

# T I M Ellowed R I D E R S

Thank you for your investment in Lyric and embracing the change that electric bikes can offer. We sincerely hope you enjoy your purchase as much as we have enjoyed bringing these machines to life. Please take some time to read this owner's manual carefully before putting together and using your Lyric Cycle to become familiar with the features and controls of the bike as well as the correct care and maintenance.

We look forward to hearing about your experience and seeing you online on our social networks.



### /LYRICCYLES

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### 🕂 WARNINGS IN THIS MANUAL

Throughout this manual we have provided warnings sections for information you should pay close attention to. These sections highlight warnings concerning the safe operation and consequences if proper setup, operation, and maintenance are not performed. Please ensure you understand these warnings and contact us if you have questions or concerns.

### M USAGE WARNING

Your new Lyric Electric bike is a powerful electric vehicle that can cause injuries or even death to you, your passengers, and others around you if used improperly. In some cases, Please learn to ride your new electric bike carefully and safely and respect the rules of the pathways, trails, and roads of your local areas.

To minimize the risk of serious injury, protective equipment should be worn at all times including a helmet for both your and your passengers. You are responsible for your own safety. Use this product with extreme caution and at your own risk.

### 🕂 CALIFORNIA PERCHLORATE ADVISORY

Certain components of this electric bike such as the provided lithium batteries may contain perchlorate material. Special handling may apply for service or end of life disposal. See www.dtsc.ca.gov.

# **ASSEMBLY WARNING:**

Incorrect assembly, maintenance, or use of your ebike can cause component or performance failure,

loss of control, serious injury, or death. Even if you're an experienced bike rider, you must read and understand the entire manual and any documentation provided for subcomponents or accessories before riding. If you are not sure you have the experience, skills, and tools to correctly perform all assembly steps in the manual you should consult a local, certified, reputable bike mechanic experienced with electric bikes.

Damage caused to your electric bike from improper assembly will be considered a defect of negligence and not covered under your bikes warranty. So please take care in assembling and/or maintaining the components of your bike.

Damage to your ebike's electrical system caused in any manner, including water intrusion, can lead to battery failure, electrical system malfunction, or electrical fire and consequent property damage, injury, or death. Your electric bike is water resistant, not waterproof. Connections are IP54 rated and will safely function in light rain but exposure to submersion or high-pressure spary will cause damage. Follow all recommendations to minimize chance of water damage. If you have any questions please contact our support department.

# Please ensure you get started safely by reading this section and ensuring you have checked all items in the quick start steps

### LYRIC GRAFFITI QUICK START

New bike day is awesome. You've likely been hurrying through the build of your new electric bike as fast as you can so you can get it out on the road. We know, we're the same way. But we need to do a few things first to set your bike up for safe operation and to set your battery up for the first ride. Please ensure you follow all steps in the quick start in the bullet points to the right.

When we ship the battery, it is in storage mode which means that it is at about 50% charge so it will need more energy before you start. If you ride the bike uncharged you could cause problems with the battery. So let's charge it up first.

Before your first ride, it is your responsibility as the owner of a Lyric Cycle to check a number of key things before your first ride. We suggest checking the items in the quick start steps before every ride to ensure a safe ride each time.

### **QUICK START STEPS**

• Check the battery charge level. For the first charge, charge the battery to 100%. After this, ensure that your battery charge will be enough for the ride you're planning.

- Check the Headlight, Tail Light, & Turn Signals
- Check Wheel Mount and Rotation Wheels should spin straight, axles should be tight.
- Check Tire Pressure (12-20 psi F&R)
- Check Front & Rear Brakes and alignment (Should not hear disc noise when the wheels are freely rotating) Adjust the brake alignment if you hear rubbing
- Check the brake rotors to ensure all bolts are tight
- Check Battery Charge Level
- Check headset, axle, and handlebar nuts for tightness.
- Start your ride slowly and get used to the power of your bike whether it is your first time or you're a seasoned rider. Ensure you are using Power assist level 1 to start off.

### **GET TO KNOW YOUR GRAFFITI**





- 1 Regen Lever
- 2 Brake Levers
- 3 Regen Lever & **Speed Button**

- 4 Headlight Switch
- 5 Veer Belt Drive
- 6 Kickstand

- 7 Passenger
- 8 Removable Battery
- 9 Hub Motor

### YOUR BIKES ELECTRIC SYSTEM

All of the components of your new Lyric Electric Bike have been carefully selected to function together. This includes the batteries, battery management systems (inside the batteries), motor, motor controller, display, and lighting. Changing any of these components to anything other than original equipment provided by Lyric Cycles will compromise your warranty and could cause damage to other components in your bikes electric system. Please contact us if you have any questions or concerns.

\land OPERATING TEMPERATURE

Your electric bike has optimal operating temperatures ranges where it will perform best. Operating in below freezing temperatures will affect battery performance. More information on this subject is in the battery section of this manual.

Your controller and motor have temperature cut-offs programmed to ensure that they don't continue to operate hotter than is safe. If you experience your motor cutting out, a high temperature cut off could be the cause.

