

RISTRETTO

Owner's Handbook | Assembly & Maintenance

RISTRETTO

Certificate of Identity and Warranty

512	Made in China
Model	Manufacturer Details
Ristretto Electric, Austin, TX	July 1st, 2024
Design	Start Date of Warranty
Color	Serial No. Located on the seat tube of your 512FE

Owner's Handbook

Assembly & Maintenance

512
RISTRETTO®

Contact Us

www.ristretto.us

Email: info@ristretto.us

Owner's Handbook: ristretto.us/ownershandbook

Ristretto Help Center: ristretto.us/helpcenter

For additional help you can also view the Ristretto Assembly Video available in the Ristretto Help Center at www.ristretto.us/helpcenter

Welcome to The Ristretto family,

Thank you for choosing Ristretto and for your purchase of the 512.

Your electric bike was designed in Austin, TX and manufactured in China under the highest Quality Standards. It is important for us to follow this same tradition of excellence for all Ristretto products.

Your 512 bike has been quality crafted and is feature-rich, optimized to provide you with an elevated riding experience. Our number one priority is to ensure your safety and the best riding performance possible.

IMPORTANT Please read and understand this manual first before assembling and operating your Ristretto bike. We recommend having your bike professionally assembled by a certified electric vehicle mechanic.

The 512 is a high-performance electric bike, designed for experienced riders. Please ride responsibly.

If you have questions after reading this manual, please reference the Ristretto Help Center, or contact us by email at: info@ristretto.us

We would love to hear from you.

Stay Electric

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I General Information

This manual contains warnings and cautions that are marked by the triangular caution symbol and should be given special attention to the information marked in this owner's manual.

If you have questions after reading this manual, please reference the Ristretto Help Center.

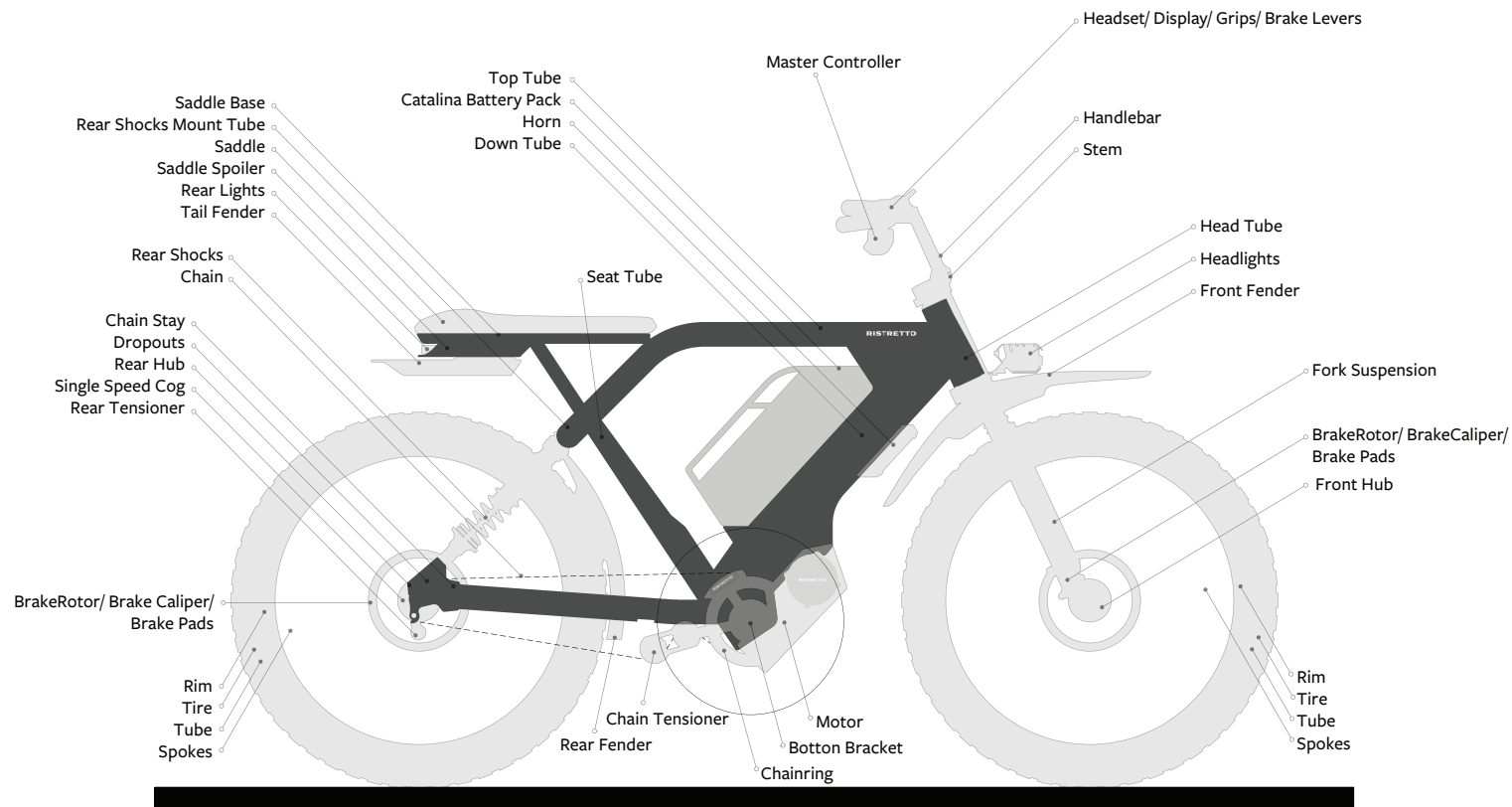
Keep this manual, along with any other documents that were included with your bike, for future reference. All content in this manual is subject to change so please be sure to visit ristrettoelectric.com/ownershandbook to view and download the latest version. Ristretto makes every effort to ensure the accuracy of its documentation is correct and assumes no responsibility of liability if any errors or inaccuracies appear within.

Assembly and the first adjustment of your 512 requires special tools and skills, therefore it is recommended that you have your bike assembled by a certified, electric bike mechanic or a mobile assembly service provider like velofix.com. Riding an incorrectly assembled bike can put your and others' safety at risk.

There are risks associated with the use of any bike which cannot be predicted or avoided and are the sole responsibility of the rider. Please ride responsibly.

