



Owner's Manual

RFN WARRIOR SX-E8



Dear RFN Customer

Thank you for your trust in the RFN brand. We will accompany you on your journey to explore endless possibilities, find unknown answers, and enjoy an exciting off-road life.

This manual explains the correct and safe use of the vehicle and basic inspection procedures. Please read the operating instructions carefully.

If you have any questions about the operation or maintenance of your vehicle, please contact an authorized dealer.

Even if you sell the vehicle, please always leave this manual to the next owner for maintenance and service records.

Although this manual contains most of the vehicle information, the manufacturer will continuously improve product design and quality, which may lead to differences between the manual and the vehicle. Product specifications are subject to change without notice. If you have any questions, please consult your dealer.

Manufacturing Information

Manufacturer: Zhejiang Apollo Sports Technology Co., Ltd.

Address: 12-14 Jinheng 2nd Road, Jinyanshan Industrial Zone, Quanxi Town, Wuyi County, Jinhua City, Zhejiang Province, China

Vehicle Serial Number:

Motor Code:

Controller Code:

Battery Code:

Note: The vehicle serial number (SN code) will be used when ordering spare parts from authorized dealers or in case of vehicle theft.

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1 Safety Information

1.1 Safety Instructions

Many safety instructions must be followed to operate this product safely. Please carefully read these instructions and the following details.

Safety instructions are highlighted in the text and referenced in the relevant paragraphs.

For your own safety, please read this user manual completely before operating the vehicle to ensure you have a comprehensive understanding of how to operate and control the vehicle.

1.2 Risk Levels

DANGER

Indicates special preventive measures that must be followed. This is an important warning instruction in this manual. Disregarding warnings may result in serious injury or death, and may also cause damage to the vehicle.

WARNING

Indicates special operational measures that must be followed. This is an instruction that needs to be followed. Disregarding caution tips may put personnel and vehicles at uncontrollable safety risks.

1.3 Safe Operation

Safety largely depends on riding technique. Only riders with a formal license who have received proper training can safely operate this vehicle. Otherwise, do not drive this vehicle to avoid injury.

WARNING

Driver requirements: Well-trained in driving and necessary technical guidance for off-road riding, wearing off-road protective equipment, prohibition of driving under the influence of alcohol/drugs.

Do not lend the vehicle to personnel who are not suitable for driving.

Maintain the vehicle according to the maintenance instructions in this owner's manual to ensure safety and extend the vehicle's service life. Have the vehicle repaired only by authorized dealers.

1.4 Safe Riding

WARNING

This vehicle is for use only on professionally constructed off-road grounds. Do not ride in areas such as public roads, streets, or unknown outdoor environments.

Check the vehicle condition and surrounding environment before starting to avoid accidents.

Correct posture is important for maintaining balance. Hold the handlebars with both hands, keep your upper body upright, and place your feet on the footrests. Do not ride when you feel unwell or have abnormal health conditions.

Off-Road Gear Required Before Riding:



Armor: Please wear riding armor with protective functions. Off-road armor is required when driving this type of vehicle to best prevent injuries.

Helmet: Your helmet is the most important part of your protective equipment. A tested helmet can prevent serious head injuries in case of accidents. A professional off-road helmet is required.

Goggles: Regular glasses and sunglasses cannot provide sufficient protection. Professional off-road goggles compatible with off-road helmets are required.

Off-Road Gloves: Professional off-road gloves with joint and knuckle protection are required to reduce hand injuries in case of accidents.

Boots: Professional sturdy high-top off-road boots are required to provide more protection to legs and feet and improve riding safety.

Clothing: Professional long-sleeved and long-pants off-road suits and armor are required to protect arms and legs for better protection.

Modifications

Modifying the vehicle or removing original parts without manufacturer approval may reduce safety and cause serious injury. Consequences are your responsibility.

Load Considerations

Adding accessories or increasing load will cause changes in weight distribution, affecting steering and balance, which can easily lead to accidents.

Standard Load: Max load < 75 kg (165.3 lb)

When loading within this limit, please remember the following:

- The center of gravity should be kept at a lower level as much as possible.
- Distribute weight as evenly as possible to maintain balance.
- The load must be securely connected.
- Do not hang heavy or bulky items on the handlebars or suspension, which may cause imbalance and slow steering response.

NOTE!

The manufacturer only provides original accessories for your vehicle. Please contact an authorized dealer for this purpose.

The manufacturer disclaims all responsibility for third-party accessories; this responsibility is entirely yours.

