

MANTIS X

ELECTRIC ALL-TERRAIN BIKE



RAWR MANTIS

USER'S MANUAL



This manual should be considered an integral part of the all-terrain electric motorcycle and should be passed on to the next owner when resold.

This publication includes the latest production information available at the time of printing.

Rawrr reserves the right to make changes at any time without notice and without any obligation.

Rawrr retains the ultimate interpretation right of this manual. No part of this publication may be copied, translated, duplicated, or transferred without the written permission of Rawrr.

The all-terrain electric motorcycle depicted in this manual may not match your actual all-terrain electric motorcycle. Please ensure your safety and enjoyment of the ride.

Please ensure your safety and enjoyment of the ride.

- Carefully read this manual.
- Please follow all the advice and procedures contained in the manual.
- Pay close attention to the safety information and tips included in this manual.

To protect your property, we strongly recommend maintaining your vehicle in good condition.

Additionally, please adhere to the operating instructions and always perform the pre-ride checks and other routine inspections outlined in this manual.

Your Rawrr dealer is the most knowledgeable about your all-terrain electric motorcycle. If you have any questions or concerns about the vehicle, manuals, and related policies, we recommend contacting Rawrr or an authorized dealer. We are not responsible for any unofficial statements or opinions regarding off-road vehicles, manuals, and related policies.

You can also visit our website www.riderawrr.com for more information. Enjoy your off-road electric journey!

Your safety, as well as the safety of others, is paramount. Safe operation of this all-terrain electric motorcycle is an important responsibility.

To ensure your and others safety, we have provided operational procedures and other safety label information in this manual that may cause harm to you or others.

Please understand that it is not practical or feasible to inform or warn you of dangers when operating or maintaining the all-terrain electric motorcycle. You must exercise your own good judgment.

You will find important safety information in various forms, including:

- Safety labels on the all-terrain electric motorcycle.
- Prior to safety messages, there will be a safety alert.

This all-terrain electric motorcycle is strictly prohibited from being driven in unauthorized areas.

California Proposition 65 Warning

WARNING: Operating, servicing, and maintaining a passenger dirt bike (All-Terrain Bike) or off-highway motor dirt bike (All-Terrain Bike) can expose you to chemicals, including engine exhaust, carbon monoxide, phosphates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust gases, do not idle the engine except as necessary, service your dirt bike (All-Terrain Bike) in a well-ventilated area and wear gloves or wash your hands frequently when servicing your dirt bike (All-Terrain Bike). For more information, go to www.P65Warnings.ca.gov/passenger-dirtbike

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1 、 Safety Notice

For your safety and the safety of others, please read this chapter carefully!

Before Riding:

- Do not assemble, disassemble, or package this electric dirt bike alone. Teamwork is necessary.
- Please use the electric dirt bike in accordance with local regulations.
- You must be familiar with local laws and comply with them when using the electric dirt bike.
- It is recommended to carry this manual and other purchase documents when using the electric dirt bike.
- Do not overload the electric dirt bike: Avoid exceeding the weight limit of this electric dirt bike. This dirt bike is not allowed to be used by any passengers without driving training other than the owner.
- Ensure that you have received training on the electric dirt bike and understand all its control functions.
- Understand the capabilities and limitations of the electric dirt bike. Familiarize yourself with the braking and motor systems to ensure good control. Practice using the brakes in a clear and unobstructed area until you can smoothly control the electric dirt bike. The off-road mode of this electric dirt bike is very powerful, and without proper knowledge and training, riders may be seriously injured.
- Avoid riding in a sliding manner, as this may result in loss of control or tire damage.
- It is not recommended to modify this electric dirt bike in any way, as modifications may result in property damage and injury.
- This electric dirt bike is not a toy for children.
- Be sure to use Rawrr's dedicated lithium battery charger, with an AC input voltage of 100-240V. Before charging, check the charging port and charger for moisture or water. Do not use electricity during charging, and keep away from special environments such as flammable and explosive substances, high temperatures, and high dust levels. After charging, please disconnect the power supply promptly.

●Charging below -10°C is prohibited, as it may damage the battery pack. Please wait for the battery temperature to rise before charging.

A safety check must be performed every time before riding.

Checking List Before Riding:

Loose Parts

There should be no loose or damaged parts emitting clanking or rattling noises. If assistance is needed, please contact an authorized dealer for inspection or call customer service.

Brakes

Check the brake function for normal operation. When you squeeze the lever, the brakes should provide positive braking action. When you press the brakes with the speed control open, the brake cut-off switch will stop the motor.

Tires

Regularly check tire pressure and wear, and inflate or replace tires as needed. Tire pressure should be 23-25 psi (160-170 kPa) for the front tire and 35 psi (240 kPa) for the rear tire, with normal tread patterns and no nails, stones, glass, or other foreign objects embedded.

Frame, Fork, and Handlebars

Check for cracks or broken connections. While frame breakage is rare, aggressive riders may collide with curbs or walls, causing frame damage, bending, or breakage. Develop the habit of regularly inspecting the product.

Other Components

Check if lights/reflectors are damaged or contaminated.

Check power circuits, lighting, etc., for normal operation to ensure power meets riding requirements.

Wheel spoke tightness: Keep in sync with the actual spoke tension of the vehicle. If there is looseness, tighten immediately.

Ensure smooth operation of the speed control handle with no sticking or rapid return. Chain: If the chain jams, it is recommended to clean out dirt and sand. Lubricate the chain surface and add chain lubricant; under normal circumstances, the displacement of the chain from the lowest to the highest position is 15-20mm.

Clean the moving parts of the front and rear shock free from dirt.

Safety Devices

Ensure you wear approved personal protective equipment and appropriate clothing, including:

#Helmet

Wear an approved helmet with eye protection and high visibility.

Warning: Failure to wear an approved helmet correctly increases the risk of serious injury or death in an accident.

#Gloves

Wear durable full-finger leather gloves.

#Elbow and Knee Guards

Soft elbow and knee guards covering the joints without restricting movement.

#Boots or Riding Shoes

Sturdy boots with slip-resistant soles and ankle protection.

#Jacket and Pants

Protective, highly visible long-sleeve jacket and durable riding pants (or protective suit).

#Additional Off-road Gear

Road clothing is also suitable for casual off-road riding. However, if you plan on any serious off-road riding, you will need more serious off-road gear. In addition to your helmet and eye protection, we also recommend off-road motorcycle boots and gloves, riding pants with knee and hip pads, jerseys with elbow pads, and chest/shoulder protectors. Avoid wearing loose or baggy clothing to prevent it from getting caught on any part of the vehicle. Do not allow others to ride your all-terrain electric dirt bike unless they have carefully read this manual and understand the characteristics, features, capacity, capabilities, and risks of this off-road bike. The safety of new riders is your responsibility. Assist new riders until they are fully capable of operating this all-terrain electric dirt bike. Ensure that other riders also wear approved personal protective equipment and appropriate clothing.

During Transportation:

This all-terrain electric dirt bike is heavy. Do not attempt to lift the bike alone during riding or maintenance to avoid any injury or damage to the bike.

It is advisable to always provide proper protection to both the bike and the carrier when moving and lifting the all-terrain electric dirt bike. When moving the all-terrain electric dirt bike, keep away from sharp and moving parts, including wheels, handlebars, gears, chains, foot pegs, and any other parts that may cause injury.

Securely fastening the all-terrain electric dirt bike during transportation can reduce the chances of injury and damage.

When Riding:

- Riding this all-terrain electric dirt bike on public streets, highways, or pedestrian areas is not recommended. Due to its heavy weight, it's important to anticipate road conditions in advance to avoid any personal or property damage.
- Accidents can happen regardless of location when riding this all-terrain electric dirt bike. Avoid exceeding speed limits that could pose danger and consider existing weather and terrain conditions to prevent accidents or injuries.
- Exercise caution and maintain low speeds in adverse weather and road conditions.
- Extreme weather conditions such as snow, storms, high winds, or riding in wet areas are not advisable for any reason on muddy, icy, or slippery roads.
- Braking distance may increase when riding on rainy, snowy, or wet roads. When water on the road exceeds 9 inches, it may affect the normal operation of the brakes.
- Keep both hands on the handlebars and both feet on the footpegs at all times. Be mindful of road conditions and surroundings.
- The use of mobile devices such as phones, cameras, headphones, earplugs, or any other electronic devices is strictly prohibited.
- Always prioritize the safety of other drivers and passengers.
- When approaching or passing intersections, highways, turns, driveways, etc., reduce speed and steer clear of pedestrians and vehicles.
- For long-distance high-speed riding, it is recommended to use the ECO mode and select appropriate gear to meet riding needs; prolonged use of sport mode may reduce battery life and affect range.
- If the bike exhibits any abnormal behavior during operation, stop immediately and investigate the cause of the alarm or malfunction: do not use the vehicle until the warning is cleared and the issue is resolved. Contact after-sales service for support as needed.

Warning: Riding under the influence of alcohol is illegal. Riding under the influence of alcohol or drugs will impair your judgment of road conditions and your ability to react to environmental changes. Riding under the influence of alcohol is strictly prohibited.

People who should not ride the all-terrain electric dirt bike include:

- Anyone under the influence of alcohol or drugs.
- Anyone with a medical condition that would put them at risk when engaging in vigorous physical activity.
- Individuals whose weight exceeds the specified limit (refer to specifications). The recommended maximum weight is 100 kilograms (220 pounds).
- Anyone who cannot balance a bicycle, motorcycle, or similar vehicle.
- Pregnant individuals.
- Anyone restricted by law from driving or riding a motorcycle.
- Individuals who are unable to engage in vigorous physical activity due to illness.
- Minors without supervision from an authorized adult.

If you are involved in a collision accident, prioritize personal safety. Take some time to assess the severity of injuries to yourself or others involved. If necessary, request emergency assistance.

Additionally, if others or off-road electric motorcycles (all-terrain) are involved in the accident, comply with applicable laws and regulations.

Lithium Battery

If you notice an unusual odor emanating from the lithium battery, immediately park the vehicle in a safe, open area, turn off the motor, and move away from the vehicle. Notify your dealer to arrange for professional inspection of your vehicle as soon as possible.

Racing

Regardless of how professional or trained the rider is, racing carries inherent safety risks.

Parking

When parking, ensure that the all-terrain electric motorcycle is parked on a sturdy, level, and safe surface. Conveniently, riders can quickly and safely mount or dismount the bike.

Parking Procedure:

1. Turn off the motor.
2. Lower the side stand.
3. Slowly tilt the all-terrain electric motorcycle to the left side until it securely supports the body.
4. Turn the handlebars completely in the same direction as the side frame.
5. Lock the bike and remove the key.

- If you must park on uneven or loose surfaces, seek a flat, secure parking spot to prevent the bike from moving or tipping over.
- Ensure that there are no flammable materials near hot components such as the battery, motor, and brakes.
- Avoid touching the motor, battery, brakes, and other components that may become excessively hot during riding.
- Confirm that the throttle are in the original position and remove the key from the bike to reduce the risk of theft or accidental start-up. We recommend using additional anti-theft devices as well.
- This all-terrain electric motorcycle is an electric bike with many electrical components. Avoid submerging parts and the bike in water. Additionally, avoid prolonged exposure of parts and components to water or rainwater.

When not Riding:

- When not riding the all-terrain electric dirt bike, it is essential to turn off the motor.
- Maintain your all-terrain electric dirt bike in a safe condition.
- It is important to ensure that your all-terrain electric dirt bike is stored properly and in safe riding conditions.
- Thoroughly inspect the all-terrain electric dirt bike before each ride to prevent malfunctions when the vehicle is far from the camp during off-road excursions.