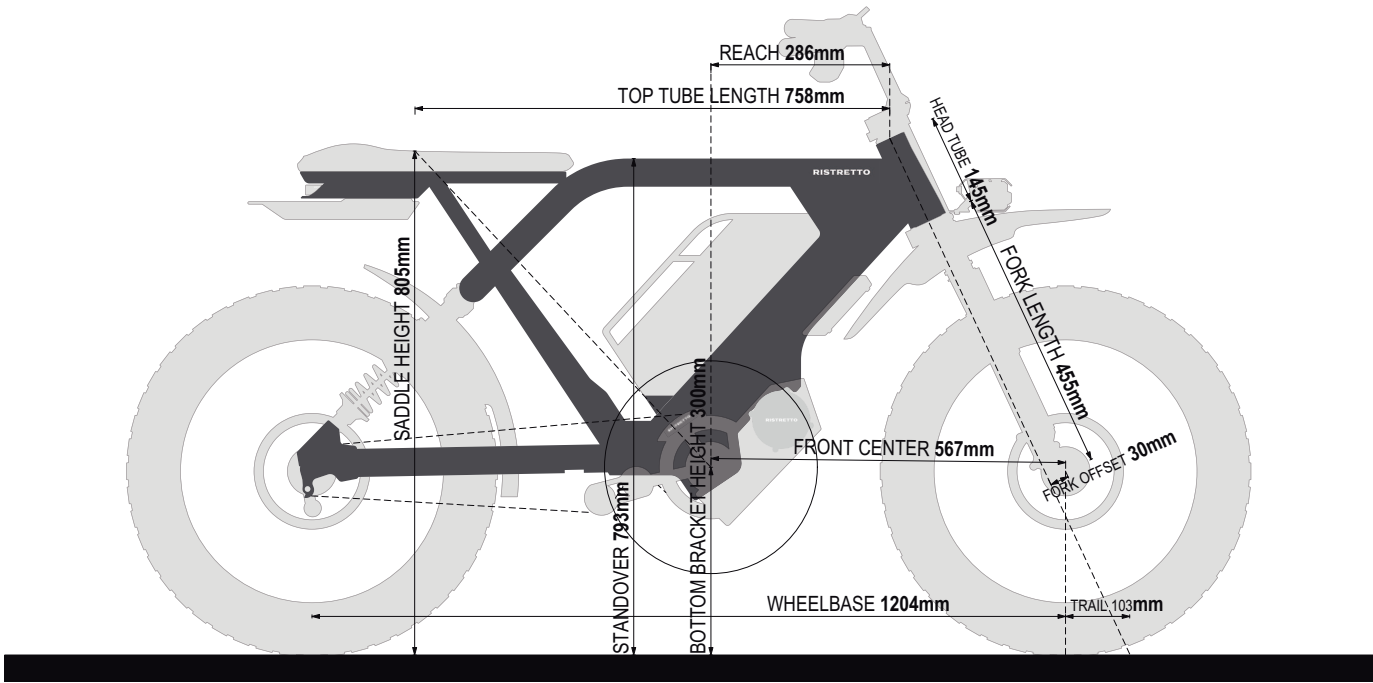
PLEASE NOTE: THIS MANUAL IS NOT INTENDED AS A DETAILED USER, SERVICE, REPAIR OR MAINTENANCE MANUAL. PLEASE SEEK ASSISTANCE FROM A QUALIFIED TECHNICIAN FOR SERVICE, REPAIRS OR MAINTENANCE. YOUR INSURANCE POLICIES MAY NOT PROVIDE COVERAGE FOR ACCIDENTS INVOLVING THE USE OF THIS BICYCLE.

512 Diagram

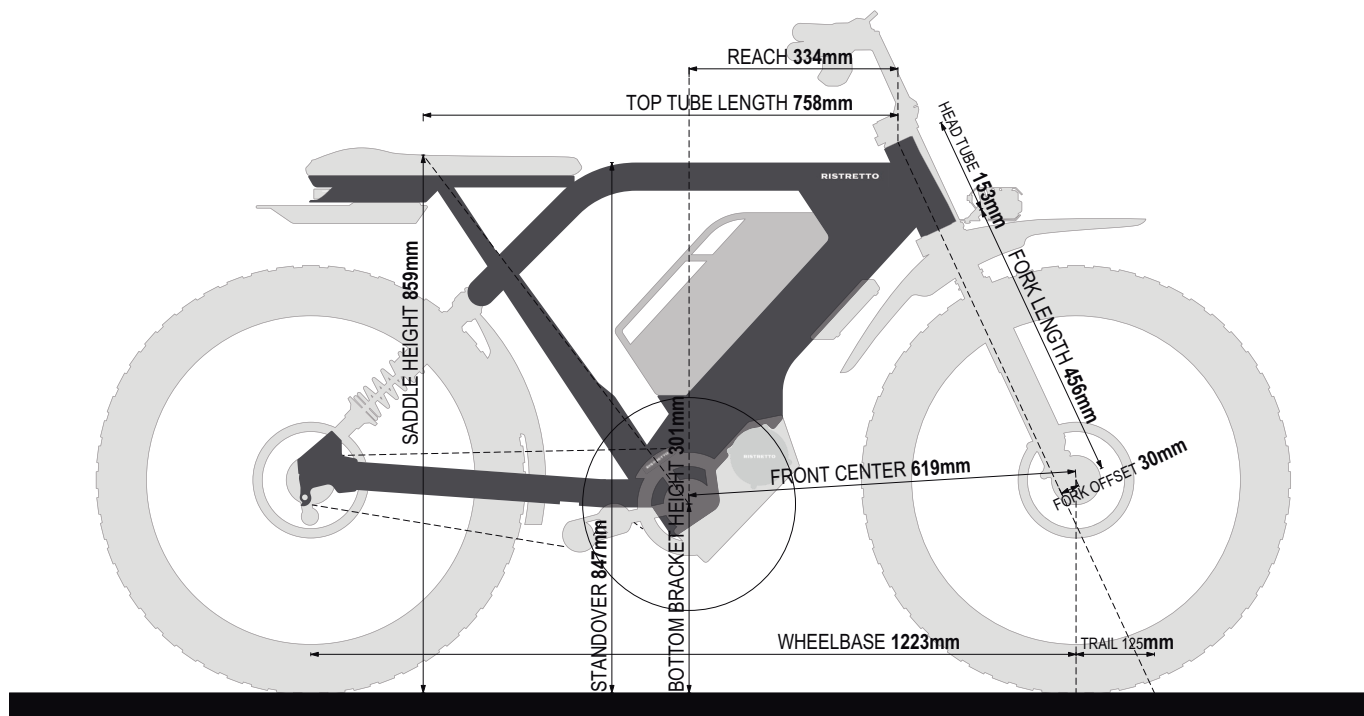


For additional help view the Ristretto assembly video available in the Ristretto Help Center at www.ristretto.us/helpcenter

512 A2o Measurements



512 A24 Measurements



For additional help view the Ristretto assembly video available in the Ristretto Help Center at www.ristretto.us/helpcenter

I Assembly Instructions

STEP 1: UNBOX AND INSTALL FRONT WHEEL

Carefully open the bike box fasteners then remove the owner's tool box.

Owner's Tool Box Contents:

- Metal ID Card
- Owner's Manual
- Battery Lock Keys (3x)
- Battery Charger
- Pedal Set
- Pedal Wrench
- Multi-tool (can be used instead of a torque wrench if needed)



UNBOXING AND BIKE ASSEMBLY IS HIGHLY RECOMMENDED TO BE COMPLETED BY TWO PEOPLE THAT ARE CAPABLE OF LIFTING A HEAVY OBJECT SAFELY.