When installing accessories, please remember the following:

- Do not install any accessories or transport any load that obstructs or limits ground clearance, suspension travel, steering, lighting, indicators, or reflectors.
- Accessories on the handlebars or front wheel suspension will damage steering performance, ensure that installed accessories are as light as possible.
- Do not install any luggage racks that may affect the vehicle's stability when facing headwinds.
- Have electrical accessories installed only by authorized dealers to correctly match the electrical system; improper installation may lead to loss of lighting, reduced motor power, and damage to the vehicle's electrical components.

1.5 Other Safety Precautions

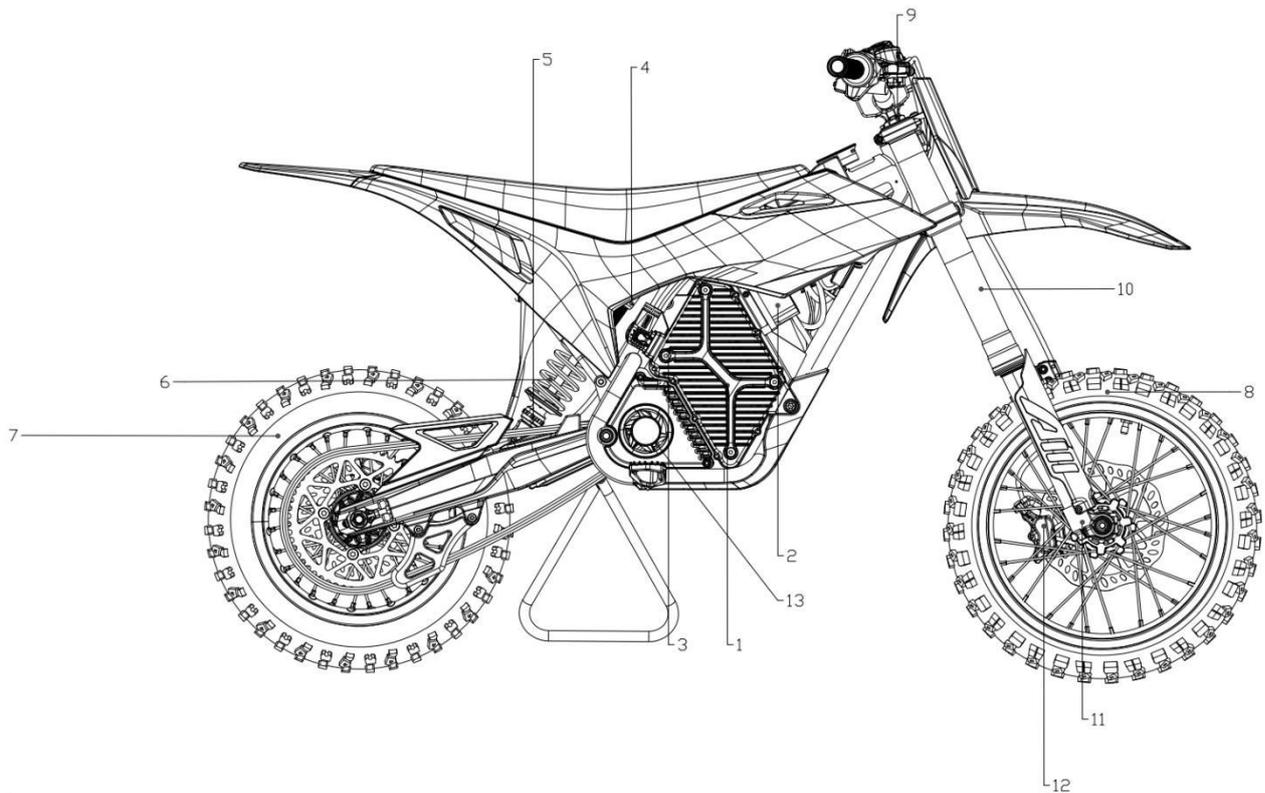
Drive slowly and brake carefully on wet roads or slippery surfaces.