- When not in use, turn off the all-terrain electric dirt bike to prevent accidental power loss that could harm you, others, or damage the vehicle.
- Keep unsupervised minors away from the all-terrain electric dirt bike to reduce potential safety risks.
- When storing the all-terrain electric dirt bike and batteries, keep wires away from water, open flames, and heat sources to effectively reduce the risk of disasters. Extreme heat or cold conditions can lead to damage to the vehicle, causing accidents during rides.
- Do not immerse the battery in water (doing so will damage the battery or compromise its waterproof properties); if the battery is submerged in water, do not attempt to recharge it as it may cause the battery to overheat, potentially leading to fire, combustion, and explosion hazards.
- Battery Temperature: The operating temperature of the bike is between -10°C and 45°C. It is recommended to store lithium batteries at temperatures between 0°C and 40°C. Do not store the battery or operate the vehicle outside this safe range.
- Battery Maintenance: Within 60 days from the date of receiving the vehicle, if the vehicle is not ridden, it is recommended to charge the battery to 70-80%.
- Cleaning of the all-terrain electric dirt bike: Please remove the battery before cleaning the vehicle. Use only low water pressure and never use a hydraulic spray gun to clean the vehicle, as this may damage the electrical components due to water ingress.
- Children should not operate or play with any parts or tools of this electric dirt bike. Children or any unauthorized adults are not allowed to perform cleaning or maintenance work on the vehicle.

Attachments and Modifications

The addition of non-Rawrr designed or unauthorized accessories is not encouraged. We do not recommend any personal or unauthorized modifications to your all-terrain electric dirt bike. Doing so may alter the original design and make the vehicle unsafe to use.

Before using attachments, carefully inspect them to ensure they do not reduce ground clearance or turning clearance, limit suspension travel, steering range, or control operations, or obstruct lights or mirrors. Attachments in the handlebar or fork area can cause instability due to improper weight distribution or aerodynamic changes. If attachments are added to the handlebar or fork area, they must be as lightweight as possible and kept to a minimum.

Due to aerodynamic effects, heavy attachments can significantly impact the stability of the all-terrain electric dirt bike. Certain attachments can affect the rider's riding position, and this improper position and limited movement can affect control ability, leading to collisions where the rider may be seriously injured or killed.

Modifying your all-terrain electric dirt bike on your own may also void your warranty and render your bike inoperable. Before installing any accessories on your vehicle, ensure that any modifications are safe and legal.



Warning

Never carry items that could damage your bike's performance, such as towing a trailer with your vehicle or adding a sidecar to your vehicle. Never attempt to modify the vehicle to accommodate additional passengers. This all-terrain electric dirt bike is not designed for carpooling, transporting goods, or delivery purposes.

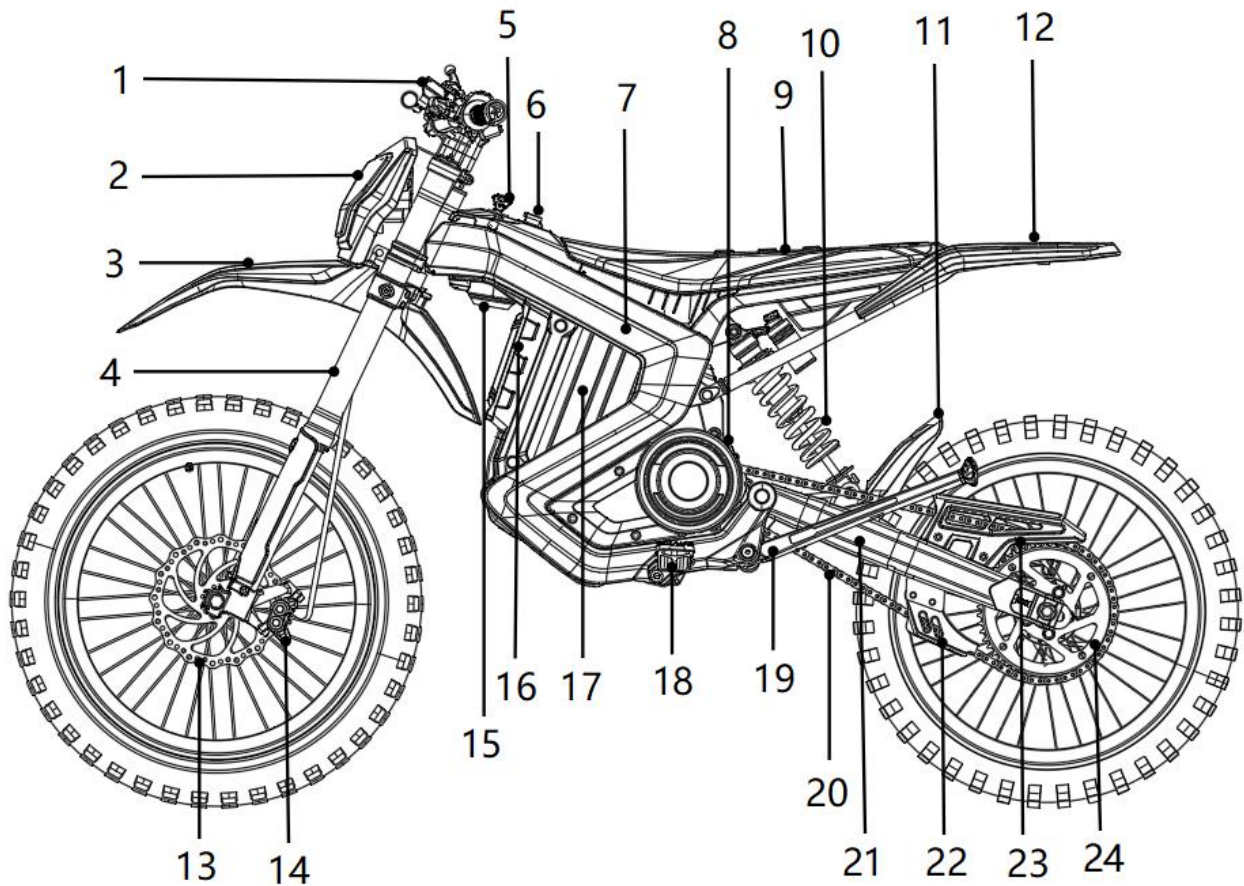
**Warning**

Driving in rainy conditions reduces friction between tires and the road, decreasing braking performance and visibility, significantly increasing risks.

**Special Warning:**

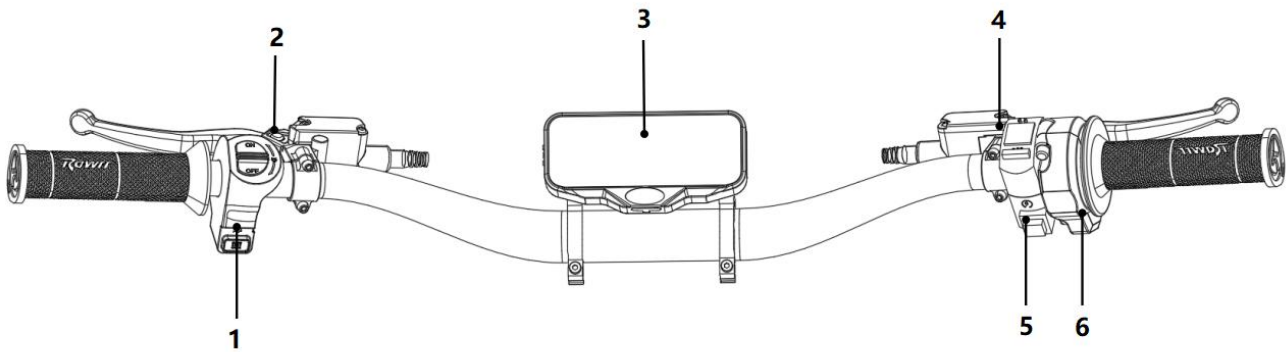
If the bike is damaged by external force and begins to smoke or catch fire, use a dry chemical fire extinguisher or sand to extinguish it. Lithium-ion batteries may contain various chemicals that can pose risks to humans and the environment due to aging or external damage. It is strongly advised to dispose of them. Within 36 months of purchase and use, please submit them to a professional company for special handling. The manufacturer is not responsible for any damage caused by non-compliance with the instructions, unauthorized modifications, or force majeure events.

2 、 Functional Diagram



1-Dashboard	2-Headlight	3-Front Fender	4-Front Shock	5-Key	6-Charging Portal
7-Frame	8-Motor	9-Seat	10-Rear Shock	11-Wheel Fender	12-Rear Fender
13-Rotor	14-Brake Caliper	15-Horn	16-Controller	17-Battery	18-Foot Peg
19-Kickstand	20-Chain	21-Rear Fork	22-Rear Chain Guide	23-Rear Chain Cover	24-Rear Sprocket

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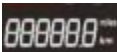


1-Left Assembly Switch 2-Rear Brake 3-Dash 4-Front Brake 5-Right Assembly Switch
6-Right Throttle

Left Switches				
	High Beam and Low Beam Switch (Requires Front Headlight Activation)	Horn Switch		
Right Switches				
	One-touch Engine Off Switch	ECO, Sport, Race Mode Switch	Throttle	



No	Function	Display Symbol	Note
1	Speed		Current speed display while riding
2	ODO		Total mileage ODO display, switchable between metric and imperial
3	Single Trip		Resets each time power is turned on, calculating individual trip distance
4	Gear Display		Displays ECO/SPORT/Race mode as per actual
5	Operation Status		Indicator of operation
6	Under Voltage Indicator		Flashes when battery is under voltage
7	High Beam Indicator		High beam light indicator on
8	Turn Signal Indicator		Indicates left and right turn signals

9	Motor Fault		Fault display for motor
10	Battery Percentage		0%~100% - Displays current battery level
13	Fault Code Display		Displays fault codes (For code details, refer to controller specifications)

Recommended Torque for Installation of Key Components

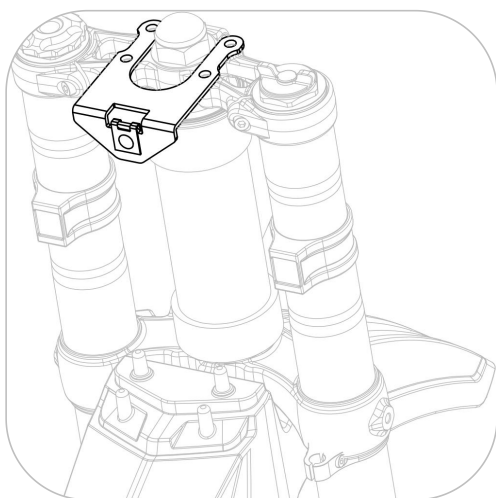
No	Installation Positions	Recommended Torque
1	Front Wheel Axle Tightening	25-30N.m
2	Function Switch Tightening	3-5N.m
3	Rear Sprocket Tightening	18-20N.m
4	Front and Rear Brake Disc Tightening	10-12N.m
5	Front and Rear Brake Caliper Tightening	12-15N.m
6	Rear Chain Guide Tightening	12-15N.m
7	Front Chain Guide Tightening	3-5N.m
8	Footrest Bracket Tightening	30-35N.m
9	Motor Fixing	20-25N.m
10	Rear Fork Tightening	30-35N.m
11	Rear Shock Tightening	22-28N.m
12	Rear Tail Frame Tightening	15-20N.m
13	Rear Wheel Axle Tightening	60-70N.m
14	Handlebar Tightening	7-9N.m
15	Steering Column Compression Nut Tightening	3-5N.m
16	Steering Column Compression Nut Compression	25-30N.m

3 、 Quick Installation Guide

Do not assemble, disassemble, or package the all-terrain electric dirt bike individually. Teamwork is required for these tasks.