### OVERVIEW OF ELECTRICAL COMPONENTS

In this section we will go over all of the components that make up your bikes electircal system. The components that will be reviewed in the next pages are:

- Battery
- Controller
- Motor
- Display
- Cadence Sensor
- Throttle
- Lighting
- Brakes

### **BATTERY OVERVIEW**

Did you know that the battery in your bicycle is the most significant cost to repair and replace? Because of this we suggest that you take great care in charging, using, maintaining, and storing your battery. Proper care and maintenance will help you get the most out of your battery and extend its life as long a possible.

The battery in your Lyric Cycle is made of Lithium Polymer cells which have been the tried and tested technology in powertools, ebikes, and even electric cars. These batteries are high performance and will last you many miles of trouble free performance if taken care of properly.

On one side of your battery you will see a key hole that can be used to lock the battery to the bike. Your battery should always be locked to your bike when in use as the lock doubles as the saftey measure to hold the battery securely while you ride. On the other side of your battery you will find a power switch to turn the power for the battery on or off. You will also find the charge port under a rubber protector. Keep the protector over the charge port when riding your bike and when storing the battery. This helps keep the charge port sealed and dry.

Your batteries each contain a battery management system which helps to charge the cells in your battery in balance as well as draw from each cell in balance during use. This battery management system also protects your batteries and will cut power if the battery gets too hot, or if there is a voltage draw that is too high.

### RANGE

Range for electric bikes is a widely discussed topic and marketed feature. The challenge with determining an accurate range for an electric bike is that the range is impacted greatly by many different factors:

- Weight of the rider
- Number, size, and slope of hills on the ride
- Average travelling speed
- Number of instances of hard acceleration
- Amount of time travelling at the bikes top speed

You can use the Eggrider app to track your rides and effeciency. Eggrider will show you for your ride what your watt hours per mile/ km are. This will give you some indication about the battery usage for your previous rides and help to inform you of how different usage affects your efficiency and range. You'll notice that easy riding, without hard acceleration, high speeds, and long hills increases your efficiency significantly.

### **EXPECTED BATTERY LIFE**

The batteries in your Lyric Graffiti are removable, 52 volt batteries with a 17.5ah (910wh) capacity. These batteries will have a useable life of 1000 full cycles. A full cycle is from fully charged to fully drained. So if you go for a ride and use only 20% of the battery, that is 0.2 cycles. So a typical battery will last 5-6 years for most people that use their bike often and even longer for more casual riders.

### READING BATTERY LEVEL

### **CHARGING YOUR BATTERY**

Your Graffiti uses APT 860c display which works in harmony with your motor controller to read information from your batteries to give you information about your remaining battery power. Battery percentage is read by the system based on voltage (see previous section). 58.8V will be 100% charge, 44V will be 0% 52.4V will be 50%.

It's good to understand how your bike is calculating remaining battery level so that you can accurately judge how far you can keep travleing. Your remaining battery percentage can be affected by hard acceleration, big hills, top speed tests, etc. This riding uses large current draws that can create momentary reductions in the voltage reading that can make your remaining battery appear less than it is. A return to normal riding will slowly return the remaining battery to the correct reading soon after.

For dual battery bikes, the bike will draw from one battery at a time. When one battery has been drained you bike will switch over to the next battery. This is automatic and does not require any manual intervantion from the rider. The battery used first will typically be the battery under the seat or the battery that is installed first when the bike turns on. If you manually switch one battery off the system will switch to the other battery so long aa it has power still.

Battery level can be seen on the top of the display and the green/ yellow/red shade of the battery indicator helps to visually show how much charge is left. Ensure the battery is fully charged before your first ride. To connect your charger to your battery, locate the charge port on the side of the battery under the protective rubber plug. First, plug the charger into the battery and then into your wall outlet. The charger will show a red light indicating that the battery is charging. Once fully charged the light indicator will turn green.

Remove the charger from the battery within one hour after it has been completely charged. The charger will automatically stop charging when the battery is full, however, unnecessary wear to the charging components can occur if the charger is left attached to the battery and power source for too long. The battery can be charged after each use. Charging the battery after short rides will not cause damage.

### TIPS:

- Do not charge the battery in a wet/humidplace or anywhere exposed to strong sunlight.
- Always charge your battery where temperatures are between 5

   25 °C. Charging outside these temperatures can damage your battery.
- Charge the battery with the supplied charger. Do not attempt to use another charger as it may damage the battery or cause a
- fire or an explosion.
- Do not leave the battery unattended while charging.
- The battery can be charged on or off the bike. To remove the battery, turn the key to the off and unlocked position.

### **BATTERY BALANCING**

### **REMOVING YOUR BATTERIES**

Your battery should be balanced when you first receive your bike and for the first three times you charge your battery. This is a process of ensuring that every battery cell in the pack is at the same voltage levels. Follow the steps below to blance the battery.

