Wing Bikes Owner's Manual

Freedom/Freedom S/Freedom Fatty

WWW.WINGBIKES.COM

We are here to help! Please contact us at hello@wingbikes.com if you have questions.

Welcome

Thanks you for purchasing from Wing Bikes™. We take pride in bringing you a quality product and experience that we know you'll enjoy.

Thanks for choosing the Freedom of Wing!

Using This Manual

This manual contains details of the product, its equipment, and information on its operation and maintenance. Read it carefully and familiarize yourself with your Wing Bike before using it in order to ensure a safe use and prevent tragic accidents. Be sure to retain this manual as your convenient Wing Bikes information source.

This manual contains many Warnings and Cautions concerning the safe operation and consequences if safe 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 Wing Bikes immediately. The notes, warnings and cautions contained within the manual and marked by this triangular Caution Symbol 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 bicycles under all conditions. There are risks associated with the use of any bicycle which cannot be predicted or avoided, and which are the sole responsibility of the rider. You should save this manual, along with any other documents that were included with your bicycle, for future reference, however all content in this manual is subject to change or withdrawal without notice. Visit www.wingbikes.com to download the latest version. Wing 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 Wing Bike requires special tools and skills and it is recommended that this should be done by a trained bicycle mechanic to ensure best results.

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Assembly Instructions

NOTICE: The following assembly steps are only a general guide to assist in the assembly of your Wing Bike and is not a complete or comprehensive manual of all aspects of assembly, maintenance and repair. We recommend you consult a bicycle repair specialist to assist in the assembly, repair and maintenance of your bicycle.

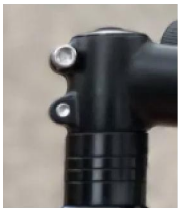
Step 1: Remove bike from carton and carefully set out all contents of the box. Remove packaging material protecting the bicycle frame and components. Ensure the following pieces are included in the package. If there are any missing parts please contact Wing Bikes for help replacing missing pieces.

1. Wing Bike
2. Front wheel with fender and front wheel axle bolts
3. Box with Pedals, Stem Extender (Freedom Only)
4. Assembly tools (2 hex wrenches, 2 spanner wrenches).
5. Charger and Battery
6. Keys for battery pack with button pad for alarm
7. Seat and seat post

Step 2: Install your handlebar using your 4 mm hex wrench. Loosen the 4 handlebar clamp bolts to remove the clamp.

Install the handlebar and re install the clamp to fit the handlebar in place.

Step 3: Align your handlebars using your 5mm hex wrench. Loosen the two stem bolts using your 5mm hex wrench and align the handlebars to be perpendicular to the bike frame. Tighten top bolt first, then the two stem bolts to hold the handlebar position in place.

 **<- Stem Bolts**

 **<- Top Cap**

Step 4: Install front wheel. For this step we recommend turning the bike upside down for ease of installation. Make sure to align the disc rotor into the brake caliper when installing the wheel onto the fork. Slide the washers onto the axle outside of fork, and installed before the axle nut, then tighten the axle nut using the included wrench.

Step 5: Install seat post. Secure tightly with the hex wrench at the desired height. Do not install seatpost passed the minimum insert markings.

Step 6: Install the pedals using the 15mm wrench. Use the pedal marked with an “L” on the left side and the right pedal marked with an “R” on the right side (side with drivetrain gears).

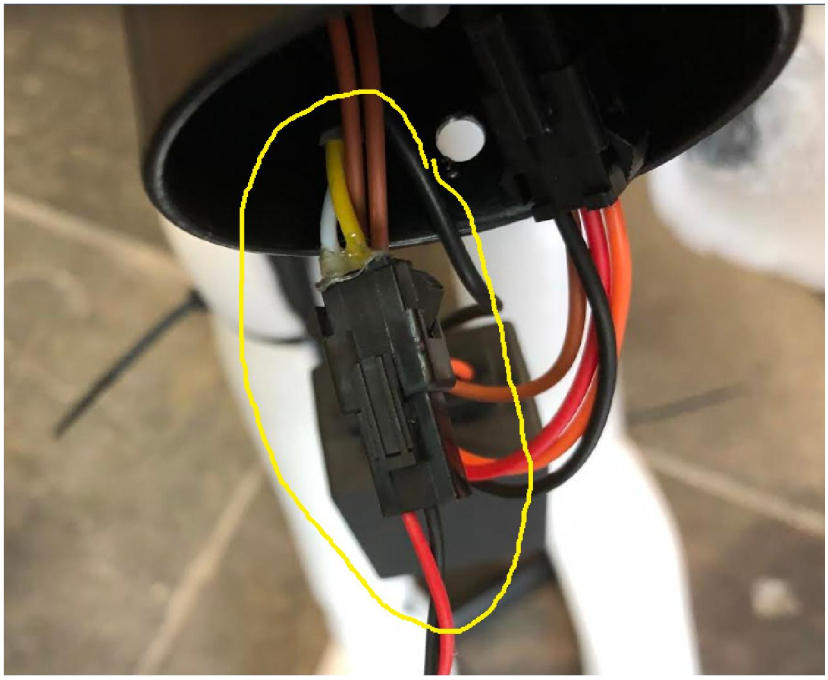
Be careful to not cross thread the pedals. Pro Tip: Pedal threads always tighten towards the front of the bike. (Right pedal has clockwise thread/Left pedal has counter clockwise thread). **PLEASE NOTE**: **After installing the pedals, make sure to also tighten the crank arm bolts with an 8mm hex wrench. DO NOT RIDE THE BIKE UNTIL THE CRANK ARM BOLTS (circled in red) ARE TIGHTENED DOWN.**