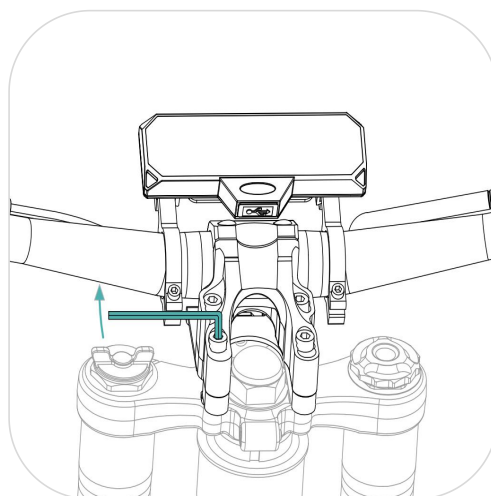
Install handlebar

1. Place the front headlight bracket on the upper connecting plate, aligning it with the four 4-hole positions.



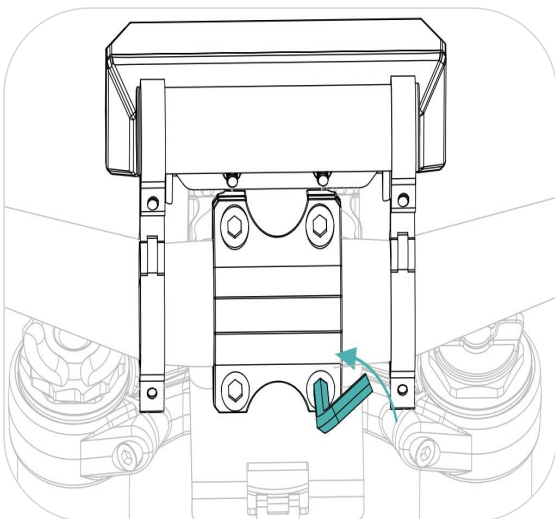
2. Place the riser block and handlebars on the front headlight bracket, aligning the holes, and use a 5# hex wrench to tighten the four screws.

Note: Be sure to add washers.



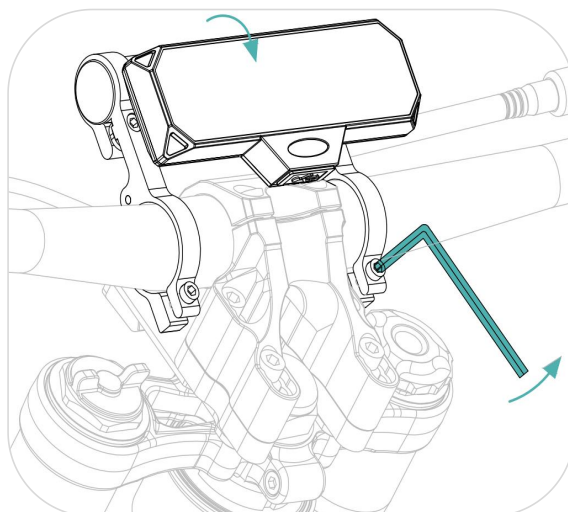
Handlebar Adjustment

1. Use a 5# hex wrench to loosen the four screws and adjust the angle of dash. **Note:** Do not lose the washers.



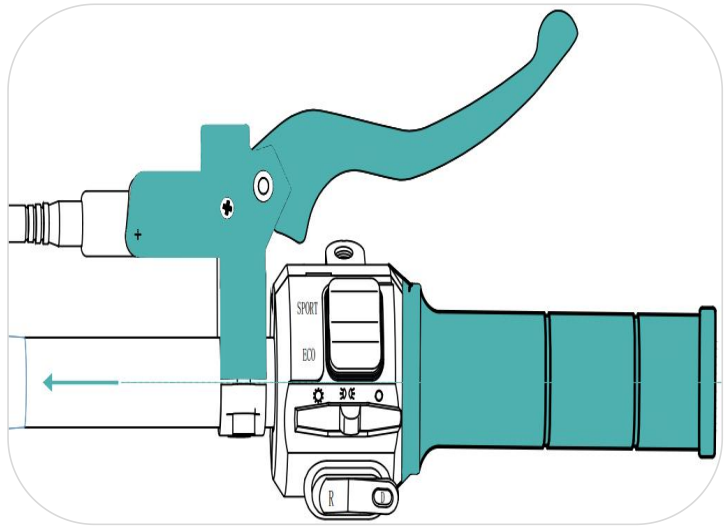
Dash Adjustment

1. Use a 3# hex wrench to loosen the two screws and rotate the dash to the desired angle.

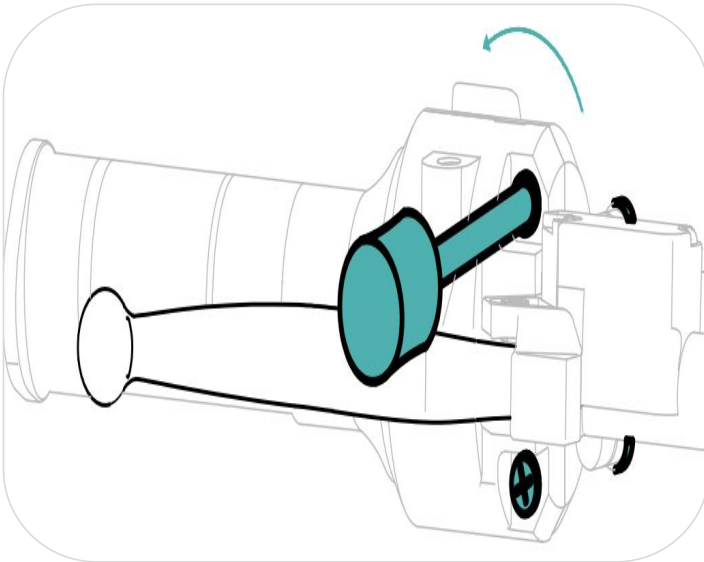


Brake Adjusement

1. As shown in the picture, adjust the front brake lever to a downward angle of 10° - 15° for a comfortable grip distance. Use a 4# hex wrench to secure the brake lever.

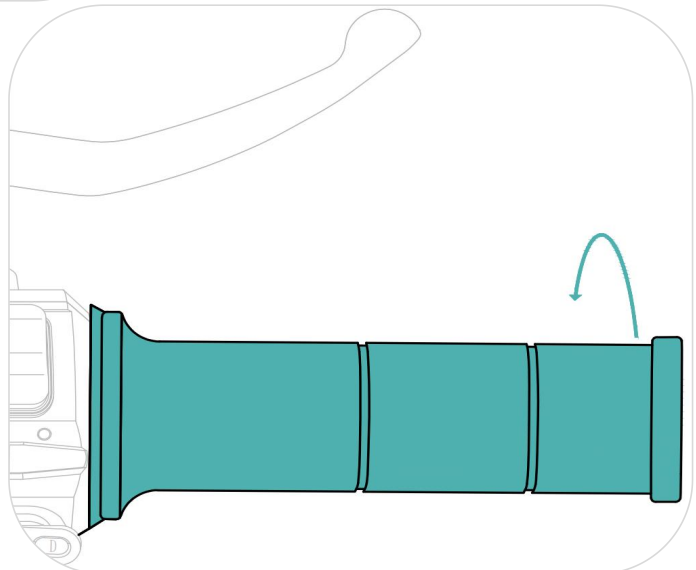


2. As shown in the picture, adjust the throttle to a upward or downward angle of 5° for a comfortable grip distance. Use a 4# hex wrench to secure it.



3. Rotate the throttle to ensure it returns to its normal position and can accelerate inward.

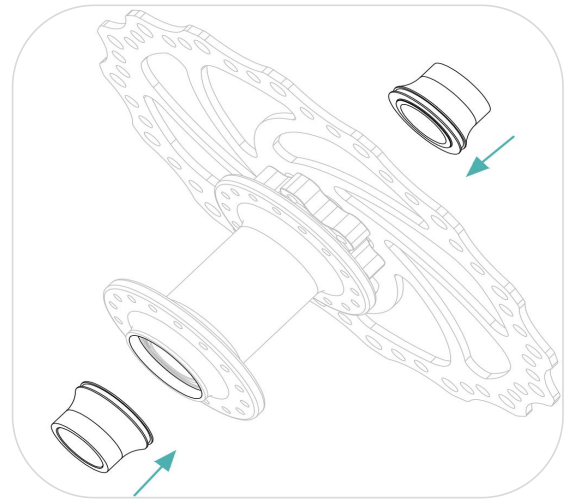
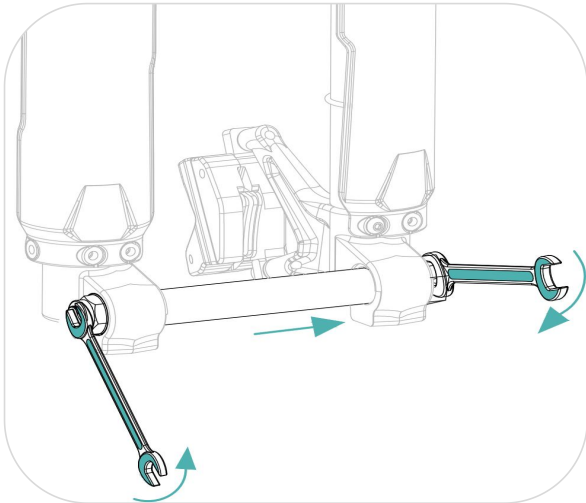
Note: Ensure smooth inward acceleration and return of the throttle. Please check and adjust the throttle when stocked.



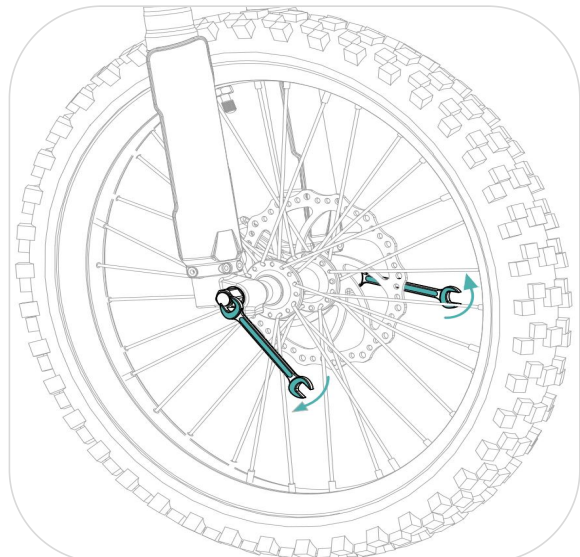
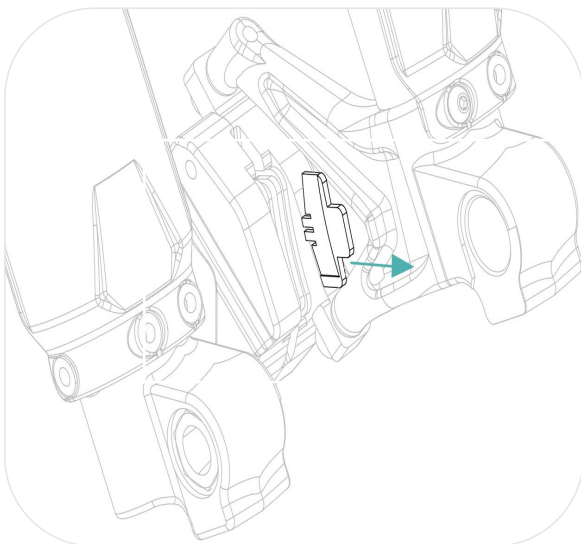
Install Front Wheel

1. Use a wrench to loosen the front wheel locking nut and remove the axle and nut. 2 . Install the front axle spacers on both sides.

Note: Do not crush the seals.



3 . Remove the brake caliper pads, align the front wheel with the front fork mounting position, insert the brake disc into the brake caliper, and use an 8# hex wrench to secure the front axle.



