - With proper care, you should get about 500 full charges in a batteries usable lifespan. Several factors play a roll in the depletion occurrence of you battery

including terrain type, weight, pedal assist settings, and both very high or low temperatures. (See example below)

EXAMPLE:

“Alan rides his bike to work and back 5-6 days a week, plus some other trips averaging around 30-40 miles per week. He has a 10amp hours/ 36volt battery ($10 \times 36 = 360$ watt hours). This is well in the range of the battery (usually using about 7watt hours per mile). Alan charges his battery 1x weekly. He expects his battery to last about 10 years (10×52 weeks = 520 charges).”

Additional Details on Monitoring Battery Life:

A new battery will fully charge to 42 volts (100%) for a 36 volt nominal system.

The system is programmed to automatically turn off when only 30 volts are left within the battery. The battery must be charged before further use. Your battery may fall below 30 volts during long term storage. If it falls below about 27 volts, it will no longer take a charge, and become unusable (BMS will not allow charging). If you would like to monitor your batteries voltage more accurately, a voltage checker can quickly inform you of your batteries charge levels. On most Bike Friday systems, you can tap the power/ start button twice after you turn on the system. This will display the voltage when the battery is connected. (See diagram below)



Safety Tips:

- ➔ To avoid any water damage or corrosion to the battery, ensure your connectors are fully engaged and your battery is stored in its bag during riding.
- ➔ Ensure your wheel is tightly fastened to eliminate “axle spin-out” inside your drop-outs.
- ➔ Avoid damage and failure due to misuse, neglect, or improper storage (example: 45 days without using or charging your battery can damage it) or other forms of use not designed for, but not limited to; jumping, competition, or modifications after purchase.
(See Lithium Battery Care Guidelines on page 10)
- ➔ Ensure proper wheel and spoke maintenance and upkeep. (Example: broken spokes or bent rims)



Troubleshooting:

1) If system will not power on:

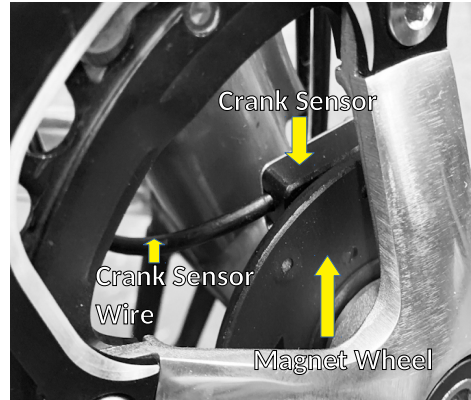
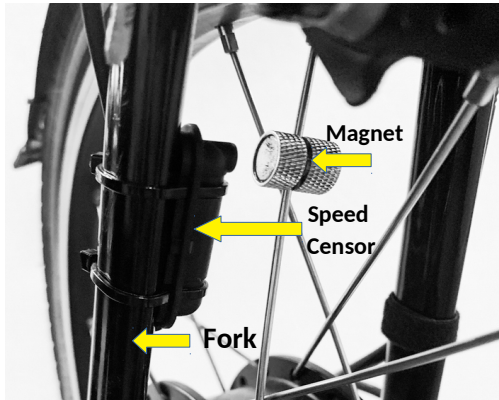
Ensure batteries are connected and charged sufficiently. Check all cable connectors and ensure there are no damaged or broken wires.

If system powers on, but does not

provide assistance: • Set assist level at console to Level 1 or higher.

- Tap  /  to set assist level
- “0” = no pedal assist power
- Check that the motor cable connection near motor is fully seated, and free of moisture and corrosion. (Cable may be hidden inside the controller bag.)
- Check that the front wheel is properly installed. (Reference Page 3-4)

- Check that the crank sensor wire is not damaged. This is a hazard when traveling from packing and unpacking. Class one systems need a signal from the cranks that they are turning.
- Check that Speedometer sensor is in close proximity (2-5mm) to the magnet on the spokes if you have an external speed sensor. These components are usually located on the front wheel, in the motor (needs no adjusting), and fork, but sometimes can be on the rear wheel. In some situations, it may be possible for the sensor to get knocked out of position. If your bike has an external sensor, rotate the sensor and/or magnet as necessary to a functional position.



Warranty Information:

We always want to keep you riding so we offer a warranty on electric assist products. The electric assist world has very limited warranties so Green Gear Cycling is shouldering the cost of what we offer in most cases, even though we do not manufacture the electronics ourselves.

Green Gear Cycling Inc. Electric Assist Product Warranty

First, we expect to deliver a fully functional product to you. We warranty our electric assist components (motor, controller, charger, and displays) against defects in workmanship and materials for 1 year. Batteries come with a one month warranty. The most likely issues arise when a battery has not been maintained properly, or when packing and unpacking your bike. Review the "Lithium Battery Care Guidelines" section above on Page 10.

This warranty is expressly limited to the repair or replacement of the defective part at the discretion of Green Gear Cycling. This is the sole remedy of the warranty.

This warranty applies only to the original owner and is not transferable.

The cost of shipping of the defective components back to Green Gear Cycling is the sole responsibility of the purchaser. Please contact Green Gear Cycling to register a claim and obtain an Return Authorization Number prior to shipping anything back to Green Gear Cycling. (service@bikefriday.com)

Common problems NOT covered by the warranty:

- "Axle spin out"- spinning out the axle inside of your dropouts if your wheel wasn't fastened tightly.
- Improper care of battery - Our batteries are sophisticated pieces of electronics that will provide 500+ charge cycles of reliable service if properly cared for OR can be easily damaged due to misuse. Please reference the "Lithium-Ion Battery Maintenance Guidelines" section above for information to ensure a reliable, long life from your battery.
- Damage and failure due to misuse, neglect, improper storage (example: 45 days without using or charging your battery can damage it if not at optimal charge range of 50-75% for 36 volt nominal battery.) or other forms of use not designed for but not limited to jumping over objects, competition, or use of 3rd party components.
- Broken spokes - a situation that is not unique to electric assist wheels and can happen to any bicycle wheel.

This warranty does not cover normal wear and tear, improper assembly or maintenance, or installation of parts or accessories not originally intended or compatible with the electric assist system as sold. Green Gear Cycling Inc. is not responsible for incidental or consequential damages. This warranty gives you specific rights, and those rights may vary from place to place. This warranty does not affect the statutory rights of the consumer. The warranty applies to electric assist components purchased directly from Green Gear Cycling, Inc., or from its authorized dealers. Except as provided herein, this product is provided "as is" without any additional WARRANTY of any kind, including the WARRANTY OF MERCHANTABILITY and the WARRANTY of FITNESS FOR A PARTICULAR PURPOSE, whether EXPRESSED or IMPLIED.