Safety Stickers

<p>⚠ WARNING</p> <ul style="list-style-type: none"> • Children must be accompanied by an adult. • Protective gear should be worn while operating the bike. • Riders must have sufficient physical strength, coordination, and judgment to control the bike. 	<p>⚠ WARNING</p> <ul style="list-style-type: none"> • Start riding using the slow speed setting. • Please operate the vehicle according to the instructions in the manual, improper operation may cause the vehicle to lose control, resulting in the risk of serious injury! 	<p>⚠ WARNING</p> <ul style="list-style-type: none"> • Improper tire pressure or overloading (maximum load: 60 kg) may cause the bike to lose control. • Loss of control may result in injury.
<p>⚠ WARNING</p> <ul style="list-style-type: none"> • Do not allow hands, feet, body parts, clothing, or similar items to come into contact with any rotating or moving parts (such as wheels, disc brakes, chains, etc.). • LUBRICATE CHAIN REGULARLY 	<p>⚠ WARNING</p> <ul style="list-style-type: none"> • Please use the original charger. • Do not charge in high-temperature or flammable environments. • Modifying the speed limiter, battery, or motor is strictly prohibited. 	<p>IMPORTANT! CHAIN TENSION The chain should have a play of one or two fingers (15-20mm) at the span. See adjusted from the these chain tensioners.</p> 
<p>⚠ WARNING</p> <ul style="list-style-type: none"> • This motorcycle is intended for use on closed tracks and compliant riding areas for racing and riding purposes only. • This motorcycle is prohibited from being used on public streets, roads, and highways. 	<p>⚠ WARNING</p>  <p>WARNING:</p> <ol style="list-style-type: none"> 1) Please read instruction handbook carefully before your first riding. 2) For your safety, always wear helmet and protection equipment while riding. 3) This vehicle designed and manufactured for off road use only, do not use on public road and highways operating this vehicle if you are under the age of 6 increases your chance of severe injury or death! <p>Important:</p> <ol style="list-style-type: none"> a) This vehicle is not suitable for novice riders. This vehicle shall only be used by trained and experienced riders. b) This vehicle is only suitable for the age over the age of 6 riders only. This vehicle is not for use by children under age 6. A vehicle is not a toy. c) The importance of reading and understanding the manual prior to operation. d) The importance of and how to access a training course. e) All children need to be assessed for their ability to ride safely. Adequate supervision should be provided for all children allowed to ride. 	