- After the first, second, and third ride, regardless of distance 1. ridden or the amount of battery used, charge the battery and leave the charger attached to the battery and the outlet for as close to 12 hours as possible (but not longer than 12 hours).
- Disconnect the charger from the outlet then the battery once the first balance charge is complete.
- On your next ride, ride as usual and discharge part (or all) of З. the battery capacity.
- 4. Repeat steps 1-3 for a total of three balance charging sessions (as close to, but not longer than, 12 hours).
- After the third balance charge and fourth ride, begin normal 5. charging procedures as per the battery charging tips (page 11).

Repeat this battery balancing procedure when your battery has been stored for periods of 3 months or more at a time.

You can easily remove your batteries from your bike with a simple operation. It is advised to remove your batteries when storing your bike in temperatures below 5 °C (41 °F), when you're not riding your bike for an extended period of time, or when left in a public place unattended for long periods of time (batteries are targets for theft!), or when transporting the bike.

Removing the Battery Pack(s)

- Turn off the power on the bike. 1.
- 2. Locate the keyhole on the battery in one of the front corners.
- З. Unlock the battery using the provided key, by turning the key counterclockwise.
- Push the battery pack forwards, it should slide on its track. 4.
- 5. Once it wil no longer slide forward you should be able to lift the front of the battery pack.
- The pack should now lift off its track. (careful it's heavy!) 6.
- If you own a bike with a second battery follow this procedure 7. again for the second pack.

NOTE: If you have 2 battery packs and wish to ride with only one, you may choose to do. Both batteries do not need to be connected for your bike to function.

For dual battery models, the batteries will be used one at a time while you ride. Your Graffiti has an automated switch that changes between batteries and allows you to ride without needing to switch between batteries or monitor battery levels in both batteries. When one battery is drained the swicth will automatically start drawing from the next battery.

You may choose that you want to draw from only one battery at a time. This can be useful on a long ride where you want to be sure you have enough battery power to get back to your starting place. To do this, just turn off one of the batteries using the battery power switch on the battery itself. When you do this, your bikes electrical system will draw from only the battery with the power on. When this battery drains your bike will power down and this helps give you an indication that you should have the right amount of battery power to tak you back to where you started from.

Utilizing both batteries will not allow the bike to acheive higher top speeds as this is limited by the controller and battery management systems to keep the electrical system in balance.



### BATTERY BLENDER

Do not install a battery blender on your Lyric Graffiti. Your electrical system has been engineered to allow regen braking and any use of a battery blender will damage your controller.

ISSUE	<b>RESOLUTION OPTIONS</b>
Bike won't power on	<ul> <li>Remove and reinstall battery to test if battery is correctly installed.</li> <li>Check that battery switch is on</li> <li>Check the battery power level by press- ing test button on the side of the battery</li> <li>Check battery connection under the seat (orange plugs)</li> </ul>
Battery not powered to 100% after charge	<ul> <li>If battery is charged to 95-97% this is expected behaviour. The last 3-5% charge will take 3-4 hours longer after the charge light goes green. This is only needed every 5th or 6th charge as a rebalance</li> <li>If charge levels are below 80% after charger completes charging contact Lyric Cycles</li> </ul>
First battery is drained but second battery is still fully charged	<ul> <li>Ensure the battery is installed correctly</li> <li>Ensure the battery is switched on</li> <li>Try swapping the battery positions</li> </ul>
Battery power drains quickly	<ul> <li>Reduce speed on your ride</li> <li>Reduce instances of hard accleration</li> <li>Ensure overall weight of bike plus rider is not more than 325lbs</li> </ul>

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### CONTROLLER

### MOTOR

The controller is the heart and brains of your electric bike. It is located under the seat in a space between the seat and the batteries. Your Graffitiuses a 50A continuous sine wave controller with 90A peak capability. The controller is the central place where all of the wiring for your bike starts and the controller is involved with every function including:

- Pedal Sensor ٠
- Throttle ٠
- **Battery Information** ٠
- **Controller & Motor Temperature** ٠
- **Regenerative Braking Performance** ٠
- Acceleration and Speed Performance. ٠

Your controller is an advanced technology hardware component and the Lyric Graffiti only uses high performance sine wave controllers from accelerated systems inc. and they have been carefully programmed to get the best performance for your electric bike. The programming on your controller is locked and any attempt to change settings or wiring of your controller can damage the controller and will void your bikes warranty.

If you suspect a probelm with the controllers function please contact us at supporr@lyriccycles.com

The Lyric Graffiti comes with a powerful direct-drive hub motor. This motor drives the bike forward from the rear wheel using large magnets. Lyric Graffiti uses a direct-drive hub as it is the lowest maintenance type of motor for an electric bike. This motor should give you years of trouble free maintenance. There are no gear reduction gears (either metal or nylon) in a direct-drive motor. With fewer internal parts, this allows for lower maintenance and less possibiliv of issues.

Your motor will heat up during use and can overheat under some circumstances (Hot days, long or very steep hills, heavily loaded bike, etc.) Your motor controller monitors your motor temperature and will cut power to the motor when it detects an overheating condition. If you suspect this to be the case carefully feel the outer casing of the motor and if it feels hot it is best to wait some time for it to cool off before riding again.