1. Lay down a soft floor covering to protect the bike forks and your floor.
2. Remove the front wheel from the box to prepare for installation.
3. Remove packaging material then carefully lift the bike out from both sides.
4. Place the bike on the soft floor covering with one person holding the bike upright.

5. With one person holding the bike upright, remove one fastener from the front axle using an M5 hex key, then slide the front axle out from the front forks.
6. With one person holding the bike upright, prepare to slide the front wheel between the front forks:
 - a. Remove the front brake caliper spacer.
 - b. Carefully align the wheel brake rotor to slide between the brake caliper pads.
 - c. Align the front wheel hub with the fork axle holes.
 - d. Gently slide the axle through the fork axle holes and through the front wheel hub.
 - e. Hand thread the second axle fastener on the front axle.
 - f. Torque the axle fasteners (2x) using an M5 hex key (15 Nm)
 - g. Torque fork axle pinch fasteners (4x) using an M5 hex key (10 Nm)



PLEASE USE A TORQUE WRENCH IF POSSIBLE. BE CAREFUL NOT TO CROSS-THREAD OR DAMAGE THE FASTENER THREADS.

7. With one person holding the bike upright, spin the front wheel to ensure proper alignment. Make sure the front brake rotor is properly aligned between the brake caliper pads.

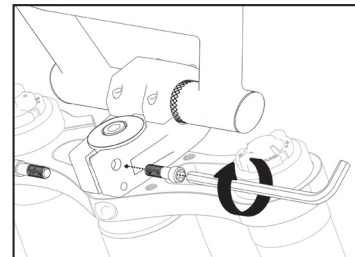
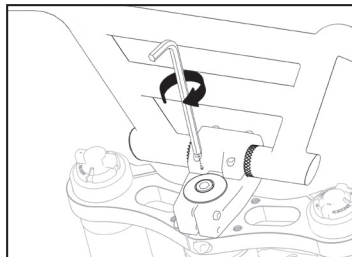
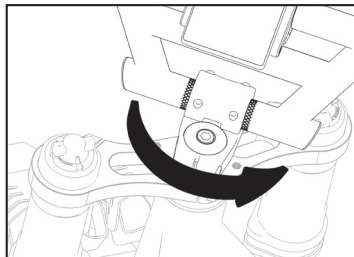


A PROPERLY INSTALLED FRONT WHEEL SHOULD SPIN FREELY. IF YOU HAVE ANY HESITATION, PLEASE CONTACT A CERTIFIED EV MECHANIC FOR ASSISTANCE.

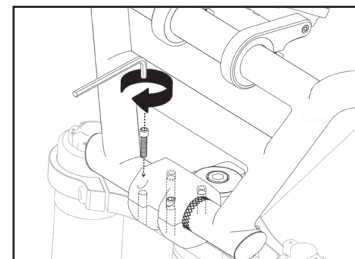
Please be kind to the environment and be sure to recycle all packaging materials according to your local guidelines.

STEP 2: INSTALL HANDLEBAR

1. Loosen the two screws of the stem clamp using a M6 hex key and the headset cap using a M4 hex key respectively.
2. Twist the handlebar assembly into a straight alignment.
3. Firmly secure back the assembly by tightening the cap first and then the stem clamps screws.



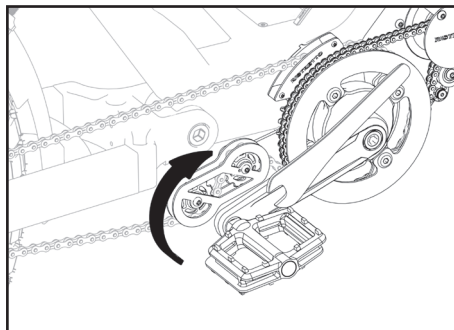
4. To adjust the handlebar angle to the rider's preference, loosen the four screws that hold the handlebar clamp using a M6 hex key.
5. Finger tighten the handlebar clamp and rotate to the desired angle.
6. Torque back the fasteners using a M6 hex key in a cross pattern making sure the clamp is tight and that the handlebar does not move.



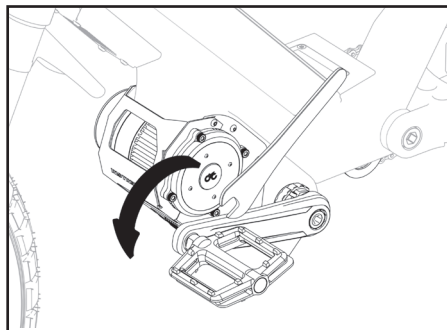
STEP 3: INSTALL PEDALS

1. Locate the Right side pedal (stamped with an "R" at the end of the pedal axle). The Right side pedal goes on the crank on the Right side of the bike (the side with the drive-train gears). Torque each pedal to (35 Nm). Use the included pedal wrench to avoid damage caused by wider wrenches.

- a. The Right side pedal is tightened by threading it clockwise.
Carefully thread the Right pedal onto the crank on the Right side of the bike slowly and by hand.
- b. The Left side pedal is reverse-threaded and tightens counter-clockwise (stamped with an “L” at the end of the pedal axle). Carefully thread the pedal onto the Left crank by hand slowly.



Right side pedal



Left side pedal



BE CAREFUL NOT TO CROSS-THREAD OR DAMAGE THE THREADS.



WARNING

CROSS-THREADING OR IMPROPER PEDAL INSTALLATION CAN CAUSE IRREVERSIBLE DAMAGE TO THE CRANK ARM THREADS. INSTALL WITH CARE.

STEP 4: INFLATE TIRES

1. Check that the tires and tire beads are evenly seated around the rims.
2. Use a bike pump with a Schrader valve and pressure gauge to inflate each tire to the recommended air pressure indicated on the tire sidewall.



DO NOT OVER INFLATE OR UNDER INFLATE THE TIRES.

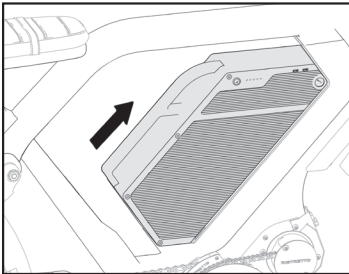
STEP 5: CHARGE BATTERY PACK

1. Plug the charger into the battery charging port. 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 3-pin connector) to the charging port on the side of the battery. Battery can be charged in or off the bike.
2. Plug the charger into a power outlet. Connect the charger input plug to the power outlet. Charging should initiate and will be indicated by the LED charge status light on the charger turning red.
3. Once fully charged the LED charge status light will turn green. Unplug the charger from the wall outlet first and proceed to remove the charger output plug from the battery charging port.