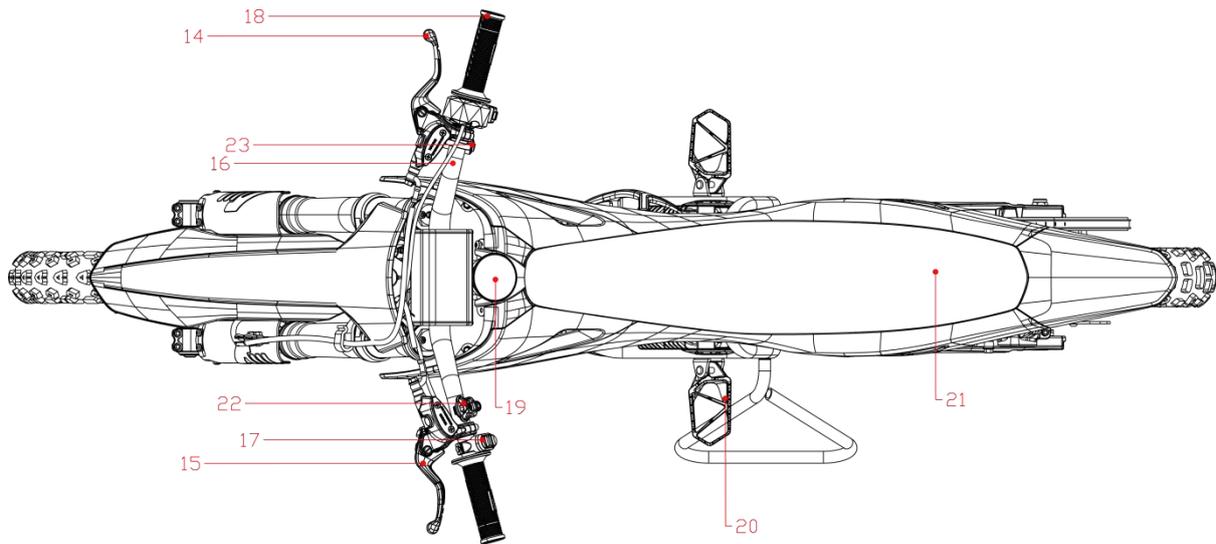
2 Vehicle Overview

2.1 Left View



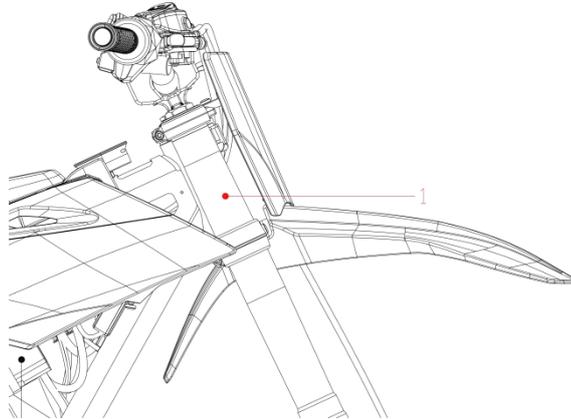
1. Rechargeable lithium-ion battery
2. Motor controller
3. Charging connector
4. Rebound-damping adjuster (rear shock absorber)
5. Compression-damping adjuster (rear shock absorber)
6. Rear shock absorber
7. Rear tyre
8. Front tyre
9. Rebound-damping adjuster (front fork)
10. Front fork
11. Compression-damping adjuster (front fork)
12. Front brake caliper
13. Traction motor

2.2 Right View

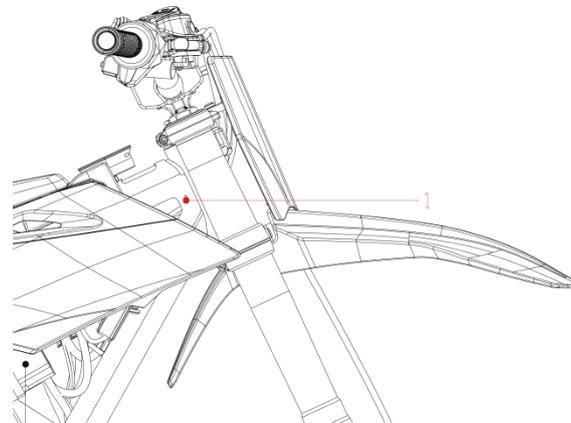


- 14. Front brake lever
- 15. Rear brake lever
- 16. Handlebar (with center brace)
- 17. Gear selector switch
- 18. Electronic throttle grip
- 19. Instrument panel (multifunctional element)
- 20. Footrest (foot-peg)
- 21. Seat
- 22. Emergency power-off switch
- 23. Start button