### Care Tips:

- The motor can be subjected to rain and gentle water pressure from a garden hose but high-pressure water should be avoided as this can penetrate the motor seals.
- Ensure that the axle bolts are always tight as a loose motor ٠ can wear down the frame or become dangerous to ride.
- When changing the rear tire, pay attention to the placement ٠ and securing of the motor wire. Incorrect installation can cause damage to the motor wire from other moving parts.

### DISPLAY

The Lyric Graffiti uses the APT 860c display. This is a high definition display that allows you to see your speed, pedal assist level, remaining battery power, distance traveled and other information about your ride. This display has been created specifically for Lyric Cycles and replacement of this display with a different model could make some of your bikes features cease to function. For the basic features of your display:

- Power: Turns the bikes power on and off. (Press and hold for ٠ 3 secs)
- Up: Change the pedal assist level up
- Down: Change the pedal assist level down
- M: Mode button this will access the menu of your display to • change basic settings. Double pressing this button will access the advanced menu.

### **ADVANCED DISPLAY FUNCTIONS**

In the advanced settings for the APT 860 display you will see settings for both current limit and speed limit. These features have been disabled for the Graffiti so making changes to these will not affect the performance of your bike. For the full features and functions for the APT 860c Display please visit the manual here:

http://www.aptdevelop.com/Public/Upload/5db92852206fc. pdf





7 - Watts being used currently

1 - Power Button (Press and hold 3secs)

5 - Battery Voltage / Power Remaining

8 - Pedal Assist Level

2 - Assist Level Up

4 - Menu Button

3 - Assist Level Down



### THROTTLE

Your Lyric Graffiti has 2 different methods to engage the electric motor, the Pedal/Cadence Sensor and the Throttle. The Pedal/ Cadence Sensor is a small disc with megnetic sensors located next to the crank. This sensor sends a signal to the motor controller when you turn the pedals to lets the controller know you are trying to move the bike. The amount of power delivered to the wheel will depend on the pedal assist level you have set on the display and the mode you are in (speed selector button below the regen throttle).

The pedal assist levels are based on a pecentage of total power and are automatically set by the diplay. In your display settings you may choose 3, 5, or 9 pedal assist levels. Your Graffiti has been set from the factory at 9 levels. Total power is 750W when the speed button is engaged and 2500W when not engaged.

You can choose to edit the pedal assist settings freely to your liking to get the desired amount of power out of certain assist settings. Doing so will not affect your bikes electrical system and will not cause an overall increase or decrease of the total power available.

The Throttle can be found on the handlebar next to the right grip. This is a thumb actuated lever that will activate the motor at different levels depending on the amount the throttle level is depressed.

The throttle power provided depends on the power assist level selected and the amount you depress the throttle. In power assist level 1 the throttle response will be the least and power assist level 9 will be the most

We understand that some people prefer to use a twist throttle, if you choose to change your throttle to a twist throttle instead of a thumb throttle we can not gaurantee the performance of your bike. Each throttle part has different voltge operating ranges and a different throttle can cause poor performance and/or error conditions that will prevent your bike from working.

## THROTTLE USAGE

The Lyric Graffiti is a high-powered electric bike with a significant amount of torque in higher power settings. Be sure to use the throttle carefully by starting off in lower power level until you get used to the power and throttle response of the bike.

### LIGHTING

The Lyric Graffiti is equipped with a tail light/brake light, a hibeam and low-beam headlight, and daytime running lights. The taillight and daytime running lights can be turned on by pressing and holding the assist level up button for 2 seconds (when the bike is powered on first). These lights help to provide additional visibility to the bike for your safety and are recommended both day and night.

The headlight is operated with the switch located next to throttle. The headlight has a high-beam and low-beam setting. Low beam is the lower switch and hi-beam is uppper switch. The headlight on the Graffiti is a powerful light that draws battery current separately from the controller. So use of the headlight will consume some of the available amps from the batteries and affect top end performance for the bike. Keep this in mind when you are using the headlight and drive the bike conservatively.

You can adjust the angle of your headlight by tilting it up and down. You may need to loosen the bolts on either side of the light if it is too difficult to tilt.

Your Lyric Graffiti is also equipped with brake lights. These lights will turn on when you pull the brake levers. Note that these brake lights do not turn on with the use of the regen lever. So be mindful of this if you are wanting to signal your braking to use the brake levers as well as the regen lever at the same time.



# lights on/off

# ADDITIONAL LIGHTING

The Graffiti is not wired for turn signals or a horn. If you choose to wire turn signals onto your bike this will void your warranty as we can't gaurentee the wiring of additional peripherals, lights and switches.

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#### **BRAKES & REGEN BRAKES**

**REGEN BRAKES CONTINUED** 

Your Graffiti comes equipped with 4-piston hydraulic disc brakes. These brakes are actuated by pulling on the brake levers and the more you pull the more braking pressure will be applied. The brake levers are also part of the overall electrical system as they have electric switches in the levers that cut motor power from both the throttle and pedal cadence sensors when either one or both of the levers is pulled. This is a safety measure to ensure the bike doesn't continue to power itself while you are applying the brakes.