Step 7: Inflate tires to desired PSI. Recommended pressure 65 PSI for Freedom and Freedom S, 25 PSI for Freedom Fatty. Do not overinflate or underinflate tires. We recommend checking your tire pressure once a week.

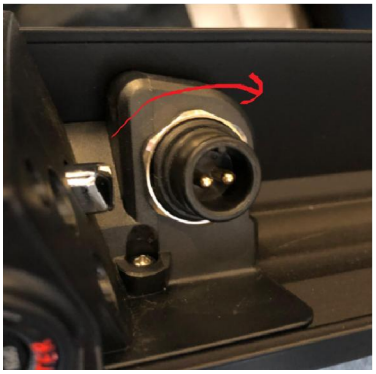
Step 8: Install front fender: The front fender mounts with two small bolts that attach the metal rods to the fork (near the front wheel axle). Use your 4mm hex wrench to secure the metal rods to the fork. The metal tab on the fender itself should sit behind the top of the fork (on Freedom Fatty it rests in front of the fork). Insert the longer bolt through the fork and the metal tab, then add a washer and tighten the nut to secure it. Hold the front of the bolt in place with the 5mm hex wrench, and secure the nut with the 10mm spanner wrench.

Step 9: Install the front light by connecting the cables on the light, to the available white/yellow wire connector inside the frame. If needed, you can cut the zip ties to allow for more cable slack to connect

the wire more easily. If there are more open connections aside from the yellow/white light connection. Please contact Wing Bikes for assistance. Do not connect any wires from inside the bike frame to the white/yellow wire. Once the wire is connected, install the light to the frame, and secure the light with the included small screw in your spare parts box.



Step 10: Before inserting the battery on the frame. Check that the silver ring securing the battery plug is tightened down. Use an adjustable wrench to tighten the silver lock ring clockwise. Tighten both the ring on the battery, and the ring on the frame (they look identical).



After the lock ring is tightened, install the battery to the frame by inserting the bottom side to the frame first, then gently pushing the top of the battery towards the locking mechanism. Hold down the power button on the display on the handlebars to start the bike. Press and hold the Up Arrow button on the handlebar display to turn the lights on and ensure both lights are activating. Grab your key fob to test the alarm system. Press the lock button to arm the bike, then move the bike around to activate the alarm. Once the alarm siren sounds, press the unlock button to disarm, you should hear 2 beeps when disarming. The middle button on the button pad does not have a function.

Step 11: Lift rear wheel off the ground and press and hold the down button to ensure the walk assist spins the motor wheel. **WARNING**: Do not perform this step unless the rear wheel is off the ground, the bike will take off if this step is done with the wheel touching the ground.

NOTICE: Ensure all hardware is tightened properly and all safety checks in the following sections are performed before first use. Contact Wing Bikes if you have any questions regarding the assembly of your bike. If you are not able to ensure all the assembly steps are performed properly please consult a certified local bicycle service provider for assistance in addition to contacting Wing Bikes for help.

Do not extend any components including the stem, rear rack, or seat post beyond the insertion marking etched into the components. Ensure that all hardware is properly tightened and secured before moving on to next step otherwise serious injury or death could occur.

Recommended Torque Values

Hardware Location	Torque Required (Nm)
Handlebar	18-20
Stem	18-20
Saddle	18-20
Seat	18-20
Front Wheel (For Bikes With Bolt On Front Wheel)	16-25
Rear Wheel	30-35
Bottom Bracket Parts	35-55
Pedals	35
Disk mounting Bolts	6
Disk Caliber Mount	10
Crank Bolts	40
Rear Derailleur Cable Pinch	6
Front Derailleur Clamp	7
Seat Post Clamp	7

Adjusting Seat Height

Use the included hex wrench to loosen the clamp and free the seat post and pull upwards or push downwards to reach desired height.

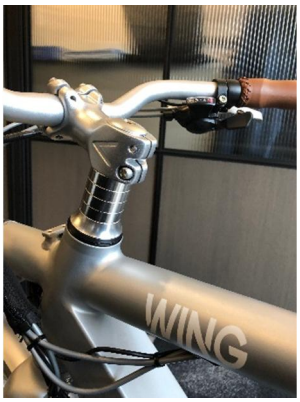
Notice: Ensure seat post and seat are properly adjusted before riding. Do not raise the seat post beyond the insertion marking etched into the seat post tube. If your seat post projects from the frame beyond these markings, the seat post or frame may break, which could cause you to lose control and fall. Prior to first use, be sure to tighten the seat clamp properly. A lose seat clamp or seat post binding bolt can cause damage to the bicycle or can cause you to lose control or fall. Periodically check to make sure these the seat clamp is properly tightened.