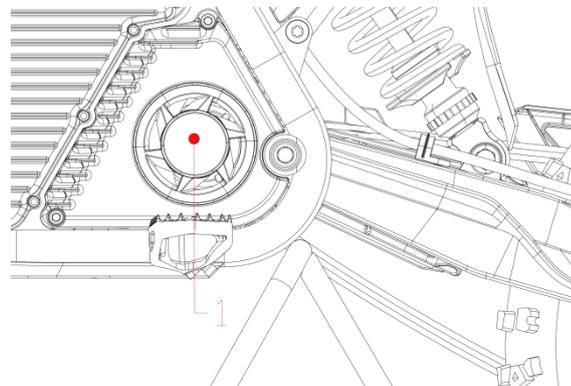
3 Serial Number Locations



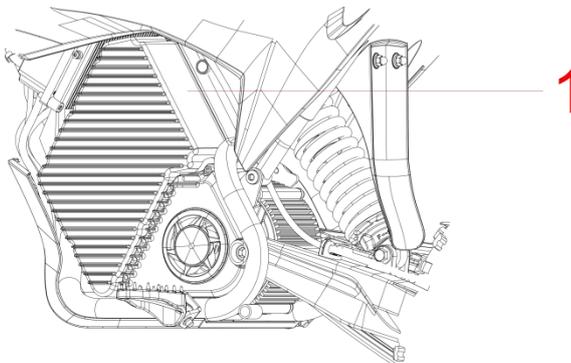
3.1 Frame Number



3.2 Vehicle Nameplate



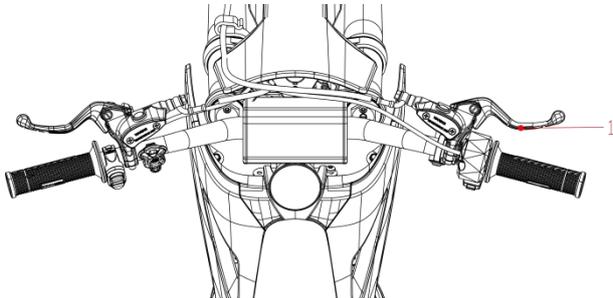
3.3 Motor Number



3.4 Battery Number

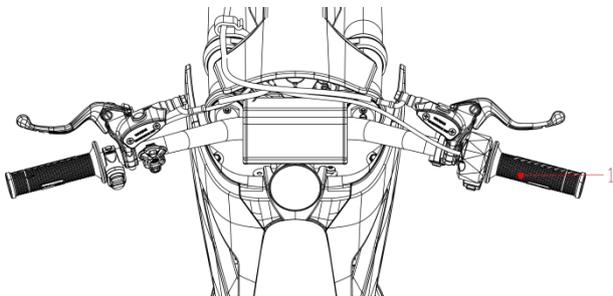
4 Control Components

4.1 Front Brake Lever



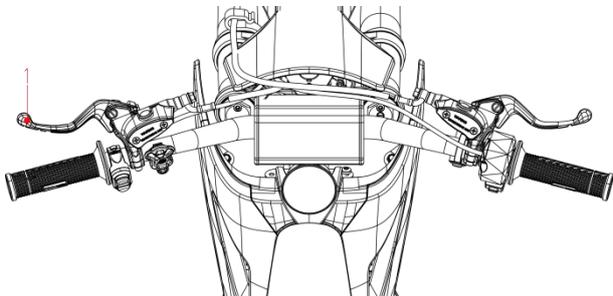
Front brake lever ① is located on the right-hand side of the handlebar.

4.2 Electronic Throttle



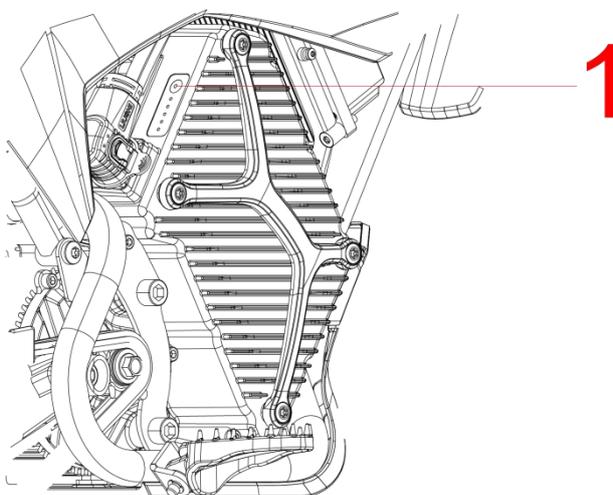
Electronic throttle grip ① is located on the right-hand side of the handlebar.

4.3 Rear Brake Lever



Rear brake lever ① is located on the left-hand side of the handlebar.

4.4 Power On/Off

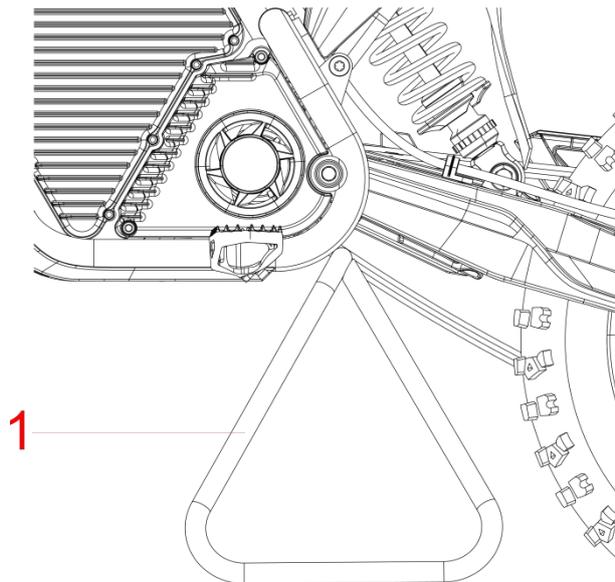


Power switch ① is located in front of the connector on the right side of the battery.

Switch off the main power immediately after finishing the ride to prevent unintended activation by others.

If the motorcycle remains parked with the display shut down and the main power switch is not turned off for an extended period, the system will automatically cut the power.

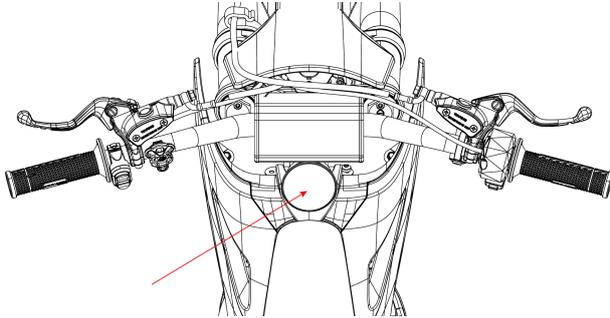
4.5 Side Stand



Side-stand bracket ① is mounted on the lower left side of the motorcycle.