In addition, to your regular brakes, you bike is equipped with an advanced regenerative braking system. Located on the left hand handlebar you will see the regenerative braking lever (see next page for photo). This lever looks similar to the thumb throttle on the right. Using this lever you can modulate the amount of regenative braking force and you can use the regenerative brake to fully stop the bike. The benefits of using the regenerative brakes are:

- Regenerative brakes will provide 5-10% of your charge back while you are riding. Hills, heavier loads, and harder braking requirements will increase the amount of recharge that is applied.
- Use of the regenerative brakes will reduce the wear on your regular brake system which will save you money on brake pads.

The regenerative brakes will turn on only in the following conditions:

- When the charge level of the battery is below 95% (this prevents putting too much additional charge into the batteries which can damage the batteries)
- When the speed of the bike is more than 4 mph

When these conditions exist you can use the regen lever to actuate the brakes. Getting in the habit of using these as your main brake system will offer you the benefits.

### **POWER MODE SELECTOR**

Your Lyric Graffiti comes equipped with a power mode selector so that you can choose between road and off-road settings. This button can be found underneath the regen throttle. The purpose of this selector is so that your bike can operate as a legal Class 2 ebike. There are two settings, road and off-road.

- Road: Nominal power is 750 watts, peak is 1200 watts. Power levels 1-9 will be a percentage of 750 watts.
- Off-Road: Nominal power is 2500 watts, peak is 4700 watts. Power levels 1-9 will be a percentage of 2500 watts.

The speed for your electric bike has not been limited, just the power available. It is the riders responsibility to understand the legal speed for your ebike as it will vary based on your municipal laws, trails, and roads in your area. You should get to know these and obey these rules to prevent injury to yourself and others as well as to prevent speed and ebike violations and/or potential confiscation/impounding of your ebike.



**Regen Throttle Lever** 

**Power Mode Selector** 

# / OFF-ROAD SETTING

The Off-Road setting on your Lyric Graffiti is a powerful mode that is not meant for use in most municipal areas (bike paths, trails, roads). This mode is meant to be used in off-road conditions or on private land. You need to understand your local laws and assume the risk of using the bike in this setting. Lyric Cycles Inc. assumes no responsibility for improper use of the bike in this setting, this is the riders responsibility.

### START UP OPERATIONS

After your bike has been properly assembled and all components are secured correctly, and you have read this entire manual, turn on the bike with the power button on the handlebar and select a power level (default 1-9) following the steps below:

- Check that the battery is locked securely. Try tugging on the battery with the key removed; it should not move at all. If it does, push it down and turn the key again to ensure it latches.
- 2. Ensure you are wearing the correct safety gear (helmet, pads) to prevent injury should you have an accident.
- 3. Turn on the bike with the power button on the top of the Eggrider display.
- 4. Select the power mode (road or off-road) you wish to use based using the grey button underneath the regen lever on the left. This button switches between 750 watt power (road) and unlimited power (orff-road).
- 5. Select the assist level you wish to use with the "up" and "down" arrows.
- 6. Begin pedaling the bike or press the throttle to begin forward motion of the bike.

**WARNING:** Engaging the pedal assist feature, especially at a high setting, will cause acceleration that may begreater than expected, especially for relatively new riders, and that can cause loss of control, serious injury, or death. To minimize risk, start at assist level 1.



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### WEIGHT LIMIT OF YOUR BIKE

Your Lyric Graffiti has a weight capacity of 325lbs including both the bike and rider. This weight limit is due to the safe operating load for both the brakes and the motor/controller/battery. Choosing to load the bike beyond this capacity can cause the brakes to and power system to overheat. Overheated brakes significantly reduces braking power. Your bikes electrical components are all programmed to shut down if any one component reaches an unsafe temperature. When this happens you will need to shut the bike down and wait until components have a chance to cool off before continuing to ride.

### **CARRYING A PASSENGER**

Respecting the weight limits of the bike, you can choose to carry a passenger. Your passenger should be able to comfortably reach the passenger pegs and be seated on the seat, not on the rear rack area of the bike. The passenger pegs are weight bearing and the passenger can mount the bike by standing on one pegs and stepping over the seat to place a foot on the other side. It's best to have the rider seated with both feet on the ground first before the passenger seats themselves.

# <u>/</u>!

### WEIGHT LIMIT

Choosing to load your Lyric Graffiti beyond the weight capacity of 325lbs (bike plus rider plus cargo) can affect your bikes performance and can cause brake and electrical components to fail. This failure is most likely where riding conditions have significant hill involved. Understand the risks and proced with caution.

# $\wedge$

### REAR RACK

The integrated rear rack of the Lyric Graffiti is designed to hold no more than 90 pounds. Due to this, the rear rack is not intended to be a seat or a seat extension. Using the bike in this manner can cause metal fatigue of the frame and can cause the frame to fail.

The Rear rack extensions are rated for the same weight and it is best to center the load over the rack or rack extension (if installed). The further back the rack or rack extension is loaded the more stress it puts on the rack and frame

### MAINTENANCE OVERVIEW

Your electric bike is a collection of parts that all need care and maintenance to keep in good operating order. On any bike, certain parts need to be replaced periodically due to wear, and sometimes parts become damaged for various reasons. This is to be expected over the lifetime of your bike, and the more that you are aware of and can check on each of the parts the better operating condition your bike will be. Check your bike frequently before each ride by following the directions in "Maintenance Checklists" on the following pages.