Rider Comfort

To obtain maximum comfort, the rider should not overextend his or her arms reach when riding. In order 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. The correct saddle 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 bicycle with one pedal at its lowest point, place the ball of your foot on that pedal. The correct saddle height will allow the knee to be slightly bent in this position.

Stem Extender Installation Steps (Optional: Freedom Only)

- Install the handlebar to the stem clamp as per above instructions.



- Once handlebars are secure to the stem, loosen the stem bolts and top cap.
- Loosen the top cap all the way to that the small bolt can be removed from the fork.

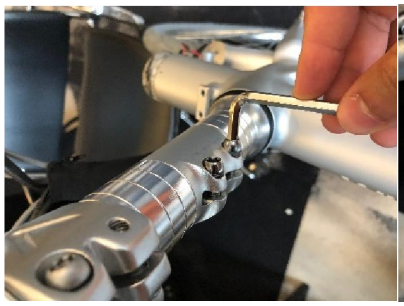
- Slide your stem, with the handlebar attached, off the fork and slide the stem extender in its place.

- Use all the included additional rings and slide onto the stem extender.

- Slide the stem onto the stem extender, then grab your long bolt and top cap.

- Tighten down the top cap so that it is firmly securing all the components together.


- Then tighten your clamp bolts on the stem extender, and finally on the stem itself.



Battery Charging Tips

- The battery should be recharged after each use. There is no memory effect so you can charge the battery after short rides without damage.
- The battery can be recharged on or off the bike.
- Remove the battery by turning the key and then pulling the battery towards the direction of the battery handle until the battery lifts off of the mounting receptacle.
- The charger will automatically stop when the battery pack is full so you can charge overnight.
- Always charge in dry locations and indoors away from direct sunlight, dirt or debris.
- Do not cover up the charger when plugged in or charging, it air cools and needs to be left in a clear space. Do not charge with the charger in the inverted position which can inhibit cooling and reduce the chargers life.
- Check the charger cables, charger and battery for damage before beginning each charge.
- The light on the charger will turn green when charge is complete and stay red while the battery charges.
- Charging normally takes 3-5 hours, however it can take longer when you first receive the bike since the battery pack is balancing.
- Charge in a clear area away from potential to trip on the charging cords, or damage to occur to the bike, battery or charging equipment while parked.

Charging Procedure

Follow these steps for charging your Wing Bike:

1. Remove the rubber cover on the charging socket.
2. 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 end of the battery pack.
3. Then connect the input plug to the power outlet, charging should initiate and will be indicated by the LED charge status light on the charger turning red.
4. After charging, unplug the charger from the wall outlet first and proceed to remove the charger DC plug from the bike battery socket.

Always charge your battery in temperatures between 50 and 80 degree Fahrenheit 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 Wing Bikes for help.

When the Battery Is Removed

- Do not touch the “+” and “-“terminal contacts on the top of the battery when the battery is removed from the bike.
- Be careful not to drop or damage the battery pack when loose from the bike.
- Ensure the bike is turned off whenever you are removing the battery from the bike.

When Installing the Battery onto the Bike

- Do not force the battery onto the receptacle, slowly align and insert the battery on the bottom first, then then align the top to lock it in place.
- Ensure the battery is in the locked position before riding, there should be an audible click when installed properly. To best check that the battery has been properly secured to the bike, gently pull the handle on the battery sideways and test the security of the pack.

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 battery 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
5 miles	1 hour
10 miles	1-2 hours
15 miles	2-3 hours
20 miles	3-4 hours
25 miles	4-5 hours
35+ miles	5-6 hours

Notice: The battery pack can take longer to charge when fully depleted and when the battery is new. As your battery ages you might also experience increased charging times but this is only expected after 3-5 years of regular use. If your battery does not seem to be charging normally, and taking longer to charge then expected, please discontinue charging and contact Wing Bikes immediately.

Charger Safety Information

- Keep charger in a safe place away from children.
- Fully charge the battery before each use to extend the life of the battery and help to reduce the chance of over-discharging the battery pack.
- Do not charge the battery with any other chargers then what was originally supplied with your Wing Bike or a charger purchased directly from Wing Bikes for use with your specific bike serial number, as approved by Wing Bikes.
- The charger works on 110/220 V 50/60 Hz standard home AC power outlets, do not open the charger, the charger automatically detects and accounts for incoming voltage.
- Avoid charger contact with liquids, dirt/debris or metal objects.
- Store the charger in a location where it cannot suffer damage from falls/impact.
- The charger should only be used indoors in a dry ventilated space.