Note:

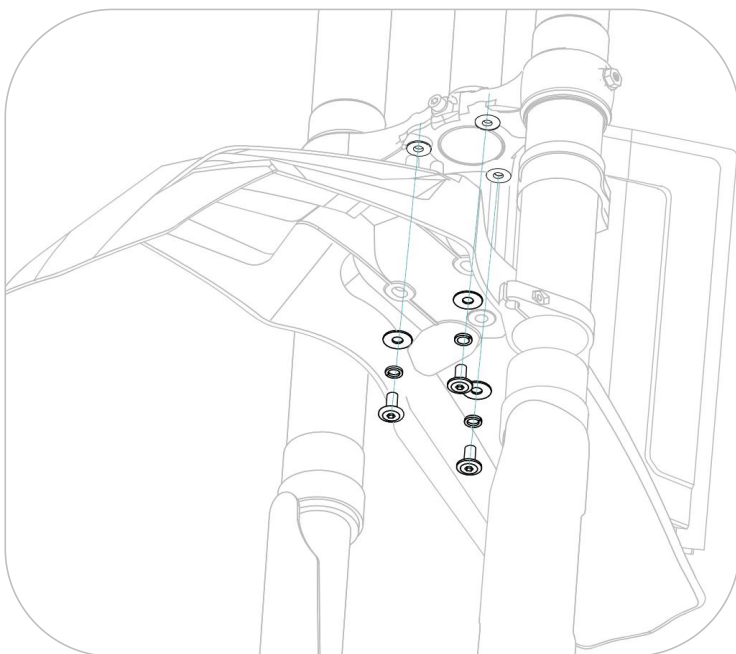
1. After removing the caliper pads, do not squeeze the front brake lever, as squeezing it will cause the brake caliper to clamp, making it difficult to insert the disc brake.

2. When installing the front wheel, pay attention to the installation of the disc brake and caliper. After installation, ensure that the front wheel rotates smoothly without any strange noises.

3. When installing the disc brake rotor, apply anaerobic adhesive to the threaded portion (heat the threaded portion when disassembling).

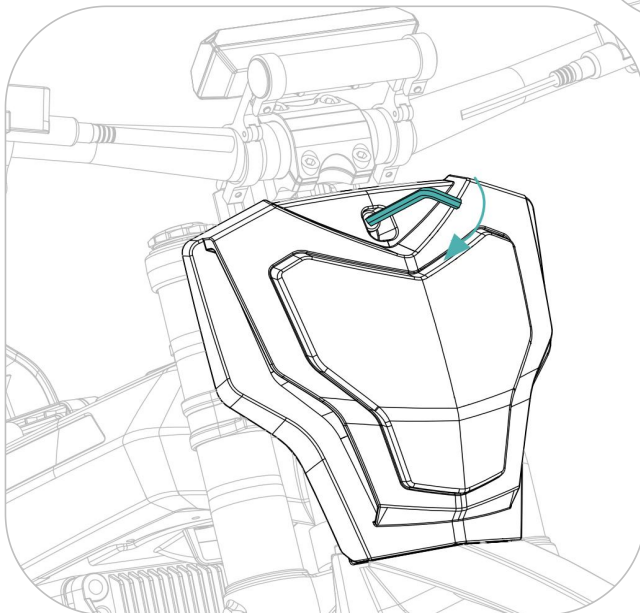
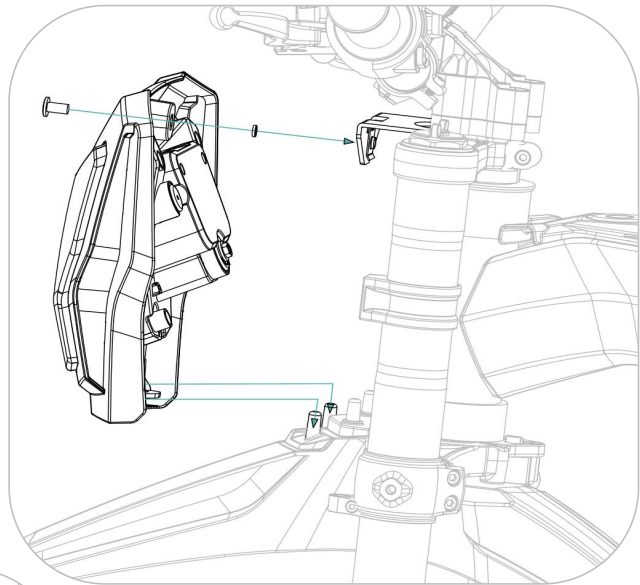
Install Front Fender

Using a 5# hex wrench, secure the front mudguard to the lower connecting plate with three screws, including flat washers and spring washers.

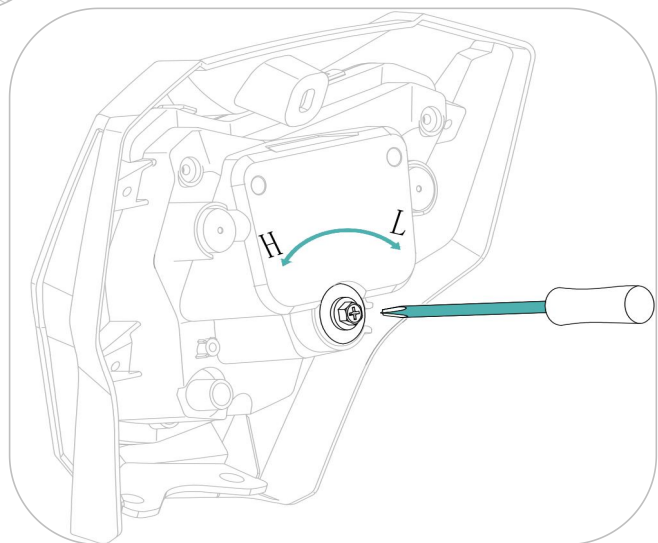


Install Headlight

1. Place the front headlight on the positioning pin of the front mudguard and add adjustment shims between the headlight and the bracket.



2. Adjust the position as needed, then use a 5# hex wrench to tighten the central securing bolt.



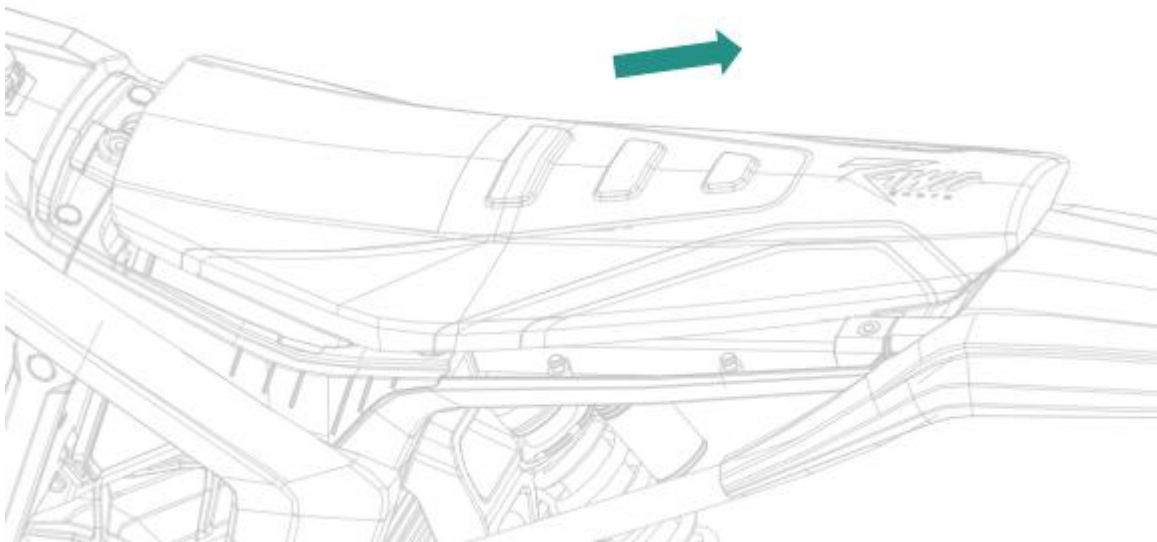
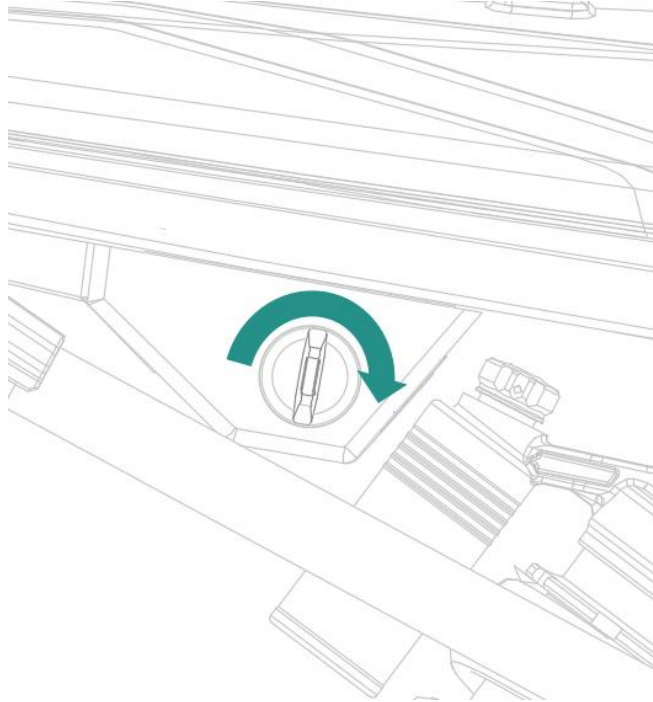
Adjust Headlight

Use a Phillips screwdriver to rotate the adjustment screws left or right to adjust the height of the headlight.

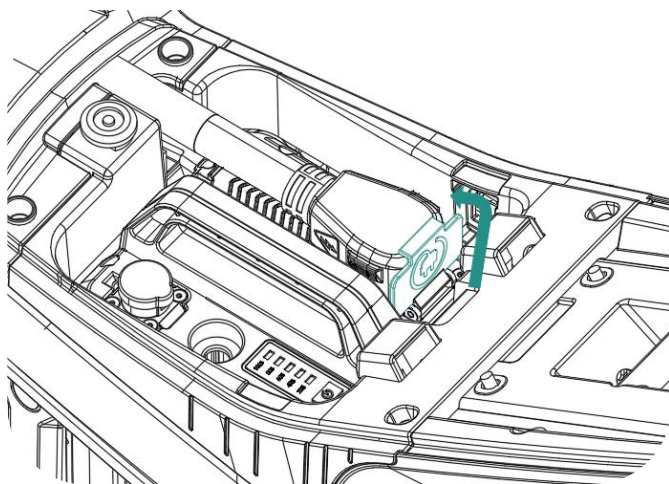
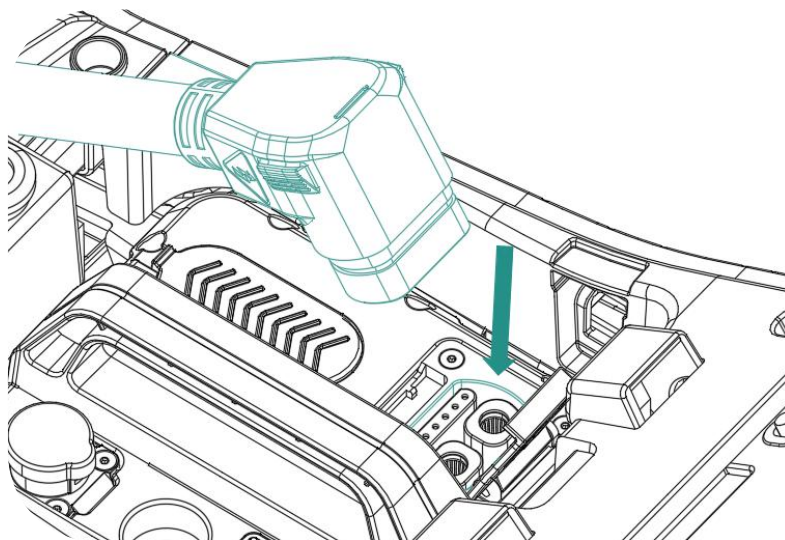
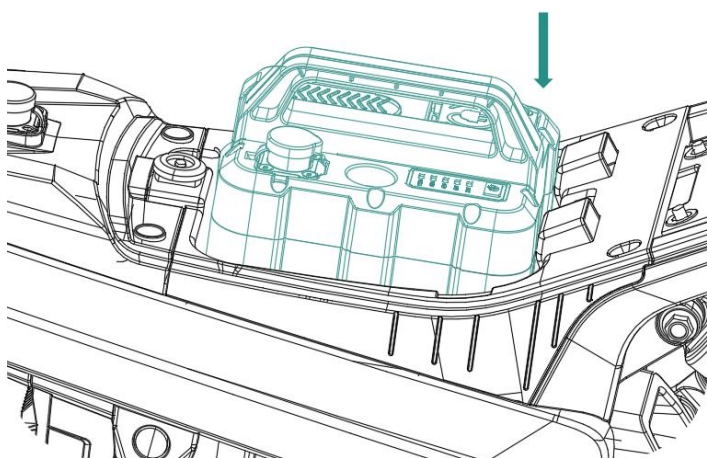
Note: Turn clockwise to lower the angle of the light beam. Turn counterclockwise to raise the angle of the light beam.