It is best to have your bike regularly serviced by a certified, reputable bike mechanic. Regular bike mechanics will be able to help you maintain the brakes, headset, bottom bracket, cranks, pedals, grips, stem and handlebars. See our "Recommended service intervals" on page 28 for more information for ongoing maintenance.

Components of any ebike are subject to higher wear compared to the components of bikes without power assistance. This is especially true of the Lyric Graffiti because of the higher top speed which causes more wear on brake pads and rotors. Higher wear is not a defect in the product and is not subject to warranty. "Consumable Components" not covered in warranty are the tires, brake pads and rotors, suspension forks, spokes, wheels, and the battery.

For all repairs to your electric system it is recommended to see a bike mechanic that understands how to service electric motors, controllers, and electric systems to help you diagnose your issue.

# AFTERMARKET PARTS

Be extremely careful about using parts or accessories that are not originally equipped with the Lyric Graffiti. Using aftermarket accessories or components (Batteries, controllers, throttles, racks, forks, trailers, etc.) that have not been tested by Lyric Cycles for safety and compatibility with your specific bike may void your warranty, create an unsafe riding condition, result in bike/property damage, or cause serious injury or death. If you use replacement parts or accessories not tested and recommended by Lyric Cycles, you do so at your own risk and at risk of warranty.

### MAINTENANCE CHECKLISTS

### **BEFORE YOUR FIRST RIDE**

- Make sure handlebar cables were routed correctly when the handlebar was installed. Turn the handlebar fully to the left and right and make sure the cables and wires don't impede steering.
- Make sure your pedals are secure using a pedal wrench.
- Check that the cable connectors on the bike are all plugged in securely and that nothing loosened in shipping.
- Check the brakes for rubbing noises when you spin the wheel. Adjust if necessary. Note, the brakes pads may make noise a little the first few times you ride. This is okay and normal; any squeak or noise should go away with use.
- Check everything on the "Before every ride" list below.

### **BEFORE EVERY RIDE**

Before every ride or every 40–72 km (25–45 miles), follow the safety checklist in the table below. If you find anything wrong with your bike, don't ride it until you're sure it's fixed. Consult a local, certified, and reputable bike mechanic to help you get the bike back in working order

### Brake System

- Check brake pads and ensure the brake pad material isn't thinner than the backing plate it attaches to.
- Ensure brake pads are correctly positioned in relation to the brake rotors.
- Ensure brake housing shows no obvious wear.
- Ensure brake levers are properly positioned and tightly secured to the handlebar.
- Ensure that the brake levers don't need to be "pumped" (several squezes of the lever) to get the brakes to actuate. This means your hyraulic system may need to be re-bled by a mechanic

### Steering

- Ensure the handlebar and stem are correctly aligned, adjusted, and tightened for proper steering.
- Hold the front wheel between your legs and twist the handlebar to test that the steering is not loose.
- Ensure the handlebar is set correctly in relation to the fork and the direction of travel.
- Ensure the handlebar grips are secure and undamaged.

### Wheels & Tires

- Ensure tires are holding air and inflated to 12-20 PSI
- Ensure tires have good tread, have no bulges or excessive wear, are seated on the rim and are free from damage.
- Ensure rims run true and have no obvious wobbles or warps
- Check each wheel spoke to make sure none are loose.
- Check the axle nuts on the front and rear wheel to ensure they are correctly tightened.

### Bearings

• Check that headset, wheel, pedal, and bottom-bracket bearings are lubricated, run freely, and display no excess movement, grinding, or rattling. Oil and or replace as needed.

### Drivetrain: Cranks, Pedals, Belt

- Ensure the cranks are not bent and are securely tightened to the bottom bracket.
- Ensure the belt is aligned and runs smoothly without noise. Adjust the rear wheel to ensure the rear cog is aligned perfectly straight to keep the belt on track.
- Ensure there is no wear or on the belt that would prevent it from operating.

### Frame and Seat

- Check that the frame is not showing any signs of cracks or damage.
- Check that the seat is secured properly with all 3 bolts

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### **Motor & Throttle**

- Ensure the hub motor is spinning smoothly and is in good working order.
- Ensure the power cable running to the hub motor is securely screwed together and undamaged.
- Check the axle hub motor nuts to ensure they are correctly tightened.
- Ensure the throttle and pedal assistance are operating normally.

### Battery

- Ensure the battery is charged.
- Ensure there is no damage to the battery.
- Ensure the battery is locked to the frame and is secured. Remove the key before riding.

### Electrical

- Look over electrical cable connectors to make sure they are fully seated and free from debris or moisture.
- Check cables and cable housing for obvious signs of damage.
- Ensure cables are secured away from moving parts.
- Ensure headlight and taillight are functioning, adjusted properly, and unobstructed.