- If you notice a strange smell or the charger or battery are overheating, please stop charging and contact Wing Bikes.
- Do not yank or pull on the cables of the charger. When unplugging carefully remove both the AC and DC cables by way of pulling on the plastic plugs, not pulling on the cables.

Please take special care in charging of your Wing Bike in accordance with the above procedures and safety information. Failure to follow proper charging procedures can result in damage to your Wing Bike, charger, personal property and/or serious injury or death.

Operation

Start-Up Procedure

After the bike has been properly assembled following the unboxing instructions and all components are secured correctly, you may now proceed to start up the vehicle and select the drive mode and power level via the display on the handlebars.

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, especially related to safety.

1. Secure the battery pack to the frame mount. Remove the key and test to see the battery cannot be removed before proceeding.
2. Hold down the center power button on the handlebar display for 2 seconds then release, the LCD readout should turn on.
3. Select your desired level of pedal assistance between level 1 and 5 using the up and down arrows on the handlebar display. Level 1 corresponds to the lowest level of pedal assist, and level 5 corresponds to the highest level of pedal assist. The approximate top speed of each level of pedal assist is show in the table below:

Pedal Assist Level	Approximate Assisted Speed
1	4 MPH
2	8 MPH
3	12 MPH
4	18 MPH
5	20+ MPH

4. If you purchased the optional throttle, the throttle power overrides each pedal assist mode, and has the same power output as pedal assist level 5.
5. To turn on the lighting system once the battery/LCD display are on, hold down the up arrow on the handlebar display for 2-3 seconds.

Users must become accustomed to the bikes power control system 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 Wing Bike can lead to death or serious injury, please head this warning.

6. With the proper safety gear and rider knowledge and understanding you may now proceed to operate your Wing Bike. You can begin by pedaling the bike in the appropriate drivetrain gear with or without pedal assistance. You may also use the throttle to accelerate and maintain your desired speed.

Users must follow the instructions and warning contained in this manual for their safety. Do not attempt to operate your Wing Bike until you have attained 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 or others as well as damage to property and/or your Wing Bike. Contact Wing Bikes if you have any questions about assembly or operation.

LCD Display Features

The display is controlled using the 3 buttons located left of the screen, press and hold the middle button to power the bike on and off. Press and hold the up arrow button to turn the lights on, and the down arrow button to activate walk assist. Press and hold both up and down together to enter the settings menu. Tap the power button to scroll through Odometer reading, trip meter, and battery voltage.

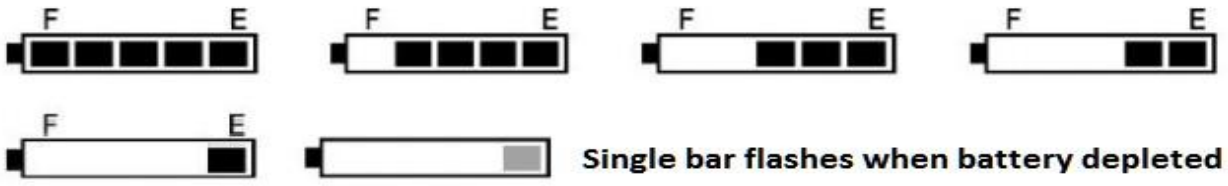
Driving Range

The range of your Wing Bike is the distance the bike will travel on a single full charge of the onboard battery pack. Some of the factors which effect range include changes in elevation, speed, payload, and acceleration, number of starts and stops and ambient air temperatures. Tire pressure and terrain are also important variables to consider.

We suggest that you ride conservatively when you first get your Wing Bike to get to know your bike and travel routes. Once you become familiar with the range requirements of your travel routes, and the capabilities of your Wing Bike you can then adjust you riding characteristics if you so desire. Wing Bikes makes no claims to the range that individual users might obtain.

Battery Capacity Display

The LCD readout on the handlebar of your Wing Bike features a battery capacity gauge (much like the fuel gauge on an automobile). It is recommended that users stop operating the bike once one bar is left on the display. Once the battery is fully depleted, the last remaining bar will begin to flash, communicating to the user that they should cease operation immediately.



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.

- Do not climb hills steeper than 15% in grade.

- Pedal to assist the motor when climbing hills and accelerating from a stop.
- Avoid sudden starts and stops.
- When climbing hills reduce the power output to 200 watts or less. This can be accomplished by pedaling with the bike while in pedal assist modes 1 or 2.
- Accelerate slowly.

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 the vehicle manually, turn off the power to avoid accidental acceleration from the motor.
- It is recommended to park indoors.
- Switch the power off to conserve battery. Remove the key from the bike and ensure the battery is locked to the frame or removed and brought with you for security.
- In public places, your Wing Bike must be parked in accordance with local rules and regulations.
- If you have to park outdoors in rain, or wet conditions you should only leave your Wing Bike outside for a few hours and proceed to park the bike in a dry location afterwards in order 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.
- Do not park, store, or transport your Wing Bike on a rack that is not designed for the size and weight of the bike.
- Locking up your bike is recommended to ensure your bike is secure and the chance of theft is reduced. Wing 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 Wing Bike safe from theft.
- The alarm system does not guarantee that your bike is immune to theft.
- When storing your bike or carrying your bike on a rack for transport, you can remove the battery pack to reduce the weight of the bike and make lifting and loading easier.