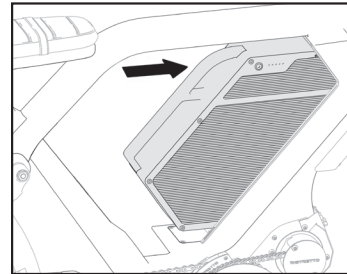
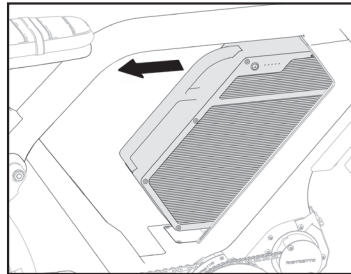
Catalina Battery Pack

HOW TO LOCK AND REMOVE THE CATALINA BATTERY PACK

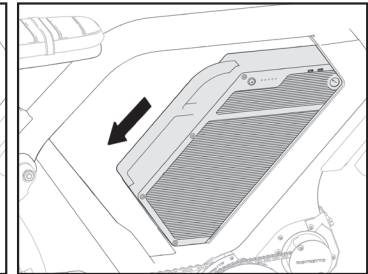
- Your Catalina battery will arrive locked. Ensure it is locked before riding.
- **MAKE SURE YOU REMOVE THE KEY OFF THE BATTERY EVERY TIME YOU REMOVE OR INSERT THE BATTERY.**
- To lock or unlock the battery on the drive side, insert the battery key into the right side Catalina battery lock or unlock.
- Rotate the key counterclockwise to lock. Always remove the key before attempting to remove the battery.
- To remove the battery, place one hand on the battery handle and the other hand under the battery. Carefully slide the battery pack upwards with a forward and upward motion, in the direction on the downtime, then lift it from the battery cradle.
- To insert the battery Catalina Battery Pack, place one hand on the battery handle and the other hand under the battery. Align the battery to the battery slot and carefully slide the battery pack inward with a downward motion, into the battery slot.



Removing Catalina Battery Pack



Inserting Catalina Battery Pack





WARNING

ALWAYS CHARGE YOUR BATTERY IN TEMPERATURES BETWEEN 10 °C - 25 °C (50 °F - 77 °F) AND ENSURE THE BATTERY AND CHARGER ARE NOT DAMAGED BEFORE INITIATING CHARGE. NEVER LEAVE A CHARGING BATTERY UNATTENDED. CHARGE ONLY IN A SAFE LOCATION.

BATTERY CHARGING INFORMATION

- Check the charger, cables, and battery for damage before beginning each charge always beginning each charge.
- Always charge in a safe area that is indoors, cool, dry, away from direct sunlight, dirt and debris, in a low traffic area away from the potential to trip on the charging cords, or to cause damage to the bike, battery, or charging equipment while parked and/or charging.
*Always charge your battery in temperatures between 10 °C - 25 °C (50 °F - 77 °F).
- The battery can be charged on or off the bike. The battery should be recharged after each use, so that it is ready to go the full range for your next ride. There is no memory effect, so charging the battery after short rides will not cause damage.
- Charging the battery normally takes 6.5 hours if is fully empty. In rare cases, it may take longer to allow the battery management system to balance the battery, particularly when the bike is new or after long periods of storage. Balance the battery during the first three charges by leaving it connected to the charger for at least two hours after it is fully charged.
- The charge indicator lights will show a red light while the battery charges. When charging is complete, the indicating light will turn green. Ensure the lights face upward when charging.
- You can check the battery level of the Catalina Battery Pack during charging. It will flash when nearly full or when not plugged in. Press the ON button and observe how many light bars illuminate.

- Remove the charger from the battery after the green light indicates a complete charge. The charger is designed to automatically stop charging when the battery is full, but unnecessary wear of the charging components could occur if the charger is left attached to the battery and a power source for longer than 12 hours. Detach the charger as soon as possible once the green light indicates a complete charge to avoid unnecessary wear of charging components.
- Never charge a battery for more than 12 hours at a time.
- Do not leave a charging battery unattended.



CHARGE THE BATTERY ONCE EVERY MONTH IF YOUR BIKE HAS NOT BEEN IN USE.



WARNING

FAILURE TO FOLLOW THE BEST PRACTICES OUTLINED IN THE BATTERY CHARGING INFORMATION SECTION COULD RESULT IN UNNECESSARY WEAR TO THE CHARGING COMPONENTS, BATTERY, AND OR CHARGER, AND COULD LEAD TO AN UNDER-PERFORMING OR NON-FUNCTIONAL BATTERY, REQUIRING REPLACEMENT THAT WILL NOT BE COVERED UNDER WARRANTY. FAILURE TO FOLLOW BATTERY SAFETY PROCEDURES MAY RESULT IN THE RISK OF FIRE OR EXPLOSION.



WARNING

DO NOT RIDE A BIKE THAT HAS NOT PASSED THE 100% SAFETY VERIFICATION.
BEFORE EACH RIDE, CHECK THE BIKE AS DESCRIBED IN THE SECTION “PRE-RIDE SAFETY CHECK”.
FOR HELP PLEASE VISIT RISTRETTO HELP CENTER AT WWW.RISTRETTO.US/HELPCENTER

I Operating Instructions

POWERING ON

- Flip up the kickstand, squeeze the brake lever to engage the brakes and kick your leg over the saddle.
- When firmly seated on the bike, press the handlebar control power button to turn the bike on.

NOTE: The control power button needs to be pressed (2-3 seconds) to start-up/ power down.



NEVER SIT ON THE BIKE WITH THE KICKSTAND ENGAGED.



WARNING

ONCE THE DISPLAY SCREEN IS ILLUMINATED, THE THROTTLE AND PEDAL ASSIST IS LIVE. DO NOT TOUCH THE CHAINS, CHAIN-RINGS, MOTOR, COG, WHEELS, OR ANY MOVING PARTS WHILE THE MOTOR IS ACTIVATED.

| Braking Procedure

The 512 FE uses a four piston Tektro hydraulic brake system with large rotors. When used properly this system will give the rider a strong, safe and reliable stopping power. The Left lever will activate the front brakes when compressed and the Right lever will activate the rear brakes when compressed.

Front brake = Left Lever

Rear brake = Right Lever

In most cases when braking we recommend primarily squeezing the front brake lever while leaning your weight back in order to prevent the rear tire from losing traction.



WARNING

BRAKE HOSES AND CALIPERS MAY BE HOT AFTER A SHORT RIDE. DO NOT TOUCH THE BRAKE HOSES, CALIPERS, PADS OR ROTORS UNTIL THEY HAVE FULLY COOLED DOWN.

I Pedal Assist Level Settings

When the rider begins to pedal or turn the cranks, pedal assist sensors will activate the motor according to the pedal assist level settings.