# <u>PARTS MAINTENANCE</u>

Riding your bike when any component's useful life is surpassed can cause that component to fail, resulting in loss of control, serious injury, or death. Pay attention to signs of wear such as cracks, scratches, and operational changes that could indicate a component needs replacing. Pay close attention to brake pads and change before they wear comletely out. Perform regular maintenance according to "Recommended service intervals" below. If you're not sure you have the experience, skills, and tools to perform safety checks and regular maintenance, consult a local certified, reputable bike mechanic for help.

### SERVICE OVERVIEW

Regular maintenance of any bike is key to ensuring the best possible performance and reducing wear and tear on systems. Ideal service intervals vary depending on use conditions. We generally recommend inspections, service, and necessary replacements be performed at the time and distance intervals described below, but you should have your bike serviced more frequently if you ride agaressively, with heavy payloads, or in harsh conditions. Have your bike inspected immediately if you notice problems or your bike has been involved in a fall or other accident.

### AFTER A CRASH

If you have an accident with your ebike, have your bike inspected by a certified, reputable bike mechanic to help identify any damage (visible or internal/not readily apparent), that might make your bike unsafe, and lead to serious injury or death. Be particularly cautious about using a battery that has experienced a significant impact from a fall or crash; a damaged battery may not show external signs of damage but can be a fire hazard.

### SERVICE INTERVALS

### WEEKLY, 160-320 KM (100-200 MILES)

- Inspect Check hardware for any loose fasterners •
- Check drivetrain for proper alignment and tension of the belt ٠ (see belt tensioning page..)
- Check wheel trueness and spoke tension, and check for quiet wheel operation (without spoke noise).
- Check frame for any damage. •
- Service Clean frame by wiping frame down with damp cloth. ٠
- Check brake pad thickness to ensure pads don't need to be • replaced
- Check tire pressure and adjust to within desired range 12-20 PSI

### MONTHLY, 400-1200 KM (250-750 MILES)

- Inspect Check brake pad wear and alignment
- Check brake levers don't need more than one "squeeze" to actuate the brakes and have a mechanic "bleed" the brake system should you need it
- Check belt tension and adjust rear wheel for proper tension if needed (see "Adjust the Belt Drive" - Page 24)
- Check wheel trueness and spoke tension, and check for gui-• et wheel operation (without spoke or brake noise).
- Tension spokes and true wheels if any loose spokes are found.
- Check crankset and pedal torque.

### SERVICE INTERVALS

#### EVERY 6 MONTHS, 1200-2000 KM (750-1250 MILES)

- Grease bottom bracket.
- Replace Replace brake pads.
- Replace tires if necessary.
- Re-align and re-tension the belt
- Bleed the hydrualic brake system
- Check fork air pressure and adjust if needed (see fork adjustment next section)

### FORK ADJUSTMENT

The front suspension on your Lyric Graffiti is and air adjustable fork with adjustable rebound. Proper adjustment of the fork along with the right tire pressure will greatly improve the comfort of your ride. On the top of your fork, below the handlebards you will see the adjustment caps for your fork. One side is for adjusting the air in your fork. This side determines the stiffness of the fork based on the amount of air pressure in the fork. Higher air pressure creates a stiffer fork and lower air pressure softens the fork. Using a setting that is too soft for your weight can cause the fork to bottom out and become ineffective. To adjust the air side of your fork you will need a shock adjustment pump. You may also choose to have the fork adjusted by a local mechanic should you wish not to purchase this tool or are not comfortable making this adjustment



### **Adjust Air Suspension Setting**

1.	Unscrew the protective cap that says "air"	LBS PSI
2.	Attach a shock suspension pump tool to	240 100-110
	the air valve	220 75-95
З.	Add or Reduce air based on the chart to	200 72-87
	the left (Rider weight in LBS and shock	170 68-80
	pressure in PSI)	140 64-75
4.	Ride and adjust as needed. If the shock is	120 55-72
	too soft add air, if it is too stiff reduce air	100 47-59

### **Adjust Spring Rebound**

- 1. After adjusting the air, turn the cap that say "ABS" all the way clockwise until it stops. This will lock the suspension.
- 2. Turn one full rotation clockwise and test ride. If the suspension rebounds too quickly, keep turning counterclockwise until you reach the desired rebound speed.

### ADJUST THE BELT DRIVE

Your Lyric Graffiti has an innovative carbon belt drive system by Veer Cycle. Belt drives last 4-5 times longer than a chain under normal working conditions, on your Lyric Graffiti the supplied belt drive is expected to have lighter use and will last several years before it needs to be replaced. Your belt drive requires no lubrication, no ongoing maintenance, and can be easily cleaned with water and a soft brush.

Out of the factory, we have properly algined the front and rear cogs to ensure proper belt function. Please ensure not to remove and reinstall the front or rear cog without noting the correct alignment as the belt will not function properly as the tolerance is +/- 1mm.

When removing and reinstalling the rear wheel and during monthly service intervals it is important to ensure the correct alignment of the rear cog as well as the correct belt tension to ensure the belt doesn't slip while operating the pedals.

### **Adjust Belt Tension**

Your belt needs to have appropriate tension to ensure that it doesn't slip during operation. However, the cog design has an optimized tooth profile so high tension is not required.