Carrying Loads

MAXIMUM PAYLOAD FOR WING BIKES

The total maximum weight limit of the Wing Freedom (300 Lbs.) includes the weight of the rider as well as clothing, riding gear, cargo, etc. The kickstand is not designed to be used for loading cargo. You MUST hold onto the bike whenever 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.

Total payload: 275 lbs.

Rear Rack: 40 lbs. when using the Wing Bikes rear rack

Front Rack: 30 lbs. when using the Wing Bikes front rack

CARRYING CARGO

Carrying a cargo load involves additional risks which need to be paid close attention to, users should practice riding on a flat and open area with light cargo before attempting to carry heavier loads or passengers. You must become accustomed to the braking, steering, and operational adjustments required to safely operate your Wing Bike with cargo. Braking, acceleration, and balancing are all significantly affected by the addition of cargo loaded on the Wing Bike.

Notice: The following bulleted list provides important tips for the safe operation of the Wing Bike when used for carrying cargo.

- Plan your route accordingly as your hill climbing ability, steering and braking are all impacted when cargo is loaded on a Wing Bike. Hills that are normally easy to climb and descend without cargo can become challenging and dangerous once cargo is loaded.
- Cargo should be loaded as low as possible to lower the center of gravity and improve stability, but ensure that cargo does not interfere with any moving components or the ground.
- Ensure your loads are properly secured and periodically check that nothing loosens.
- Get a feel for the cargo load in a flat and open area before riding on roads.

Do not use the front brake by itself, always apply the rear brake first followed by the front brake and be sure to use both brakes for all braking operations. Front fork failure or loss of control are plausible when the front brake is operated independently for slowing at high speed with cargo loads.

The kickstand is not designed to be used for loading cargo. You MUST hold onto the bike whenever 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.

Maintenance

Bicycle Care

To ensure safe riding conditions you must properly maintain your bike. You should follow these basic guidelines and see your certified local bike shop seasonally to ensure your bike is safe for use.

1. Properly maintain batteries by keeping them above 50% charged when not in use. Charge your battery a minimum of 30 minutes every 3 weeks, and do not store the battery below 50% charge for longer than 1 week.
2. Never immerse the bike or any components in water as the electrical system may get 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 soaked in a mild non-corrosive detergent mixture. Dry with a cloth.
5. Store under shelter; avoid leaving it in the rain or exposed to corrosive materials. If exposed to rain, dry your bicycle afterwards and apply anti-rust treatment to chain and other unpainted surfaces.
6. Riding on the beach or in coastal areas exposes your bicycle to salt which is very corrosive. Wash your bicycle 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 coast areas or areas with salty air or water.

7. If the hub and bottom bracket bearings have been submerged in water 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 make adjustments and required.

Safety Checklist

Notice: Before every ride it is important to carry out the following safety checks.

Safety Check	Basic Steps
1. Brakes	○ Ensure front and rear brakes work properly. ○ Ensure brake pads are not over worn and are correctly positioned in relation to the rims. ○ Ensure brake control cables are lubricated, correctly adjusted and display no obvious wear. ○ Ensure brake control levers are lubricated and tightly secured to the handlebars.
2. Wheels and Tires	○ Ensure tires are inflated to within the recommended limits displayed on the tire sidewalls. ○ Ensure ties have tread and have no BULGES OR EXCESSIVE WEAR. ○ Ensure rims run true and have no obvious wobbles or kinks. ○ Ensure all wheel spokes are tight and not broken.

3. Steering	○ Ensure handlebar and stem are correctly adjusted and tightened, and allow proper steering. ○ Ensure the handlebars are set correctly in relation to the forks and the direction of travel.
4. Chain	○ Ensure the chain is oiled, clean and runs smoothly. ○ Extra care is required in wet or dusty conditions
5. Bearings	○ Ensure all bearings are lubricated, run freely and display no excess movement, grinding or rattling. ○ Check headset, wheel bearings, pedal bearings and bottom bracket bearings.
6. Cranks and Pedals	○ Ensure pedals are securely tightened to the cranks.

	○ Ensure the cranks are securely tightened and are not bent.
7. Derailleurs	○ Check that the derailleur(s) are adjusted and functioning properly. ○ Ensure shift and brake levers are attached to the handlebar securely. ○ Ensure all brake and shift cables are properly lubricated.
8. Frame and Fork	○ Check that the frame and fork are not bent or broken. ○ If either are bent or broken, they should be replaced.
9. Accessories	○ Ensure all reflectors are properly fitted and not obscured. ○ Ensure all other fitting on the bike are properly secured and functioning. ○ Ensure rider is earing helmet and any other required riding safety gear.
10. Motor Drive Assembly and Throttle	○ Ensure hub motor is spinning smoothly and the motor bearings are in good working order. ○ Ensure all power cables running to hub motor are secured and undamaged. ○ Make sure the hub motor axle bolts are secured and all torque arms and torque washers are in place.
11. Battery Pack	○ Ensure battery is charged before use. ○ Ensure there is no damage to battery pack. ○ Lock battery to frame and check to see that it is secured.