1. Press the up (+) button to increase the pedal assist level.
2. Press the down (-) button to decrease the pedal assist level.
3. The 512 FE comes set with 3 pedal assist levels:
 - a. Level 0 = 0%, pedal assist is turned off.
 - b. Level 1 = 33%
 - c. Level 2 = 66%
 - d. Level 3 = 100%

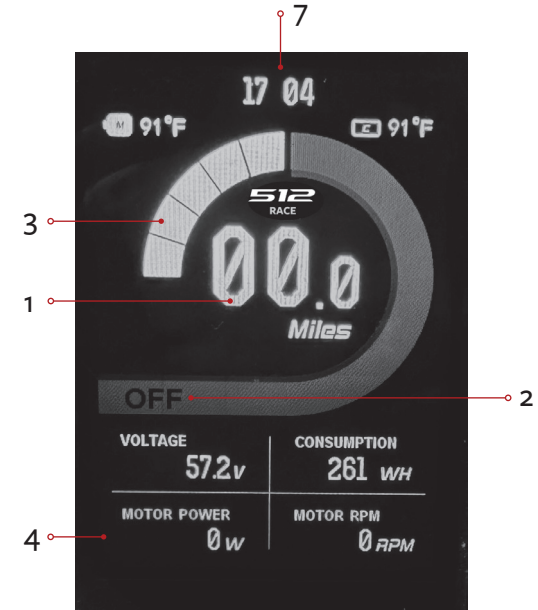
I DS103 Display

Before your first ride, double check the basic display settings.

BASIC DISPLAY

Boot display, 2 seconds show when turning on the display.

1. **Speed:** Show current speed, MPH or KM/H3.
2. **Power assist mode:** Shows the level of assist power.
Form low power assist to high power assist.
 - OFF power is default when the bike is turned ON.
 - OFF means no assist power.
3. **Battery Power indicator:** 3 level power indicator, percentage of the battery power.
4. **Motor Power:** Shows current motor output power.
5. **Trip time:** Shows the hours and minutes of the riding time.
6. **Distance:** Show the trip mileage
7. **Clock**



DS103 Display User Guide

01. DS103 DISPLAY DETAILS

Intelligent LCD display, model: DS103

Firmware: Ristretto specific firmware

Features

- Simple and lightweight, separate installation bracket design
- High brightness, high contrast 3.5 colored TFT screen
- Clock function (clock is on when the display shutdown)
- Excellent outdoor design with IP65 level waterproof
- Micro USB serial communication port, convenient maintenance services.

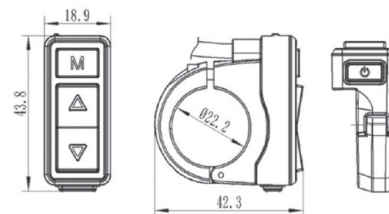
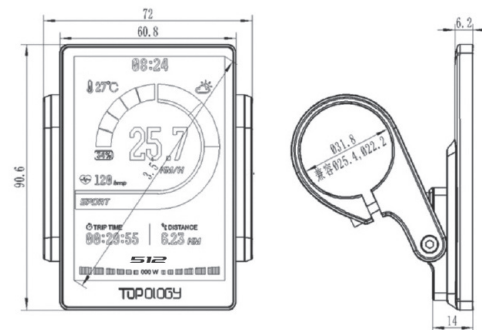
Dimensions

L 72mm x W 14mm x H 90.6mm

Materials

Product shell - ABS and PC plastic

Transparent window - Tempered glass

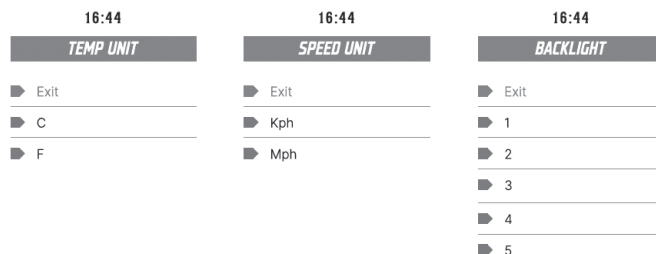


02. ELECTRICAL SPECIFICATIONS

- Power supply: DC 36V/ 48V/ 52V/ 72V
- Rated current: 30ma/36V
- Shutdown leakage current: <1uA
- Screen specification: 3.5" colored TFT (480*320 pixels)
- Communication method: UART (default)
- Operating temperature: -20°C ~ 60°C
- Storage temperature: -30°C~80°C
- Waterproof level: IP65

03. PARAMETERS

For convenience you can setup weather temperature, speed unit and screen backlight.




04. FUNCTIONALITIES

Press and hold the POWER button for 3 seconds to turn the display on/ off.



The MENU button is used to go into your main settings page and the clear data page. It is also used to enter and select a setting or function.

I Turning On/ Off

Maintain the connection of the display and the controller. Long press (2 seconds)  button when the display is off. Display shows the boot interface and enters the basic interface to start work. Long press (2 seconds) button when the display is on. Display closed. If no operation to the display and the speed is 0 for 5 minutes the display will turn off automatically.

I Password

After the start up of the interface display it will default to password, enter password, the display will then shutdown in 30 seconds if not entered correctly.

When the password is entered correctly, the display will turn to the riding interface. The default password is 0000.

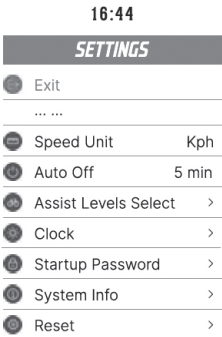
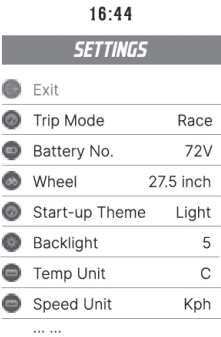


PASSWORD SETUP:

- Press **M** to select the password character from left to right, press Up and Down to select the password numbers
- Press **M** after entering to complete
- When the password is correct the display will then turn to the operational display
- Just re-enter the password if incorrect
- Password function can be enabled or disabled in the interface settings, it can also be changed from here.

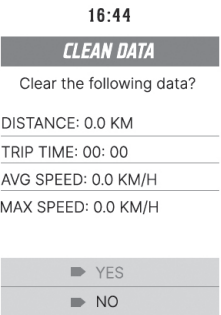
Settings

Upon startup, long press the MENU button within 15 seconds to enter the SETTINGS page. Note that once the system is activated for longer than 15 seconds, the motor system will require a restart to enter the settings menu.



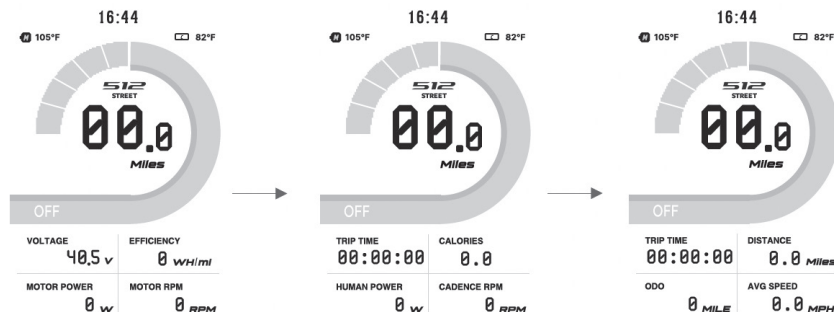
Clean Trip Data

Wait 15 seconds after starting up the motor system to enter the “Clean Data” menu. Long press the MODE button to clear previous trip data. Please note that trip data does not automatically clear once the motor system is restarted. It is a manual process.