Install Battery

1. Insert the key into the seat lock, and turn it to open the seat.



2. Position the battery charging port towards the right side of the frame, place it into the battery compartment, and install the discharge plug (ensure that the ignition switch is in the off position). Close the seat.



4 、 Pre-Ride Preparation

Before riding, please ensure that you have carefully read all items in Chapter P01 (Safety Instructions) of this manual, focusing on the following:

Check Front and Rear Tires:

- 1.Ensure the tires are in good condition without any abnormalities.
- 2.Normal tire pressure is 200~220Kpa. Insufficient tire pressure may lead to abnormal wear, steering issues, low speed, and shorter braking distance. Excessive tire pressure can cause localized abnormal tire wear, reduced tire grip, decreased riding comfort, and even tire bursts, posing safety hazards.

Inspect LCD Display, Horn, and Brakes:

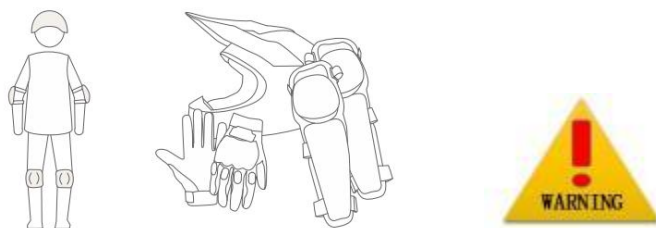
1. Check if all parts of the instrument function display normally.
2. Check if the horn is functioning properly.
3. Grip the front and rear brake levers separately to check if the front and rear brakes are functioning properly and if the front and rear wheels are working normally.

Check Handlebars:

The handlebars should be tightened, without any sway, flexible, without interference, and without strange noises.

Shock Adjustment:

Shock Adjustment: Please adjust the front and rear shocks according to your specific riding requirements.



Warning: Please ensure to wear a helmet and other protective gear. For your safety, choose a full-face off-road helmet and off-road protective equipment.

These images are for reference only; please take comprehensive safety precautions.

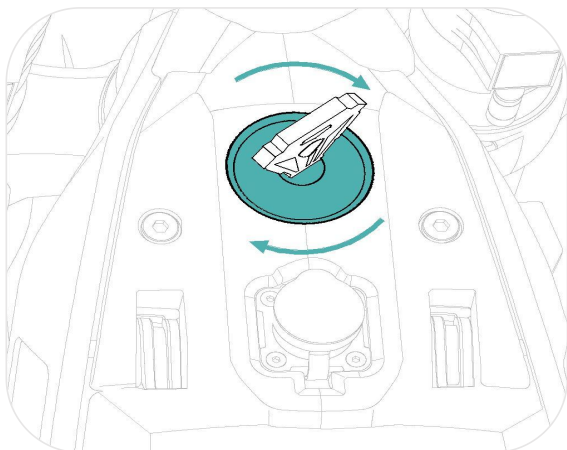
Do not allow anyone unfamiliar with this all-terrain electric dirt bike to ride it.

Riding with one hand or engaging in extreme maneuvers while under the influence of alcohol or inattentiveness is extremely dangerous.

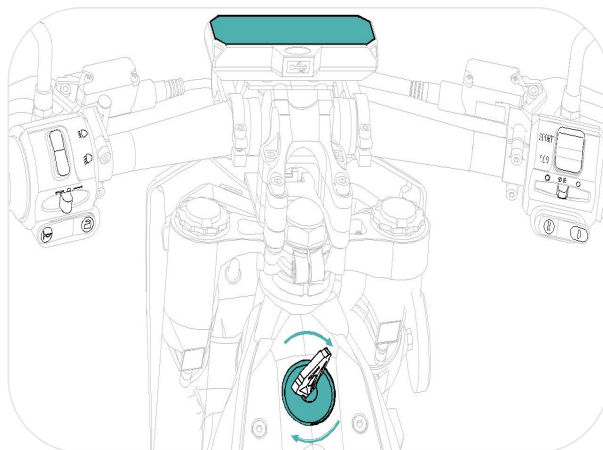
5 、 Learn to Ride

To Start

1. Insert the key into the electric lock hole and rotate it clockwise to provide power.

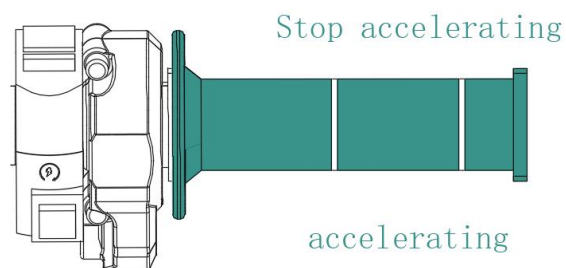
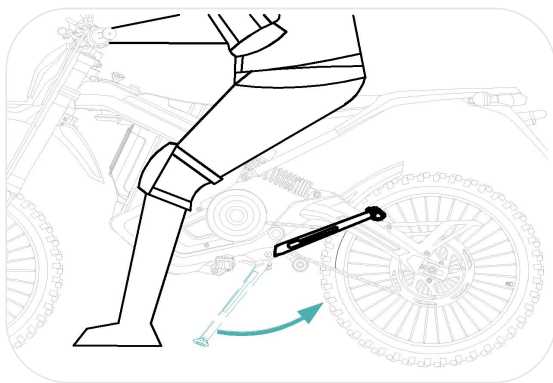


2. Check if the switches, instrument panel, horn, front and rear brakes are working properly.



3. Before starting the vehicle: Sit securely on the bike, and retract the side stand.

4 Slowly rotate the speed control handle inward to accelerate, and outward to stop accelerating.



Warning:

Drivers must be familiar with using the ECO mode before switching to the Sport mode.
Acceleration must be smooth and even.



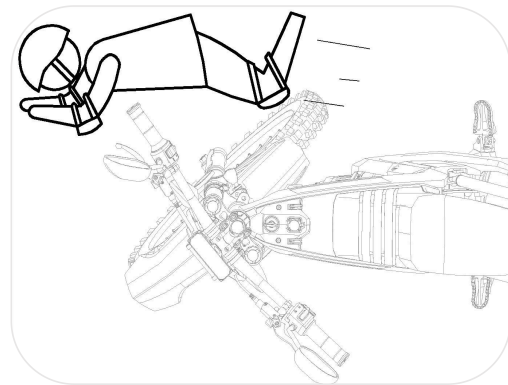
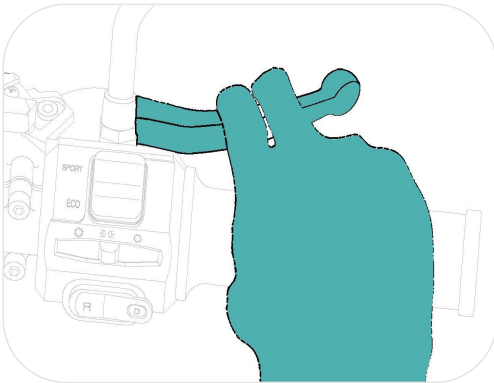
Warning: Please operate the brake lever according to the actual situation and gradually increase the force.

To prevent wheel lock and sliding, which may cause injury, do not suddenly grab it.

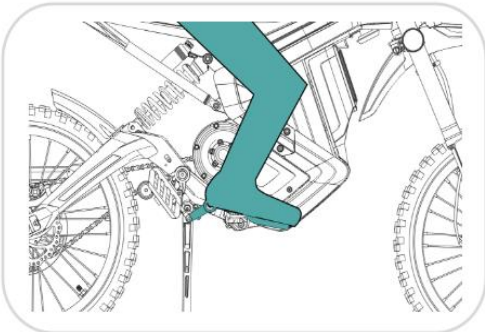
Try to anticipate and avoid sudden braking, hard steering, and other maneuvers that may lead to skidding and falling.

The situation is particularly dangerous when the road is slippery in the rain.

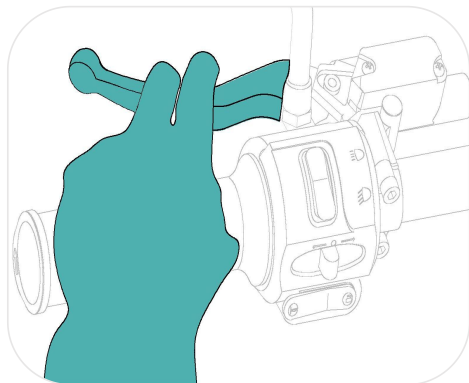
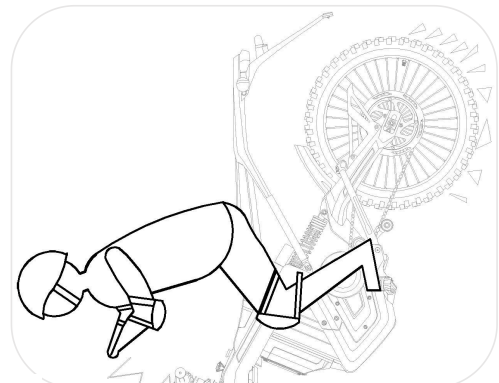
Squeezing the front brake suddenly while riding may lead to a flip fall.