5 Electrical Components

5.1 Instrument Cluster



Note: The instrument cluster is located at the front of the vehicle, in front of the seat.

CAUTION

Do not damage the instrument cluster as it may prevent the vehicle from starting.

Instrument Display Content Description:

Function	Status	Operating Logic (1, 2... for OR logic) and Actual Display
Full Display	All icons light up for 2 seconds (except hazard and high beam icons)	Mode 1: Display after NFC scan Mode 2: After startup switch closed, battery pressed for 3s
Communication Fault	Middle dash in two digital tubes flashes white (1Hz); Decorative light strip remains on with one bright spot moving clockwise from left to right, then counterclockwise, cycling	Communication not established
READY Light	Off	P gear locked
READY Light	Constant	P gear unlocked
ECO Mode	Off	Not in this mode
ECO Mode	Constant	Currently in ECO mode
ECO Mode	Flashing (1Hz)	Entered power limit mode
SPORT Mode	Off	Not in this mode
SPORT Mode	Constant	Currently in SPORT mode
Distance Unit	km, km/h	Metric

Function	Status	Operating Logic (1, 2... for OR logic) and Actual Display
Distance Unit	mi, mph	Imperial
Special Animation	Only decorative strip and prompt code 00 displayed	Indicates function operation completed
Power Display	Each bar corresponds to 5% capacity; Bars turn off from right to left	At 20% power, 4th bar flashes (1Hz); At 15% power, 3rd bar flashes (1Hz); At less than 10% power, all bars flash (2Hz)
Speed Display	No display	Not in riding state
Speed Display	Two digits constantly lit	Factory default metric, tens digit shows 0 when speed is less than 10
Distance Counter	Total distance display	Factory default metric, minimum scale 0.1; After >99999.9, decimal point not displayed
Distance Counter	Trip distance display	Factory default metric, minimum scale 0.1; Resets after power off; After >99.9, decimal point not displayed
Error Code	Flashing (2Hz) error code display	Speed display changes to error code; Mode not displayed
Error Code	Multiple error code display	Displayed in sequence; Each error code displayed for 2 seconds
Hazard Indicator	Flashing (1.25Hz)	Vehicle has error code
Light Sensing Adjustment	Real-time instrument brightness adjustment	Dynamic adjustment based on ambient light

Error Code 10: Battery hardware fault

Error Code 11: Li-ion battery temperature too high

Error Code 12: Li-ion battery temperature too low

Error Code 20: Controller hardware fault

Error Code 21: Controller temperature too high

Error Code 30: Motor circuit fault, phase loss, sensor signal abnormal, etc.

Error Code 31: Controller temperature too high

Error Code 40: BMS charge/discharge function fault

Error Code 41: Battery temperature too high during regeneration

Error Code 50: Throttle abnormal or damaged

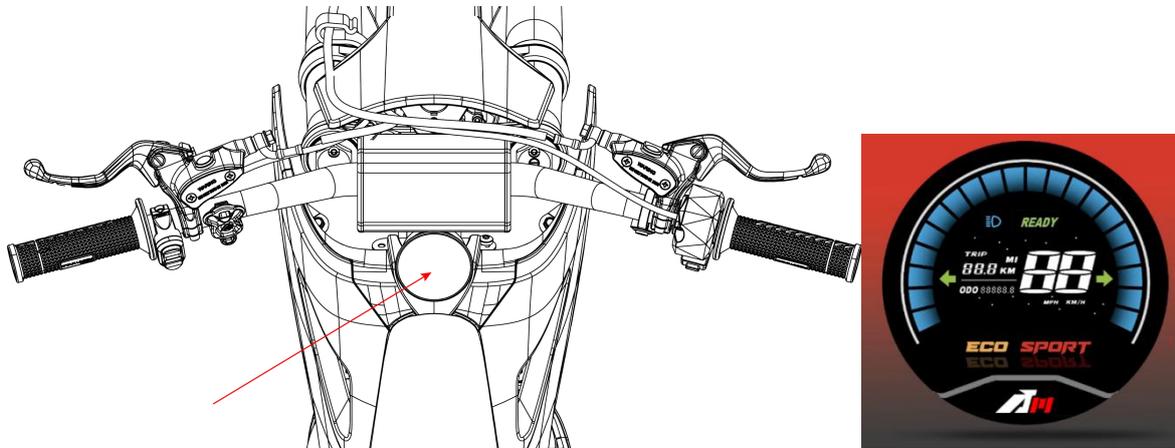
Error Code 60: Mode switch abnormal or damaged

Note!