- 1. With the rear bolts losened on the rear wheel pull the rear wheel towards the rear of the bike
- 2. While holding rear wheen tension have a partner tighten the rear bolts to hold this tension
- 3. You should be able to pluck your belt and hear a low vibration vibration. Tension does not have to be excessive

### **Adjust Belt Alignment**

Your belt needs to have appropriate alignment with the rear cog. This is an important step along with the correct tension to ensure that the belt doesn't drift off the rear cog when operating the pedals. When the rear wheel is aligned straight the rear cogs teeth will all be aligned in the same line as the belt.

- 1. With the rear bolts losened on the rear wheel ensure the belt is on both the front and rear cogs
- 2. Pull the rear wheel towards the rear of the bike to put the belt under tension.
- 3. Look down the outside of the belt and cog (portion facing outwards) and align the edge of the belt to the edge of the rear cog teeth.
- 4. While holding rear wheen tension have a partner tighten the rear bolts to hold this tension and alignment





Correct Alignment

**Incorrect Alignment** 

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### **BRAKES OVERVIEW**

The hyrdraulic brakes on your Lyric Graffiti are a power 4-piston sysetm that are made up of several parts.

- Disc Botors: 203mm front rotors and 180mm rear rotors ٠
- Disc Calipers: Front and Rear 4-Piston Calipers .
- Brake Levers: Attached to your handlebars including electric . signal wires and hydraulic oil reservoirs.
- Brake Cables: Hydrualic cables filled with hydrualic fluid •
- Brake Pads: Resin or Metallic Brake pads instaled inside ٠ brake calipers

Making adjustments to your braking system should only be undertaken if you feel comfortable with regular bike maintenance. We recommend utilizing the services of a qualified bike mechanic to make any adjustments to the brake alignment, bleeding the brake system, and replacing pads and rotors.

### **REPLACEMENT BRAKE PADS**

Your brake pads will wear out under normal use and due to the higher speed and weight of ebikes brake pads wear out more guickly than regular bikes. When your brake pads need to be replaced you can choose the following options:

- Logan Pads: Available through Lyric Cycles
- Shimano D02S: Metal pads Strong and last long but pro-• duce more noise
- Shimano D03S: Resin Pads Less Durable but produce less ٠ noise

### WHEELS & TIRES OVERVIEW

With the important function of keeping you rolling smoothly, it's important to take car of your wheels and tires to ensure you have a good ride each time out. Both wheels and tires require maintenace and while this maintenance is best left to a certified bike mechanic, it is good to know what to be watching for to know whel it is time to take your bike in for maintenance.

### WHEEL MAINTENANCE

The spokes on your wheels can come loose, become damaged. and change the shape of your wheel rim over time. Before your ride it is a good idea to spin the wheels and watch to see if the wheels spin true and straight. While some slight inconsistency can be acceptable, it is best to use this early indication to check for damage to the rim or loose spokes that may be causing the wheel to no longer be true. Note that incorrect installment of the rear wheel can cause a wheel not to look true as well so it is good to check this first as well.

Tightenening spokes and truing a wheel is a maintenance task that we recommend only be completed by a bicycle mechanic. Getting this done correctly is important to keeping your rims in good working order.

### **REPLACING TIRES**

The tires on your Lyric Graffiti are a 20" bicycle fat tire. You can choose to use tires from 3" to 4.25" wide. Please do not use motorcvcle tires on your Lyric Graffiti. The rimes are not designed to take the additional weight of these tires and can damage the rims.

PART	SIZE SPECIFICATIONS
Brake Pads	Logan Resin Pads Shimano D02S - Metallic Pads Shimano D03S - Resin Pads Swiss Stop Resin Pads (available on Lyric Cycles Online Store)
Brake Rotors	203mm x 1.8mm Front 180mm x 1.8mm Rear
Brake Fluid	Standard Hrydrualic Fluid (Shimano, Tektro)
Tires	20" x 3.0-4.25" Bicycle Tires
Inner Tubes	20x4" (OEM) 20x3" if using this tire width
Pedals	All standard pedals with threaded attachment
Handlebar	22mm at the stem
Grips	Standard Lock-on mountain bike, city bike, or bmx style grips
Seat	Custom Designed Seat (Contact Lyric Cycles for Custom Options)
Batteries	52V 17.5ah (Please contact Lyric Cycles for replacement, BMS specifications are important)
Drivetrain	Veer cogs and belt (can be changed to 7-speed drivetrain, not offered through Lyric Cycles but can be found aftermarket though will not be covered under warranty)

### **GRAFFITI MEASUREMENTS**

(1)



ITEM	DESCRIPTION	MEASUREMENT	
1	Handlebar Width	29"	737mm
2	Overall Height	43"	1090mm
3	Overall Length	69.5"	1740mm
4	Wheelbase	50"	1270mm
5	Standover Height	30"	760mm

ITEM	DESCRIPTION	MEASUREMENT	
6	Seat Height	31.5"	800mm
7	Bottom Bracket Height	10.5"	270mm
8	Seat Length	25.5"	650mm
9	Rear Rack Length	6.75"	170mm



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