Troubleshooting

Basic Troubleshooting

	Symptoms	Possible Causes	Most Common Solutions
1	**It doesn't work**	1. Insufficient battery power 2. Faulty Connections 3. Battery not fully seated in tray 4. Improper turn on sequence 5. Brakes are applied	1. Charge the battery pack 2. Clean and repair connections 3. Install battery correctly 4. Turn on bike with proper sequence 5. Disengage brakes
2	**Irregular acceleration and/or reduced top speed**	1. Insufficient battery power Loose 2. or damaged throttle	1. Charge or replace battery 2. Replace throttle
3	**When powered on the motor does not respond**	1. Loose wiring 2. Loose or damaged throttle 3. Loose or damaged motor plug wire 4. Damaged motor	1. Repair and or reconnect 2. Tighten or replace 3. Secure or replace 4. Repair or replace

4	**Reduced range**	1. Low tire pressure or low/faulty battery. Range will naturally reduce over the battery's lifespan. 2. Driving with too many hills, headwind, braking, and/or excessive load 3. Batter discharged for long period of time without regular charges, aged or damaged.	1. Adjust tire pressure 2. Check connections or charge battery 3. Assist with pedals or adjust route 4. Replace the battery
5	**The battery won't charge**	1. Charger not well connected 2. Charger damaged 3. Battery damaged 4. Wiring damaged	1. Adjust the connections 2. Replace 3. Replace 4. Repair or replace
6	**Wheel or motor makes strange noises**	1. Damaged motor bearings 2. Damaged wheel spokes or rim Damaged 3. motor wiring	1. Replace 2. Repair or replace 3. Repair or replace motor.

Error Detection

Your Wing Bike is equipped with an error detection system integrated into the LCD display and motor 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 Wing Bikes immediately.

Error Code	Definition
00	Regular Condition, No Issues
01	Regular Condition, No Issues
02 or 37	Brake Problem
03	PAS Sensor Problem
04	Walk Assist Problem
05	Cruise Problem
06	Battery Low Voltage
07	Motor Problem
08 or 34	Throttle Problem
09	Controller Problem
10	Communication Receive Problem
11	Communication Send Problem
12	BMS Communication Problem
13	Light Problem
30	Communication Problem
33	Current Problem
35	Motor Phase Problem
36	Motor Hall Signal Problem

Settings Guide

To enter the settings menu, press and hold the up and down arrow buttons until the screen changes. Tap the power button to scroll through the numbered settings below, and use the up and down arrows to change the setting value. When you are finished, do not press any buttons for approximately 5 seconds, and the display will set back to riding mode. If error 00 appears (don't worry this is normal),

shut down the bike and power it up again. Improper adjustment of your settings can void your warranty. Any settings that should not be changed will be marked with *DO NOT ADJUST*.

Error Code	Definition
01	Backlight Brightness (1=darkest 3=brightest)
02	MPH (Set to 1) or KPH (Set to 2)
03	*DO NOT ADJUST* (Set to 36)
04	Inactivity Shutdown Time (Recommended = 10)
05	*DO NOT ADJUST* (Set to 1)
06	*DO NOT ADJUST* Freedom: **Set to 5** Freedom S: **Set to 2** Freedom Fatty: **Set to 3**
07	*DO NOT ADJUST* (Set to 1)
08	Max Speed Limit (kph): For street legal operation set to 32kph, for off-road/private property you can unlock speed to 41kph.
09	*DO NOT ADJUST* (Set to 0)
10	*DO NOT ADJUST* (Set to 2)
11	*DO NOT ADJUST* (Set to 3)
12	*DO NOT ADJUST* (Set to 3)
13	*DO NOT ADJUST* (Set to 12)
14	*DO NOT ADJUST* (Set to 12)
15	*DO NOT ADJUST* (Set to 29)
16	*DO NOT ADJUST*
17	*DO NOT ADJUST* (Set to 0)
18	*DO NOT ADJUST* (Set to 100)
19	*DO NOT ADJUST* (Set to 0)
20	*DO NOT ADJUST* (Set to 2)

Warnings and Safety

General Warnings

Like any sport bicycling involves risk of injury and damage. By choosing to ride a bicycle, 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 bicycle. Proper use and maintenance of your bicycle reduces risk over injury.

Your bicycle is designed for use by person 18 years old and above.

Riders must have the physical condition, reaction time and metal capability to ride and manage traffic, road conditions, and sudden situations and also respect the laws governing electric bicycle 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, or a seizure disorder, consult your physician before riding any bicycle.