Squeezing the rear brake abruptly with the right foot while riding may lead to a side fall. (For European versions, squeezing the brake suddenly with the left hand)



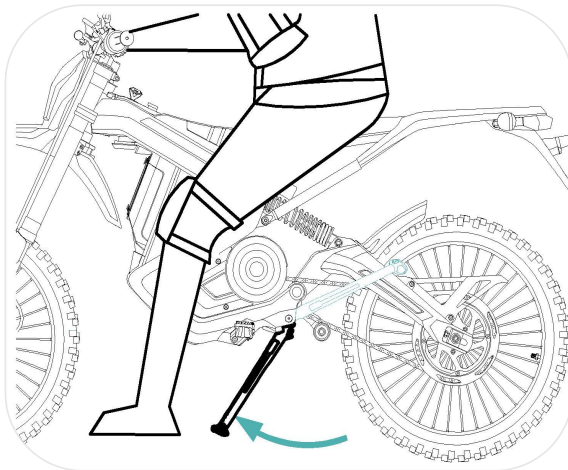
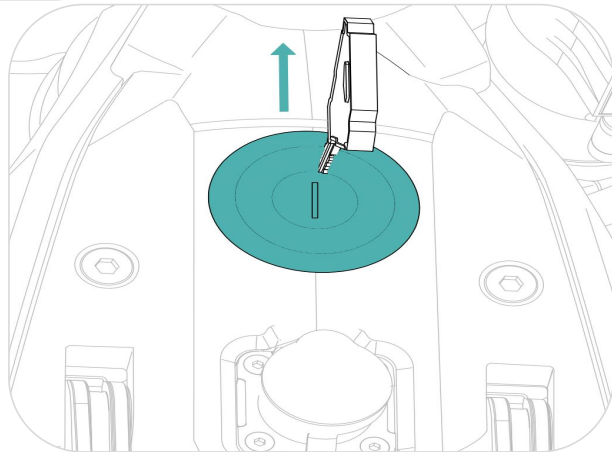
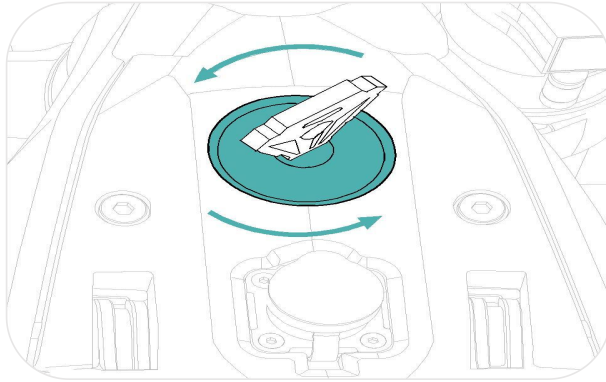
American version DOT



European version DOT

To Park

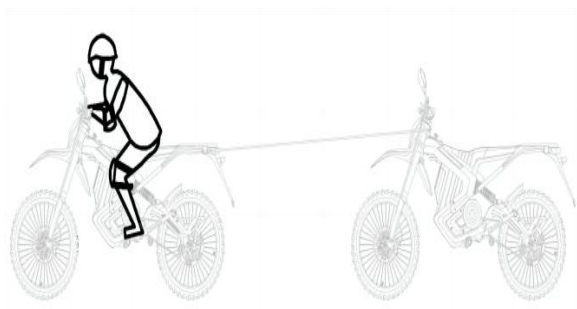
Pay attention to the road conditions and slow down as you approach your parking spot. Once the bike is stable, turn off the ignition switch, remove the key, lower the side stand, and secure the bike.



Warning: Before parking (leaving the bike), please deploy the side stand, engage the P gear parking and engine shut-off function, ensure the bike is powered off to avoid accidental throttle contact leading to accidents.



Do not tow other vehicles.



Do not use mobile phones, cameras, headphones, earphones, or any other devices while riding.



Ride slowly and carefully in complex road conditions.



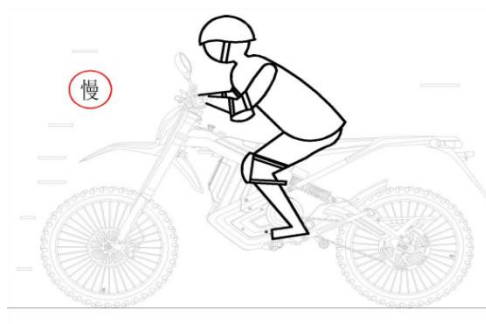
Do not drive in extreme weather conditions or when excessively fatigued. Avoid driving through deep water, as it may damage the battery and even cause personal injury.



Always slow down before making sharp turns.



Please grip the handlebars with both hands and do not exceed the speed limit.



Safety Hazard: Avoidance Notice.
Do not engage in dangerous behavior.
Riding is prohibited after drinking alcohol.

6 、 Bike Usage Instructions

●P Gear Parking Function:

- 1 、 The bike enters the P-gear parking position when starting up.
- 2 、 When lowering the kickstand, the bike enters the P-gear parking position.

Note: Before squeezing the brake lever to activate the P-gear parking function, ensure that the side stand is deployed!

●Vehicle "Power Off" (Power On but Power Off):

- 1.Shut off the braking power: Grip the brake lever, rotate the speed control handle, and there will be no output.
- 2.Motor overheating protection.
- 3.Controller overheating protection.
- 4.Battery overheating, power reaching undervoltage protection point.

●Vehicle Power Reduction:

1.Controller overheating (When the operating temperature exceeds 85°C, it begins to enter the deceleration process; for every 1°C increase, the deceleration rate increases by 10%. If it continues to overheat, the power output will be reduced to 20% of the rated value, and after the controller cools down, it can be used again).

2. Motor overheating (When the operating temperature exceeds 110°C, it begins to enter the derating process, with every 1°C increase, the derating value increases by 10%. If it continues to overheat, the power output will be reduced to 20% of the rated value, wait for the motor to cool down, and then it can be used).

3.Battery voltage starts linear derating processing from 71V. For every 1V decrease, the capacity is reduced by 20%, with a minimum reduction to 15% of the rated value. When the voltage of the battery is 63V, it enters undervoltage protection.

4. Stop power output when the power is zero. (If the battery is not recharged in time to continue use, the battery may enter overdischarge protection).

Note: After overdischarge protection, the battery needs to be recharged and activated using the charger. See Chapter 35, Fault Phenomenon, Item 7 for activation method.

●About Environmental Conditions During Use:

1. If the temperature is below 0°C to -20°C, it is not recommended to use sports equipment, i.e., the battery is equivalent to 80% of room temperature.
2. When the temperature exceeds 50°C, it is recommended not to drive at high power for a long time.

●Regarding Water Immersion:

Off-road electric motorcycles (all-terrain motorcycles) may occasionally wade through water (not exceeding 24 cm/9 inches deep), but should not be submerged for too long, especially if the motor is at a high temperature, as water cooling and internal air contraction may cause water to be sealed by oil and absorbed into cable positions, causing internal damage.

Below are the waterproof ratings for various components:

Battery: IP55

Motor/Controller: IP67

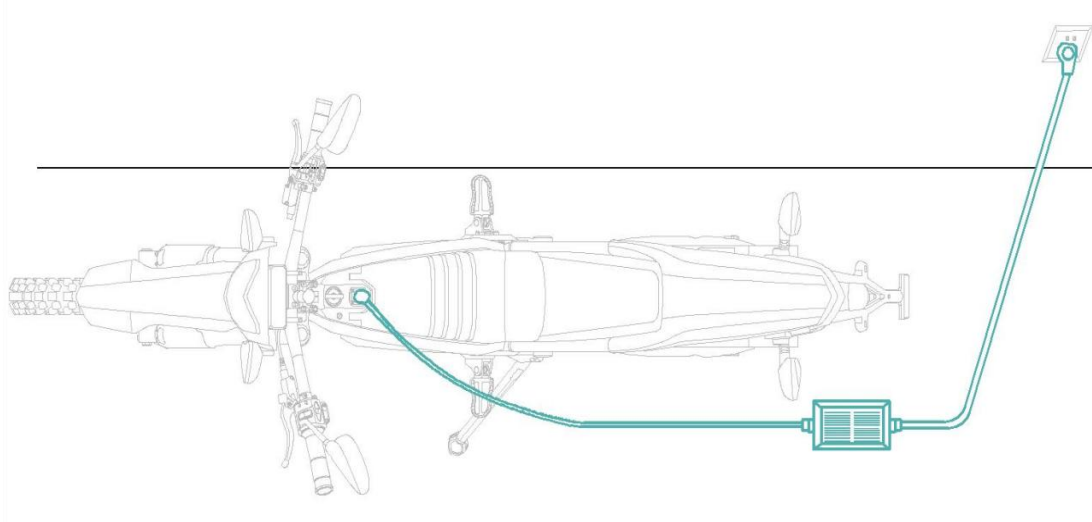
Vehicle Connector: IP55

Whole Vehicle: IP55

7、 Charging

To charge the entire off-road electric motorcycle (all-terrain motorcycle)

Connect the charger output to the vehicle charging port, and then connect the other end to the power source.



Warning: Do not charge the battery below 31°F, as this may damage the battery. Wait for the battery to warm up to the appropriate temperature before charging it.

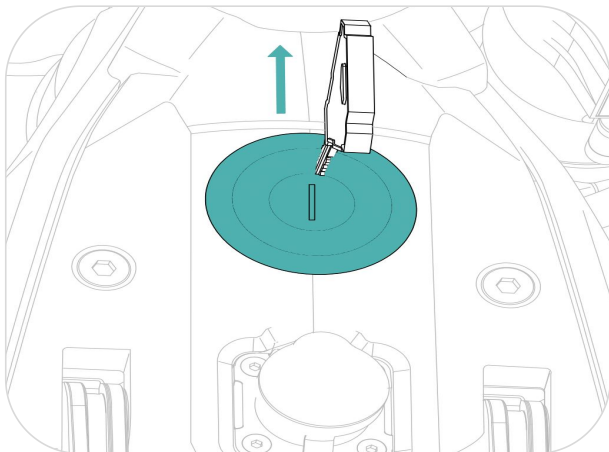
To ensure the correct use and maintenance of lithium batteries, do not dismantle them without permission. Abandoned batteries must be recycled in an appropriate facility.

When not using the dirt bike for over one month, turn off the air switch or unplug the charger, and keep the battery fully charged. When not charging, please make sure to fasten the charging sealing rubber cap.

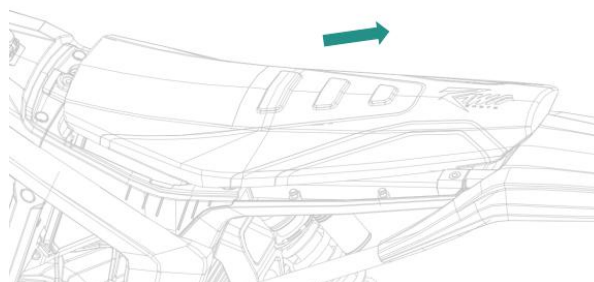
Portable Charging:

1 、 Remove the battery.

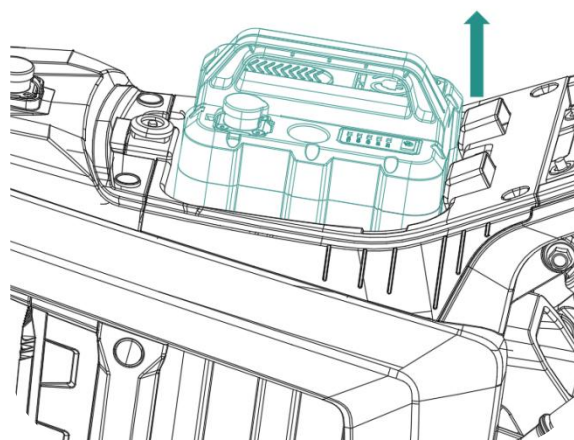
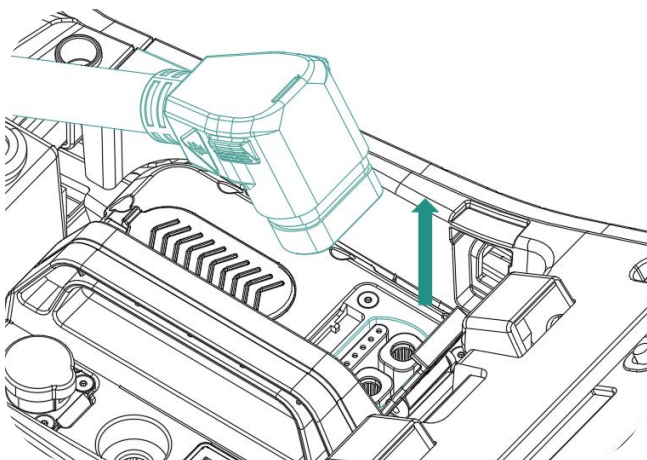
1. Ensure that the ignition is on the closed position.