For other faults where the vehicle can power on but cannot be ridden normally, detailed fault information needs to be checked via the mobile APP.

5.2 Button Switches

5.2.1 Button "P" Function:



P-Mode Unlock

After the vehicle is powered on, it starts in "P" (Park) mode.

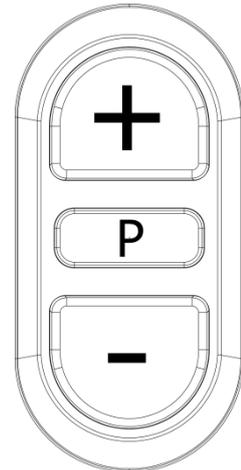
Press and hold this button for 2 seconds to unlock Park mode.

The "READY" icon will illuminate on the display.

P-Mode Lock

While Park mode is unlocked, press and hold this button for 2 seconds to lock Park mode.

The "READY" icon will turn off.



CAUTION

After every power-up and unlock, the motorcycle automatically defaults to ECO riding mode.

5.2.2 Button "+" Function:

Entering SPORT Mode

While the vehicle is in ECO mode, press this button once to switch to SPORT mode.

After the change, the "SPORT" icon will illuminate on the display.

CAUTION

If the thermal-protection limit is reached, SPORT mode is unavailable.

5.2.3 Button "-" Function:

Entering ECO Mode

While in SPORT mode, press this button once to switch to ECO mode.

The “ECO” icon will illuminate on the instrument panel after the mode change.

CAUTION

Excessive force on buttons may cause damage. Pressing for more than 30 seconds will trigger vehicle abnormal alarm.

5.2.4 Riding Mode Power Response Characteristics

SPORT mode provides maximum power with faster startup acceleration.

ECO mode limits power with relatively gentle startup acceleration.

Low-temperature mode and restriction mode are entered when the vehicle has abnormalities, so throttle power response will be poor.

5.2.5 Vehicle Mode Parameter Introduction

SPORT Mode

Peak bus power 11.8kW, maximum motor speed 5700rpm

ECO Mode

Peak bus power 7.2kW, maximum motor speed 4500rpm

Low-Temperature Mode

Maximum bus power 3.6kW, maximum motor speed 4500rpm

Restriction Mode

Maximum bus power 2.1kW, maximum motor speed 4500rpm

Note!

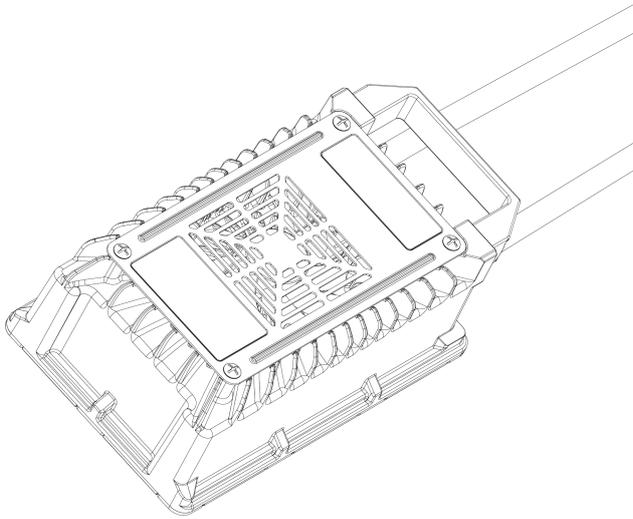
The actual maximum speed is greatly affected by load. The vehicle will have different maximum speed performance under different loads. Under heavy load conditions, the maximum speed will be lower than 70 km/h (43.5 mph).

CAUTION

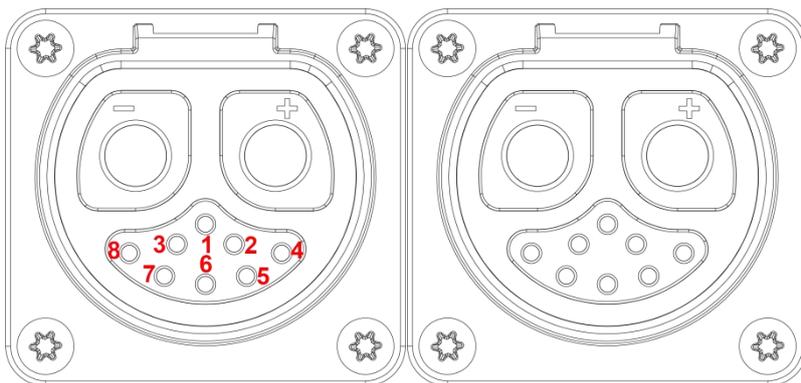
Component temperature too high or too low, power decrease will affect the performance of various modes.