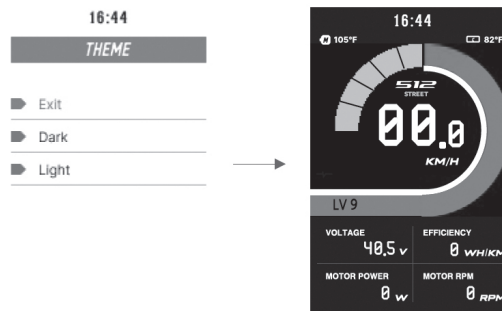
Switch Dashboard

Switch the main dashboard to display different information by pressing the MENU button.



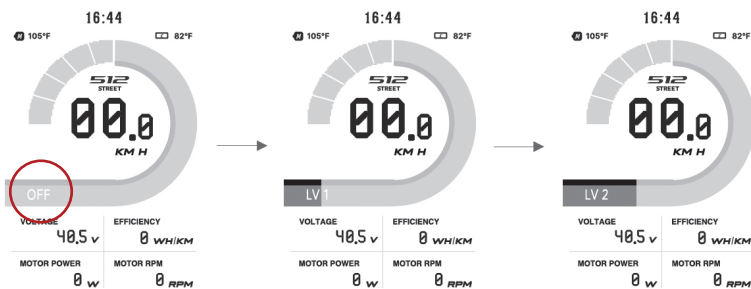
Dark & Light Theme

Upon startup, long press the MENU button within 15 seconds to access the SETTINGS page, then select THEME to change between light and dark themed dashboards.



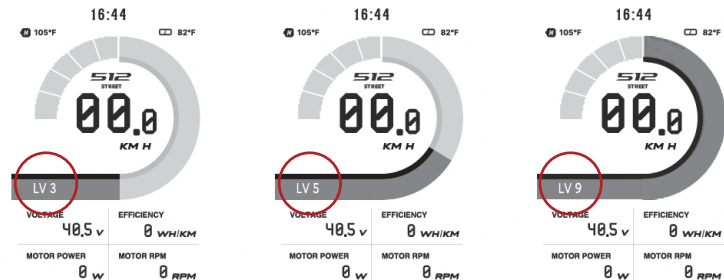
Assist Levels Select

Press the UP/DOWN button to change between assist levels while riding. Note that “OFF” means no motor assistance will be given.



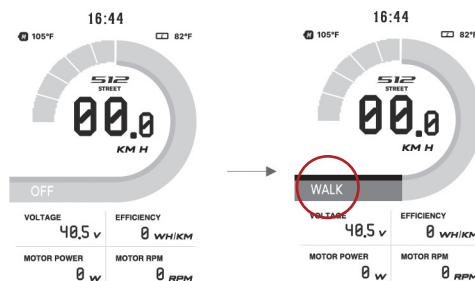
THERE ARE 3 SETS OF ASSIST LEVELS; 3, 5 & 9.

To change the assist levels set, long press the MENU button upon within 15 seconds upon startup and access ALL GEAR in the main settings page.



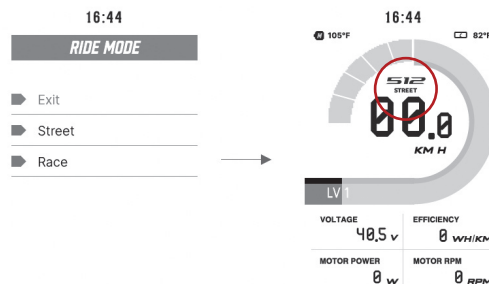
I Walk Assist

Hold in the DOWN button to activate walk assist. Please note it takes 3 seconds to activate & will deactivate immediately when the button is released.



I Ride Mode

Upon startup, long press the MENU button within 15 seconds to access the SETTINGS page, then select RIDE MODE to swap between STREET and RACE mode

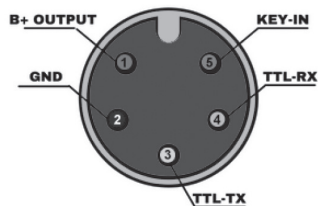


IT IS THE RIDER'S RESPONSIBILITY TO FOLLOW LOCAL EV LAWS, REGULATIONS, AND MOTOR VEHICLE CODES.

Pin Layout

MALE 5-PIN CONNECTOR

1. Red Wire: Anode (36V to 72V)
2. Black Wire: GND
3. Yellow Wire: TxD (display -> controller)
4. Green Wire: RxD (controller -> display)
5. Blue wire: Power cord to the controller



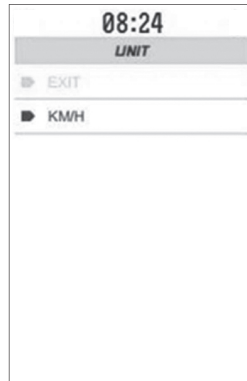
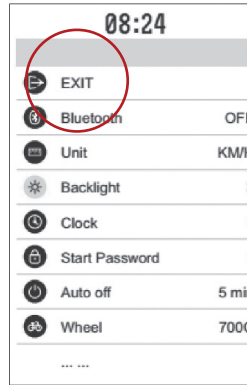
FOR AN UP-TO-DATE VERSION AND COMPLETE INFORMATION ON RELATED TOPICS, PLEASE REFER TO OUR DIGITAL 512 OWNERS HANDBOOK ON OUR WEBSITE, OR VISIT OUR HELP CENTER



I Advanced Display Settings

ENTER SETTING INTERFACE

- Within 10 seconds of the display being turned On, press **M** (for 3 seconds), the system enters the data setting interface. On this status users can set and view the parameters of the display.
- Hold down the **M** button (for 3 seconds) press and **Save** the user settings, if nothing happens for 10 seconds, the display returns to the normal riding state, do not save the parameter settings.
- On the user setting interface press **M** to confirm, use the Up and Down arrows to switch the setting items.



EXIT SETTINGS

Select **Exit** and press the **M** button to **Save** the setting parameter and **Exit** setting interface.

UNIT SETTINGS

- To enter **Unit** settings, press the Up and Down arrows to select **Km/H** or **Mph**.
- To **Save** your desired unit measurement press the **M** button.



BACKLIGHT SETTING

Brightness

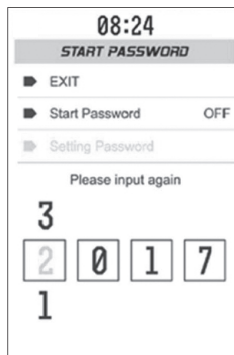
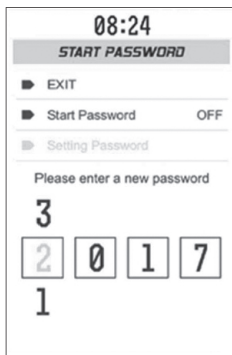
- There are 5 adjustable backlight levels. Level 1 is the darkest level, 5 is the brightest level.
- Select the chosen level of the backlight, press **Select** to confirm and turn back to backlight setting interface.