2. Open the seat lock with key and lift seat.

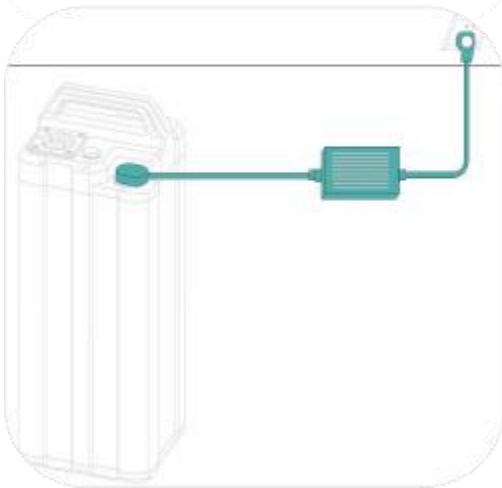


3. Remove the discharge plug from the lithium battery, pull it upwards, and then pull out the lithium battery.

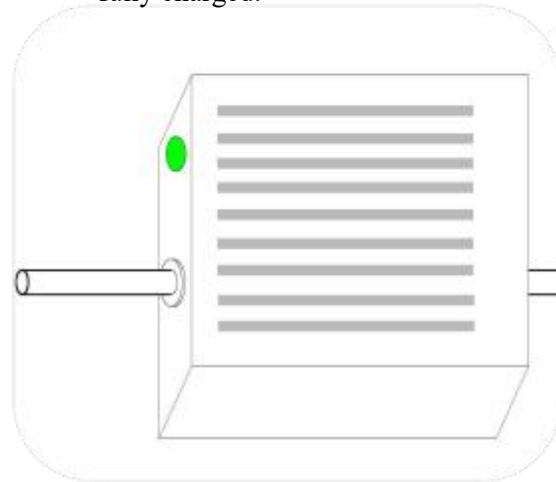


2 、 Charging

(1) First, connect the charger output to the lithium battery charging port, and then connect the other end to the power source.



(2) The charger indicator light displays as follows: The red light indicates that it is charging. When fully charged, the green light will remain on continuously. Please turn off the power when the battery is fully charged.



Charging

- Charge the off-road electric motorcycle away from children.
 - Do not place any objects on the charger. Use the charger in a dry and well-ventilated environment.
 - If you smell any odor or notice excessive heat during the charging process, immediately stop charging.
- If the battery does not show full charge after a long time, please take it to a repair center for maintenance.



Warning: Please use authorized lithium battery chargers only. When replacing the charger, use an authorized dedicated charger.

Before installing or removing the battery, please turn off the motor and the switch.

Powering on can reduce the battery's lifespan.

There is a risk of sparking when the battery plug is not fully inserted, which can easily damage the plug.

8、Off-road Electric Motorcycle Specifications

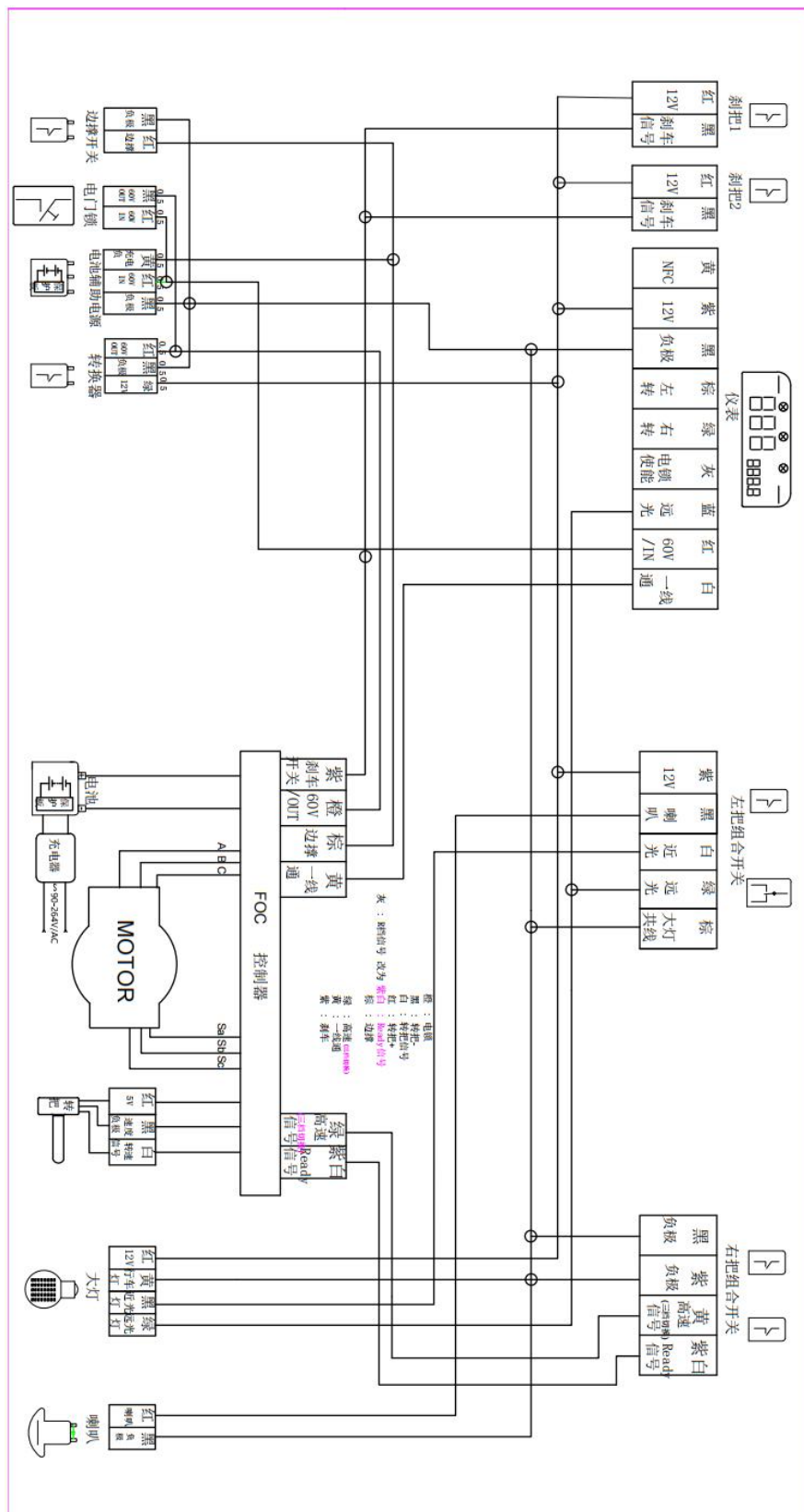
	Item	Parameters
Basic Information	Name	Mantis X
	Overall Dimensions (L*W*H)	1875*795*1110mm
	Total Weight (including Battery)	63Kg
	Max Load Capacity	100Kg
Major Parameters	Wheelbase	1265mm
	Seat Height	850mm
	Ground Clearance	335mm
	Max Speed	80Km/h
	Max Power	6.5Kw
	Full Charge Range	72V Average Speed 25km/h 120-140km
	Protection Level	IP65
Body	Body Type	Dual-Beam Forged Aluminum Alloy / 6061
	Wheel Type	Front Wheel: 19×1.6 Spoke Aluminum Wheel Rim Rear Wheel: 17×1.85 Spoke Aluminum Wheel Rim
	Front Tire Type	Off-road Tire 70/100-19
	Rear Tire Type	Off-road Tire 2.75-17
	Transmission	420 Chain
	Front Brake	203mm 4-Piston Hydraulic Disc Type
	Rear Brake	203mm 4-Piston Hydraulic Disc Type
	Suspension	Double Shoulder Fork Stroke 180mm
		70mm
Motor	Rated power	3000W
	Rated torque	28N.m
	Rated speed	7000r/min
	Cooling method	Natural Cooling
	Control scheme	FOC Sine Wave Vector Control

Controller	Rated input voltage	72V
	Rated output current	30Ah
	Operating ambient temperature	-20~+65
	Undervoltage protection value	60±1V
Charger	Charger Type	Lithium Battery Charger
	Rated Output Voltage	72V
	Input Voltage	100~240VAC 50/60HZ
	Out Voltage	84V
	Output Current	6A
Others	Handle Specifictions	Φ22~Φ32 Variable Diameter Handle
	Communication Port	CAN / One-wire Communication
	Lighting	LED
	Dash Type	Waterproof High-Brightness VA Meter
	Phone Charging Port	Type-C Standard Interface

9、 Other Considerations

1. RAWRR is committed to continuously improving product performance. Product specifications and manual content may change without prior notice. Your understanding is appreciated! If there are any discrepancies between the icons and images in the manual and the actual product, please refer to the actual product.
2. RAWRR reserves the right to interpret and explain the statements in this product manual within the scope permitted by law.
3. If you intend to resell or transfer your RAWRR electric dirt bike, please remember to pass on this manual as it is an integral part of the product. For any inquiries about RAWRR, we are delighted to assist you at any time. Once again, thank you for choosing and trusting in this product.

Attachment (Bike Electrical Schematic Diagram)



Alarm Code List for Controller

Alarm Code (Beep)	Fault Name	Protection Measure	Troubleshooting
1 (1 short)	Software Overcurrent	Shutdown	Restart with the key. Replace the controller. Replace the motor.
2 (2 short)	Motor Overspeed	Shutdown	Restart with the key. Replace the controller wiring harness. Replace the controller.
3 (3 short)	Battery Overvoltage	Shutdown	Replace the motor. Restart with the key. Check if the controller / air switch cord is loose. Replace the battery.
4 (4 short)	KEY Power Abnormal	Shutdown	Restart with the key. Replace the ignition. Replace the battery.
5 (5 short)	12V Power Abnormal	Shutdown	Replace the DC converter.
6 (6 short)	5V Power Abnormal	Shutdown	Replace the throttle. Replace the motor encoder. Replace the controller.
7 (7 short)	Angle Sensor Disconnected	Shutdown	Replace the controller Hall harness. Replace the controller. Replace the motor.
8 (8 short)	Hardware Overcurrent	Shutdown	Replace the throttle. Replace the controller. Replace the motor.
9 (9 short)	Current Loop Fault	Shutdown	Replace the controller.
10 (1 long)	Battery Undervoltage	Power Reduction	Charge the battery. Replace the battery.
11 (1 long 1 short)	Controller Overheating	Power Reduction	Turn off the power and let the controller cool down.
12 (1 long 2 short)	Motor Overheating	Power Reduction	Turn off the power and let the motor to cool down. Replace the controller harness. Replace the motor harness.

13 (1 long 3 short)	Current Sensor Abnormality	Shutdown	Replace the controller.
14 (1 long 4 short)	Motor Signal Interference	Shutdown	Replace the controller harness. Replace the motor.
15 (1 long 5 short)	No Signal From Throttle	Shutdown	Check if the throttle harness is connected. Replace the throttle. Replace the main harness.
16 (1 long 6 short)	Throttle not Reset	Shutdown	Reset the throttle, restart the key. Replace the throttle.
17 (1 long 7 short)	Motor Block	Power Reduction	Check if the controller display is loose or connected incorrectly. Check if the drive wheel is stuck. Replace the motor.
18 (1 long 8 short)	Battery Communication Disconnection	Shutdown	CAN harness is not connected. Replace the controller harness. Replace the power line. Replace the battery.
19 (1 long 9 short)	Battery Communication Failure	Shutdown	Replace the battery.
21 (2 long 1 short)	Brake System Malfunction	Shutdown	Brake reset, restart with the key. Replace the brake power-off line.