General Operating Rules

Notice: It is recommended that users pay special attention to all of the general operating rules below before operating their Wing Bike.

- When riding obey the same road laws as all other road vehicles. Including giving way to pedestrians and stopping at red lights and stop signs.
- For additional information, contact the road traffic authority, police department or Department of Motor Vehicles in your state.
- Ride predictably and in a straight line. Never ride against traffic.
- Use correct hand signals to indicate turning or stopping.
- Ride defensively. To other road users you may be hard to see.
- Concentrate on the path ahead. Avoid potholes, gravel, wet or oily roads, curbs, train tracks, speed bumps, drain gates, and other obstacles.
- Cross train tracks at a 90 degree angle or walk your bicycle 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 bicycles features. Practice shifting gears, using the brakes and power system.
- 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. Wear proper riding clothes and avoid wearing open toe shoes.
- Don’t carry passengers or cargo that will interfere with your ability to control the bicycle. Don’t use items that may restrict your hearing.
- Do not lock up the brakes. When braking, apply the rear brake first, then the front brake. The front brake is more powerful and if it is not correctly applied, you may lose control and fall.
- Maintain a comfortable stopping distance from all other objects, riders, and vehicles. Safe braking distances are based on forces such as weather and light conditions among other variables.

Wet Weather

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

This hybrid electric bicycle is not meant for use in puddles, heavy rain, and streams. Never immerse this product in water as the electrical system may be damaged.

- In wet weather you need to take extra care when operating this bicycle. Brake earlier since it will take longer to slow then when operated in dry conditions.
- Decrease riding speed. Be more visible 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.

- Ensure your Wing Bike is equipped with a full set of correctly positioned and clean reflectors. Use a properly functioning lighting set comprised of a white front lamp and red rear lamp.
- If using battery powered lights, make sure batteries are well charged and carry an extra set of batteries and lights.
- Use flashing rear lights to increase visibility.
- Wear reflective and light colored clothing. Slow down and use familiar roads with street lighting, if possible.

Tire Inflation and Replacement

Wing Bikes employs (26''x1.5''/20"x1.75"/20"x4") rubber tires with inner tubes. The tires are designed for durability and safety for regular cycling activities however tires need to be checked before each use for proper inflation and condition. Proper inflation, care and timely replacement will help to ensure that your bikes operational characteristics will be maintained and unsafe conditions avoided.

Wing Bikes recommends **65 PSI** for the front and rear tires on the Wing Freedom/Freedom S.

Wing Bikes recommends **25 PSI** for the front and rear tires on the Wing Freedom Fatty.

It is critically important proper air pressure is maintained in pneumatic tires at all times. Do not underinflate or overinflate your tires. Low pressure may result in loss of control, and overinflated tires may burst. Failure to maintain the air pressure rating indicated on pneumatic tires at all times 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.

When tire wear becomes evident or a flat tire is discovered, you must replace the tires and/or tubes before operating he bike or injury to operators and/or damage to your bike could occur.

To prevent serious injury, ensure that all air pressure has been removed from the inner tube prior to removing the tire from the rim

For more information on tire or tube replacement procedures, or questions about tire inflation, visit the Wing Bikes website and contact Wing Bikes technical support.

A Note for Parents and Guardians

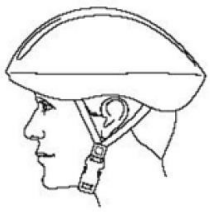
As a parent or guardian, you are responsible for the activities and safety of your child. Wing Bikes are not designed for use by children. If you are carrying a passenger in a child safety seat, they must also be wearing a helmet. Additional safety information regarding helmets follows in the Helmet section of this manual.

Safety Notes

The following safety notes provide additional information on the safe operation of your Wing Bike 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 first use. Additional manuals for components used on your bicycle may also be provided and should be read before use in addition to this manual.
- Ensure that you comprehend all instruction and safety notes/warnings.
- Ensure the bike fits you properly before 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 this product and ensure that 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.
- Ensure correct tightening and setup is performed on your bicycle before first and checked regularly.
- It is your responsibility to familiarize yourself with the laws and requirements of operation of this product in the area(s) where you ride.
- Ensure handle bar grips are not damaged and properly installed. Loose or damaged grips can cause you to lose control and fall.
- Do not use this product with standard bicycle trailers, stands or bicycle racks. Contact Wing Bikes to check if your equipment will work with the bicycle.
- Off-road riding requires close attention and specific skills and presents variable conditions and hazards which accompany the conditions. Wear appropriate safety gear and do not ride alone in remote areas.
- Engaging in extreme riding is extremely dangerous and should be avoided. Although many articles/advertisements/catalogues depict extreme riding this is not recommended nor permitted and you can be seriously injured or killed if you perform extreme riding.
- Bicycles and bicycle parts have strength and integrity limitations and extreme riding should not be performed or you risk damaging the components or becoming seriously injured or killed.
- Failure to confirm proper installation, compatibility, proper operation or maintenance of and 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 bicycle service provider for a comprehensive inspection.
- Failure to properly charge, store or use your battery will void the warranty and may cause a hazardous situation.
- Extreme care should be taken when using the pedal assist sensor and propulsion on this product. Ensure you understand and are prepared for the power assistance to engage as soon as pedaling is underway.
- You should check the operation of the brake inhibitor switches before each ride. The brake system is equipped with an inhibitor which shuts down the power to the electric motor whenever the brakes are engaged. Check proper operation of brake switches before riding.
- User must understand the operation of the twist throttle and pedal assist sensors before using, and take ample care in their usage in respect to traveling at speeds appropriate for usage area 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 Wing Bike not expressly approved by Wing Bikes could void the warranty and create an unsafe riding experience.
- Because electric bicycles are heavier and faster than normal bicycles, 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 death or serious injury from a fall.
- Do not remove front or rear reflectors, pedal reflectors or bell.