CLOCK SETTINGS

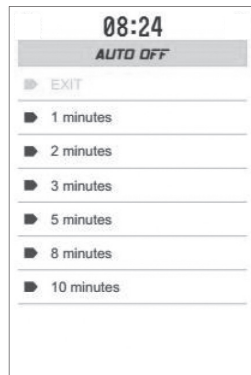
Time Format

- Enter the **Clock** settings, choose “Hour” automatically, use the **Up** and **Down** arrows to set the hour, press **M** to change the setting from hours to minutes.
- A short press on the **M** button will **Exit** the settings menu.




PASSWORD SETTINGS

- To choose “**Start Password**” press the **M** button to switch On or Off.
- To choose “**Setting Password**” press the **M** button to select the digit of the password from left to right, use the Up and Down arrow to **change** the password number of the selected digit.
- Press the **M** button to **verify** the original password after the 4-digit password is selected if the original password is not correct.
- Display **Exit** to **SET** the interface



AUTOMATIC SHUTDOWN TIMING SETTING

- An **Automatic Shutdown** will occur if the bike is not being used after a time set.
- Use the Up and Down arrows to select EXIT or Auto Shut Off Time, either 1, 2, 3, 5, 8 or 10 minutes.
- Select **EXIT** and press the **M** button which will return the display to the **SET** interface.
- After the setting is completed, on the riding interface, when the speed is 0 and there has been no use of the bike, it will shutdown automatically.
- The display can only be turned On using the  button.



FOR AN UP-TO-DATE VERSION AND COMPLETE INFORMATION ON RELATED TOPICS, PLEASE REFER TO OUR DIGITAL 512 OWNERS HANDBOOK ON OUR WEBSITE, OR VISIT OUR HELP CENTER

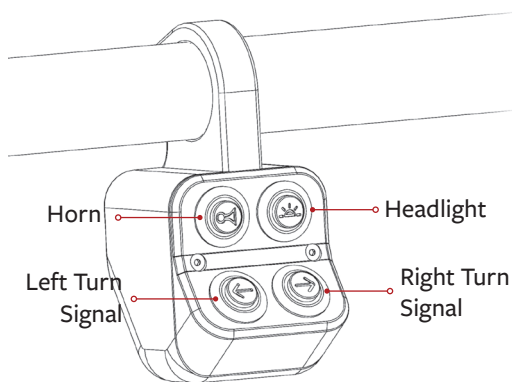


I Master Controller Operation Guide

Your Ristretto 512 is equipped with a master controller that simplifies the operation of essential features for a safer and more enjoyable riding experience.

CONTROLLER OVERVIEW

The master controller features four buttons, each serving a distinct function, each button is equipped with a white indicator light that illuminates when the function is active.



Operating Instructions

HORN

Press the Horn button. The horn will sound for as long as the button is pressed. There is no indicator light for the horn function.

HEADLIGHT

Activate by pressing the Headlight button. The button will light up in white, indicating the front light is On. Deactivate by pressing the Headlight button again. The white light on the button will turn Off, indicating the front light is Off.

LEFT TURN SIGNAL

Activate by pressing the Left Turn Signal button once. The button will light up in white and emit a sound to indicate activation. Deactivate by pressing the Left Turn Signal button again. The white light will turn off, and the sound will stop, indicating deactivation.

RIGHT TURN SIGNAL

Activate by pressing the Right Turn Signal button once. The button will illuminate in white and emit a sound to indicate activation. Deactivate by pressing the Right Turn Signal button again. The white light will turn Off, and the sound will stop, indicating deactivation.

How to Connect the Mobile App



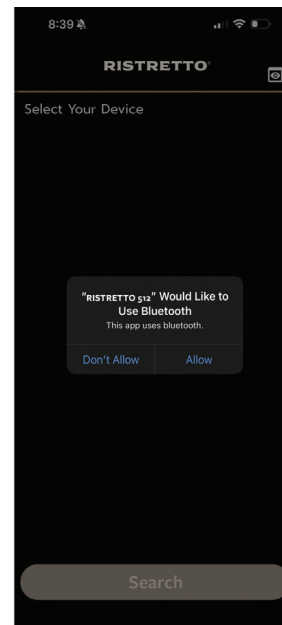
- STEP 1** Download the App from the App Store or Google Play
- STEP 2** Open Ristretto 512 App & log in with your provided credentials
- STEP 3** Select the Bluetooth® icon in the upper left corner
- STEP 4** Select “Connect a new device”
- STEP 5** Select eBike and then select “Connect”

* When returning to the home page, your Bluetooth® icon will be On when your ebike is connected.



WARNING

NEVER ADJUST THE SETTINGS ON YOUR APP WHILE RIDING YOUR BIKE. BY OPERATING YOUR BIKE AND THE APP SIMULTANEOUSLY YOU PUT YOURSELF AT RISK FOR COLLISION AND SERIOUS INJURY TO YOU OR OTHERS. BE SURE TO PRACTICE SAFE RIDING PROCEDURES AND PULL OVER FIRST.



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I Error Codes

In certain circumstances, an error code may appear on your App or DS103 display. Contact us for assistance.

LIST OF ERROR CODES ON APP AND DS103 DISPLAY

Controller Over Voltage	Controller Internal Error 1	Controller Internal Error 7
Controller Under Voltage	Controller Internal Error 2	Controller Internal Error 8
Controller Over Temperature	Controller Internal Error 3	Controller Internal Error 9
Hall Sensor Error	Controller Internal Error 4	Controller Internal Error 10
Throttle Error	Controller Internal Error 5	
Speed Sensor Error	Controller Internal Error 6	



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I Troubleshooting

PROBLEM	COMMON SOLUTION
Bike doesn't work:	
Insufficient battery power	Charge the battery
Battery not fully seated in tray	Install battery correctly
Faulty connections	Clean and reconnect connectors
Battery non-functional	Replace battery
Irregular acceleration and/or reduced top speed:	
Insufficient battery power	Possible high temperature of the motor, wait for motor to cool down, charge battery, or replace battery
Loose or damaged throttle	Replace throttle
Loose or damaged motor plug wire	Reconnect or replace
Damaged motor	Replace

PROBLEM

COMMON SOLUTION

Reduced range:

Low tire pressure	Inflate tires to PSI stamped on sidewall
Low battery	Charge battery
Driving with too many hills, headwind, braking, or excessive load	Assist with pedals or adjust route
Battery discharged for long period without regular charges	Recharge the battery. If range decline persists, consult our Help Center
Brakes rubbing	Adjust the brakes
Faulty, damaged, or aged battery	Contact Ristretto Support to replace the battery. Disconnect and store damaged battery in a safe location and recycle or dispose of as soon as possible according to local rules.

PROBLEM**COMMON SOLUTION****The battery won't charge:**

Charger not properly connected	Adjust the connections
Charger damaged	Replace the charger
Battery damaged	Disconnect and store battery in a safe location and recycle or dispose of as soon as possible according to local rules. Contact Ristretto Support to replace the battery.
Wiring damaged	Replace
Battery non-functional	Replace battery

Wheel or motor makes strange noises:

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



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I Pre-Ride Checklist

Check Battery Charge Level

- ☐ Turn on your bike and ensure it is sufficiently charged for your journey.