Note: The range may vary significantly depending on the testing environment. The data is measured with a rider weight of 220 pounds and an ambient temperature of 26°C.

10、 Faults and Solutions

No	Item	Fault Reason	Troubleshooting
1	Motor is not working when power is on	<p>Lithium battery connection cable loose.</p> <p>Speed control connector is closed.</p> <p>Motor harness loose or disconnected.</p> <p>Brake handle does not return to the original position, or brake failure.</p>	<p>Check the wire to secure the connection.</p> <p>Repair the plug to ensure a secure connection.</p> <p>Reconnect and tighten the repair area.</p> <p>Inspect the brake handle and brake switch.</p>
2	Speed is not reaching to maximum	<p>Battery voltage is too low.</p> <p>Speed control handle malfunction.</p>	<p>Fully charge the battery.</p> <p>Replace the speed control device during maintenance service.</p>
3	Motor range is shorter than the maximum range	<p>Low tire pressure.</p> <p>Need to charge or charger malfunction.</p> <p>Improper brake adjustment</p> <p>Lithium battery aging or damage.</p> <p>Frequent acceleration and deceleration loads uphill against the wind.</p>	<p>Inflate the tires to the appropriate air pressure.</p> <p>Ensure sufficient charging or check the charger plug contact points.</p> <p>Readjust the brakes.</p> <p>Replace the battery.</p> <p>Utilize the environment to reduce the scope of normal phenomena.</p>
4	Charger not working	<p>Charger plug loose or disconnected.</p> <p>Battery connection plug loose.</p>	<p>Insert the plug or connector to open the battery compartment of the seat, and firmly insert the plug.</p> <p>Open the seat battery and tighten the plug.</p>

5	Unable to open the seat	Seat lock failure	Visit an authorized service center to replace the seat lock.
6	Abnormal noise during riding.	Chain tightness abnormal. Tire misaligned.	Adjust the chain tightness. Adjust the left and right brackets to align the tire properly.
7	The charger does not function. The dash does not show the power %.	Does not charge for long, battery over-discharge, or improper battery discharge.	Connect the output of the charger to the battery charging port, plug the input plug of the charger into the public power grid, then press and hold the battery power button for 1 second. After the battery power indicator lights up, the battery will enter the forced activation charging mode and then enter the normal charging state.
8	Brakes does not work.	Worn brake pads.	Replace the brake pads.
9	Other malfunctions	If you encounter malfunctions that cannot be resolved by the above instructions or malfunctions that cannot be determined. Damage to the motor, controller, charger, or battery. Contact a dealer for assistance. Do not tear down components without permission, as doing so may void the warranty.	If you encounter the above situations, please contact the supplier or repair station. Do not open the above components without permission, as doing so may void the company's warranty commitment.

11、Maintenance Guide

In principle, during normal riding, the first inspection (or maintenance) should be done at around 10 to 30 kilometers.

Inspection contents:

1. Check the tightness of the front and rear wheel spokes.
2. Check front steering column bearings.
3. Check the tension of the chain.
4. Check if there is any oil leaks from the shock and ensure that the rebound position is correct. (Note: Do not rotate the adjustment knobs left and right during the adjustment process.)
5. Check the tightening torque of the handlebar fixing screws.

Special attention: Always turn off the power before starting any maintenance.

During inspection, safety should be fully considered:

1. Choose a wide and flat area to park the bike.
2. When riding for inspection, pay attention to the surrounding environment and conditions in a safe place.
3. If any abnormalities are found, resolve them before riding. If you are not able to resolve on your own, please contact Rawrr or an authorized service center.

Note:

1. For both front and rear disc brakes, brake pads should be replaced before severe wear.
2. Pay attention to the cleanliness of the disc brake system during daily use to avoid prolonged attachment of mud and sand, especially oil contamination.

Component Inspection

1. Check the shock for any bending, deformation, or damage.

If the front shocks are damaged or leaking oil, shake the handlebars up and down and check for any abnormal noises from the front shocks.

2. Brake Inspection:

Check if the gap in the brake lever is within the specified range (15~30mm). Adjust if the measurement does not meet the requirements.

3. Brake Effectiveness Check:

Drive at low speed on dry, flat roads to check the effectiveness of the brakes, using the front and rear brakes separately.

4. Check Tires, Spokes, Wheel Tension, and Chain:

The tires are in contact with the ground for extended periods. Objects such as stones, glass, and nails on the ground can damage your tires, so you should pay attention to the road and avoid places that could potentially damage your tires. Additionally, always check the tires for obvious cracks and other damage, and whether there are embedded stones, glass, and other foreign objects, as well as any unreasonable or abnormal wear.

Check tire pressure with a tire pressure gauge when the tires are cold.

5. Check for cracks, damage, and abnormal wear.
6. Check if the wheel rims and spokes are loose.
7. Check the tension of the chain, with a range of 10~20mm up and down.
8. Check the depth of the tire tread grooves:

Check the tire wear and inspect the tread groove depth. Replace the tire when the wear reaches 2/3 of the tread depth. If the tire makes strange noises or vibrations, contact Rawrr or authorized service center for inspection and repair.

Note: If the braking effect is still not ideal even after tightening the brake lever, check the cleanliness and thickness of the disc brake pads. If the issue persists, contact an authorized service center for after-sales inspection.

Lithium Battery Inspection:

1. Check the Power Supply:

The bike uses a sealed lithium battery. Check if the battery is fully charged, then measure the positive and negative voltages of the terminals with a multimeter. During normal operation, the total voltage should be between 66.2 ~ 84V.

2. Check the Appearance of the Battery:

Inspect for damage, such as cracks in the upper and lower sealing covers of the battery and damage to the power indicator light. After a seal failure, there is a risk of water ingress. In such cases, contact Rawrr or an authorized service center.

Note:

1. Before removing or installing the battery, turn off the power and the air switch, and cover the charging port with the sealing rubber cap.
2. If you cannot insert the battery into the battery compartment, do not forcefully remove or disassemble the battery. Check if the battery is stuck due to other objects.。

3. For winter storage of lithium batteries, it is recommended to store batteries indoors at temperatures above 0°C. Also, regularly check the power supply.

Battery Charging and Charger Use:

1. The off-road electric motorcycle must be charged with a charger compatible with the prototype model.
Do not use other models that are incompatible with the charger to avoid damaging the battery or any dangerous situations.
2. Check if the input voltage of the charger matches the voltage of the grid.
3. The charger will automatically shut off when the battery is fully charged, but try to avoid leaving the charger connected to the grid for more than 6 hours after full charge.
4. Users are strictly prohibited from disassembling the battery to avoid damage and danger.
5. When the battery is protected from over-discharge, it needs to be activated by using the charger for charging. Refer to section 7 on page 35 for activation methods (Fault Phenomenon and Troubleshooting).
6. Use and Maintenance of Electrical Components:
 - 1) Regularly check if the motor fixing screws are loose.
 - 2) Regularly check for loose connections and insulation of the motor and controller wiring.
 - 3) Regularly check if the air switch wiring is loose.
 - 4) Do not drive in deep water to avoid affecting the brake friction life and motor operation.

Note: When the motor or controller temperature is too high, or the battery power is too low, the battery will automatically reduce power operation. This is not a malfunction.

Maintenance and Repair of the Motor

Usage

1. If the controller fails to function properly during operation, the bike will not start directly.
2. No intermittent or abnormal sounds or vibrations should be present during operation.
3. During operation, the bike will not start if the gear oil has not been added (add GL-4 85W-90 oil, approximately 60 mL).

Maintenance

The bike should take the first maintenance at 1000 km of travel. During the first maintenance, the gear oil of the gearbox should be replaced. Additionally, clean the iron filings on the drain plug, remove any residual iron filings inside the gearbox, and clear any dust and foreign objects around the ventilation plug to maintain cleanliness. Finally, check if the sensor signals and bolts are tightened.

After the first maintenance, according to the maintenance requirements of the bike, the following inspections on the assembly should be conducted:

- a. Check the sensor signals of the motor. Replace any damaged or faulty signal wires
- b. Inspect the suspension. Tighten any loose fastening bolts.
- c. Examine the sealing surfaces and oil seals of the components. Replace any damaged oil seals promptly to ensure the sealing performance of the components.
- d. Clean any foreign objects around the exhaust plug and keep the exhaust plug open.
- e. Based on the riding conditions of the bike, replace the gear oil every three months or 5000 kilometers (whichever comes first) and clean any iron filings.

12、Warranty Policy

Rawrr All-Terrain Electric Dirt Bike After-Sales Service

To better protect your rights and interests, please keep this manual properly. When purchasing the bike, please inspect and debug it on the spot, and request the salesperson to provide correct usage methods and maintenance items, as well as effective invoices, warranty cards, maintenance addresses, contact numbers, etc.

If you encounter any quality issues when using this bike, you can visit an authorized service center for repair and maintenance services with the purchase invoice and warranty card. Specific warranty items are as follows (maintenance faults refer to non-human factors):

No	Item		Fault	Warranty Period	Note
1	Motor	Brushless Motor	Wire damage	12 months (1,000 miles)	Excluding human factors (Motor with original seal)
			Unable to operate normally		
2	Battery	Lithium-ion battery	Capacity below 60%	12 months (1,000 miles)	Excluding human factors
3	Electric Components	Controller, charger	Fault occurred and cannot be repaired	12 months (1,000 miles)	Excluding human factors, the product must be in its original condition.
		Dash, throttle, main harness	Fault occurred and cannot be repaired	1 months (100 miles)	
		Function switch, power lock, horn, converter, other connecting harness	Fault occurred and cannot be repaired	1 months (100 miles)	
4	Structure Components	Whole bike, rear shock	Fracture or shock failure	1 months (100 miles)	Excluding human factors (brake parts excluding friction pads)
		Front shock	Shock failure	1 months (100 miles)	
		Chain, sprocket, wheel	Performance malfunction	1 months (100 miles)	
		Brake	Oil leakage or ineffective braking	1 months (100 miles)	

During the warranty period, any of the parts above fail or cannot be used properly after repair, they will be replaced free of charge.

The following parts considered as consumable parts: tires, brake pads, steering bearing assemblies, front and rear fenders, seat, lighting fixtures, rearview mirrors, reflectors, etc. Unless its a quality issue, users can contact Rawrr or a dealer for replacement or repair with surcharge.

Warranty start date:

For offline purchases, the warranty start date is based on the invoice date (counted from the date of the first occurrence);

For online purchases, the warranty start date date is based on the receipt of the delivery note (counted from the date of customer receipt).

The delivery receipt and purchase invoice are valid vouchers. If there is no voucher or the voucher is unclear, the system record of the sales date shall prevail.

13 、 Maintenance Record Card

Regular Maintenance Record Card		
Maintenance Cycle	Items	Maintenance Personanel / Agent
300 kilometers/1 month	Check for the entire bike, including fasteners, chain, tensioner wheels , motor, brakes, spokes, etc..	
1000 kilometers/3 months after the first maintenance	Inspection of the safety components of the entire bike, including fastener inspection, high-voltage circuit inspection, chain and tensioner wheels inspection, motor, brakes, spokes, etc.	
2000 kilometers/6 months	High-voltage circuit inspection, brake hydraulic circuit inspection, brake pads inspection, spoke chain and tensioning wheel magnetic inspection.	

Note:

1. Users must process the mandatory maintenance items described in the "Regular Maintenance Record Card" at an authorized service center timely.
2. Failure to maintain on time may result in warranty invalidation.
3. Subsequent maintenance cycles should follow the maintenance schedule of 1000 kilometers/3 months and 2000 kilometers/6 months to avoid loss due to warranty lapse.

Maintenance Record Card

Maintenance Date	Maintenance Details	Maintenance Personnel / Agent