Helmets

It is strongly advised that a properly fitting ANSI or SNELL approved bicycle safety helmet be worn at all times when riding your bicycle.

Always wear a properly fitted helmet which covers the forehead when riding a bicycle. Many states require specific safety devices. It is your responsibility to familiarize yourself with the laws of the state where you ride and to comply with all applicable laws, including properly equipping yourself and your bike as the law requires. Reflectors are important safety devices which are designed as an integral part of your bicycle. Federal regulations require every bicycle to be equipped with front, rear, wheel, and pedal reflectors. These reflectors are designed to pick up and reflect street lights and car lights in a way that helps you to be seen and recognized as a moving bicyclist. Check reflectors and their mounting brackets regularly to make sure they are clean, straight, unbroken and securely mounted. Have your dealer replace damaged reflectors and straighten or tighten any that are bent or loose.

Limited Warranty

Like any bike, a Wing will require regular service to ensure a safe and enjoyable ride through its lifetime. Whenever possible, we recommend taking your Wing to a professional bike shop (preferably a Wing dealer when possible) for service. Please be sure to review the owner's manual for detailed safety and service instructions.

All Wing bikes and their components carry the following manufacturer warranty with the original owner:

Frame – lifetime.

Battery – 1 year or 800 complete cycles (our battery is rated to deliver 80% of initial capacity after 800 complete charge/discharge cycles)

Electronics – 1 year.

Parts (excluding tires, tubes, brake pads, cables & housing, and grips) – 1 year.

The Wing Warranty is only valid in the United States.

All WING products carry a 1 year manufacturer's warranty. This is only applicable to the original owner of the bike.

We may elect to not accept or authorize return of products that are not in their unopened, original packaging, or have been altered or modified with third-party or aftermarket parts or components. Any unauthorized returns may be treated as unwarranted requests.

Once the product has been returned to us and has been ascertained to be complete (including the product box, with the unit in its original packing materials) and undamaged. Your purchase price, less $95, will be refunded to you. We do not refund any shipping costs, and we may have to charge you extra if your original real shipment costs were greater than our invoiced amount. Note that if the product is defective, you may either request a refund or an exchange (per our 1 year warranty).

We cannot guarantee that we will accept returns that have not been authorized by us. This guarantee is limited to one refund on one product per customer. No refunds will ever be given after 1 year from the original delivery date.

The 1 year manufacturer's warranty states that, for WING BIKES, parts and components, if the product fails in normal use (with no "customer-induced failure" and no customer changes or modifications to the product) within the first 1 year of ownership, then we will refund or replace it (at our option) at no charge to you except for your cost of shipping it to us. Our warranty does not apply to bikes purchased for commercial use. International orders must pay shipping, handling, and any import or export related expenses for both directions of the shipment. For most U.S. orders, there are no shipping charges for the shipment of the replacement to the customer on warranted product, if ground shipping is selected.

Please contact WING Customer Support to obtain a return authorization number and shipping instructions, and to determine if this warranty applies to your case. We cannot accept returns that have not been authorized by us.

Please note: We never warrant WING products with electronic or mechanical components that have been modified or altered, or replaced with third-party parts, or products that show any signs of misuse.

Refund and replacement are your only remedies under our warranty.

Your only remedy under our warranty is the above mentioned refund (1 year satisfaction guarantee) or the replacement (1 year warranty) of your eligible WING product as described above. Neither this warranty nor any other warranty, express or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose, shall extend beyond the 1 year warranty period.

Under no circumstances shall WING Bikes be liable for any special incidental, indirect or punitive damages or for any consequential damages, even if WING Bikes knows or is informed that such damages are possible.

TERMS OF WARRANTY

This warranty only applies to the original owner of a Wing Bikes bicycle. This warranty does not apply to rental or commercial use bicycles. This warranty is expressly limited to the replacement of defective parts at the sole discretion of Wing 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 bicycle 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 (tires, tubes, brake pads, cables and housing, grips). Wing 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 Wing 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 Wing Bikes. Proof of purchase may be required with any warranty request, as well proof of assembly from a professional bicycle retailer.