Check Throttle

- ☐ Keep eBike in assist level 0, open the throttle & check that the “Throttle In” voltage on your app’s home page changes.

Check Pedal Assist


- ☐ Keep ebike in assist level 0, turn crank arms & check that the “Average Pedal RPM” reading on your app’s home page changes.

Check Fasteners

- ☐ Check the bike’s fasteners and components.

Check Tire Pressure | Tire Pressure Gauge

- ☐ Check the tire pressure is within the range specified by the manufacturer.

 Air pressure range limits can be found on the sidewall of the tire. Fill or release air as necessary.

Check Wheel Tightness

- ☐ Check that each wheel’s axle nuts are tight and there is no wheel wobble. Tighten as needed.

Inspect Brakes

- ☐ While rolling your bike beside you, pull on one of the brake levers.
- ☐ The bike should come to a stop immediately. Repeat with the other lever.

Check Headset

- ☐ Pull the front brake and rock the bike forward and backward.
- ☐ There should be no movement in the handlebar mount. Tighten if needed and re-test.

Clean & Lube Chain | Chain Lube & Rag

- ☐ With your bike tires off the floor, grasp the chain between the back gears and pedals with a clean rag.
- ☐ Spin the pedals a few times so that the chain runs a few cycles through the rag, cleaning off any dirt.
- ☐ Apply chain lube as instructed by the lube manufacturer.

I Post-Ride Checklist

Inspect Tires & Rims

- ☐ Look for debris and damage on the rims and tires.

Check Wheel

- ☐ Turn each wheel while looking straight down at the tire.
- ☐ Check the spoke tension in the wheels, make sure there's no loose spokes.
- ☐ The wheel should spin true, there should be no wobble.

Wipe Down Frame | Clean, Damp Microfiber Cloth

- ☐ Take a rag and wipe the frame of the bike.
- ☐ Inspect for any damage or cracks.

Wipe Down Chain | Clean Microfiber Cloth

- ☐ With the tires of your bike off the floor, grasp the chain with the cloth and spin the pedals a few times so the chain runs through the cloth.

Check Pedals

- ☐ Check both pedals for any damage or loose bearings.

Charge Battery | Battery Charger

- ☐ Wait at least one hour after a ride for the battery pack to cool down.
- ☐ Once cooled to room temperature, charge the battery pack using the charging instructions noted in this book.
- ☐ We recommend charging the battery pack to 80% capacity to increase pack life longevity.

| Maintenance Checklists

WEEKLY CHECKLIST

- ☐ Clean and lubricate drivetrain; chain and chain-rings.
- ☐ Check crankset.
- ☐ Inspect brake pads.
- ☐ Inspect steering system.
- ☐ Inspect wheels.

MONTHLY CHECKLIST

- ☐ Check for water damage.
- ☐ Wipe down and lubricate suspension sliders and gear shifting cable.
- ☐ Degrease and lubricate the chain and motor drive chain.
- ☐ Lubricate all other drivetrain elements i.e. the chain.
- ☐ Check condition of all wires and connectors.

SIX MONTH CHECKLIST

- ☐ Adjust brakes to ensure proper functionality.
- ☐ Ensure the drivetrain is working as normal.
- ☐ True wheels.
- ☐ Check all hardware and bearing systems.

I Limited Warranty & Other Terms

Your electric bike warranty and other binding legal terms (e.g., terms of purchase, etc.) are subject to change at any time. To view your terms of purchase, visit ristretto.us/terms-conditions. To view the current warranty, please visit ristretto.us/warranty or scan the QR code below for more details.



RISTRETTO MOTOR AND BATTERY LIMITED WARRANTY **Model(s) Covered: All 512 series**

Ristretto's goal is to ensure that you are 100% satisfied with your purchase. We stand behind our product and guarantee the quality of our electric bikes. All Ristretto 512 series comes with a two-years warranty for the Motor and a one-year warranty for the Catalina Battery.

REGISTER FOR YOUR WARRANTY AT [RISTRETTO.US/WARRANTY](https://ristretto.us/warranty)

512 BIKE MOTOR

Two-Years Bike Motor, limited time Warranty for the Ristretto 512.

Bike Motor: Ristretto Electric LLC (RISTRETTO®) warrants that all new 512 Bikes and SELECTED components are warranted to the original client (PURCHASER) against production/manufacturing defects in materials and/or workmanship for a period of (2) years from the original shipping date. Man-made failures are excluded from our warranty. This warranty is limited to the repair or replacement of the original defective motor and is the sole remedy of the warranty. This warranty extends from the original ship date for two-years and applies only to the original owner. This warranty is non-transferable.

CATALINA BATTERY

One-Year limited time Warranty of Catalina Battery Pack Components: Ristretto Electric LLC (RISTRETTO®) warrants to the original PURCHASER that the battery is free of defects in material and workmanship for a period of one (1) year from the original shipping date. The defective product will be replaced or repaired if met under certain pre-conditions. This warranty is limited to the repair or replacement of the original defective battery and is the sole remedy of the warranty. This warranty extends from the original ship date for one-year and applies only to the original owner. This warranty is non-transferable.

HOW TO MAKE A WARRANTY CLAIM

The PURCHASER must reach out to Ristretto and provide an electronic invoice (proof of purchase) including the order number, email address, phone number and original FULL NAME used at the time of purchase. (NOTE: All of these requirements must be provided to RISTRETTO for processing warranty claims).

REGISTER FOR YOUR WARRANTY AT [RISTRETTO.US/WARRANTY](https://ristretto.us/warranty)

CYC MOTOR DISCLAIMER

CYC MOTOR LTD's X-Controller Series' hardware and software are under the GPL V3 open-source license.

VESC® is a trademark and copyright of Mr. Benjamin Vedder.

For more information, visit: <https://www.gnu.org/licenses/gpl-3.0.html>.

CYC MOTOR LTD's source code can be found at <https://github.com/CYC-MOTOR>. Different firmware can be loaded onto these controllers.



WARNING

ANY PERFORMANCE ISSUES OR DAMAGES TO THE PRODUCT RESULTING FROM LOADING UNAUTHORIZED FIRMWARE WILL NOT BE SUPPORTED OR WARRANTIED BY CYC MOTOR LTD OR ANY AUTHORIZED PRODUCT DEALER.

GENERAL DISCLAIMER

Part or model specifications are subject to change without notice.

This Limited Warranty is the only warranty for the product. ALL WARRANTIES OTHER THAN STATED HEREIN ARE DISCLAIMED INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, TO THE EXTENT ALLOWABLE BY APPLICABLE LAW. ALL LIABILITY FOR INCIDENTAL, PUNITIVE, SPECIAL, OR CONSEQUENTIAL DAMAGES ARE EXPRESSLY DISCLAIMED, TO THE EXTENT ALLOWABLE BY APPLICABLE LAW.

The only uses for this product are described in this manual.

Stay Electric

ristretto.us