5.3 Power Components

5.3.1 Charging Port



The charging port is located on the battery, which is also the discharge port. Before charging the battery, you need to unplug the power cable and turn off the battery.



5.3.2 Li-ion Battery Charger

The vehicle is equipped with a battery charger. If the power is less than 20% (4th bar on instrument flashing), please charge the battery as soon as possible.

Only use the original charger to charge the battery. Dormant batteries can only be activated using the original charger.

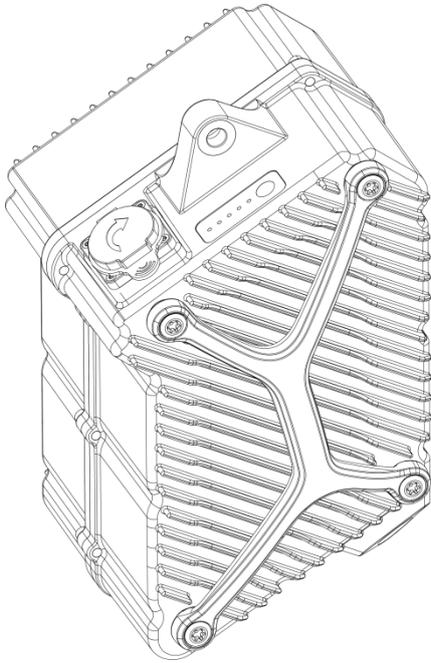
There are two charging modes (corresponding indicator lights), press and hold the button on the charger for 2 seconds to adjust the charging rate.

CAUTION

Charging may not be possible in low-temperature environments. The charger may also report an error and fail to charge if the battery temperature is too high after riding.

⚠ WARNING!

First turn off the battery, then plug in the charger connector, and finally plug in the mains plug.

5.3.3 Li-ion Battery Pack

The vehicle is equipped with a maintenance-free Li-ion battery. The standard battery is 60V 35Ah.

Battery charging operating temperature: 0°C~45°C (32°F~113°F), battery discharge operating temperature: -15°C~55°C (5°F~131°F).

Maximum discharge current 220A. High or low temperatures will affect charging/discharging power, and capacity decrease will affect discharge power.

Battery button: Single click to display power level indicator, press and hold for 3 seconds to turn on/off the battery.

Please follow the warnings on the battery.

Note!

Please fully charge the battery before long-term storage, charge once every 30 days when not in use, avoid completely draining the battery.

The battery may enter sleep mode if not used for more than 90 days due to low power.

After entering sleep mode, the battery can be activated using a charger. First connect the charger to the battery, then connect the charger to power.

⚠ CAUTION

Cover the dust cover when no plug is inserted in the battery port to prevent foreign objects from damaging the female connector or corroding contacts and causing dangerous situations.

After turning on the power by pressing and holding the button, if not connected to the vehicle for a long time, the power will automatically turn off.

⚠ WARNING!

Charge the battery immediately when power drops to 5%! Otherwise, irreversible damage may occur!

Battery long-term storage environment temperature: 5°C~35°C (41°F~95°F).

Battery long-term storage environment relative humidity: 20%~80%.

Cover the dust cover when no plug is inserted in the battery port to prevent foreign objects from damaging the female connector or corroding contacts and causing dangerous situations.

Do not place the battery in acid, alkali, salt water, or other liquids.

Do not disassemble or impact the battery.

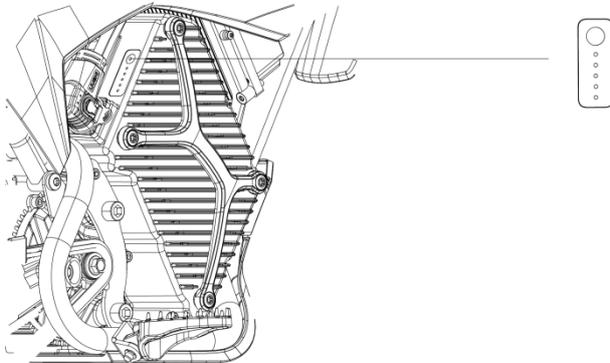
Strictly prohibit using or placing the battery under high temperatures, such as fire, heaters, etc., otherwise it may cause overheating, fire, or functional failure, shortened life.

Strictly prohibit use in strong static electricity and strong magnetic field places, otherwise it may easily damage battery safety protection devices, bringing safety risks.

6 Operation

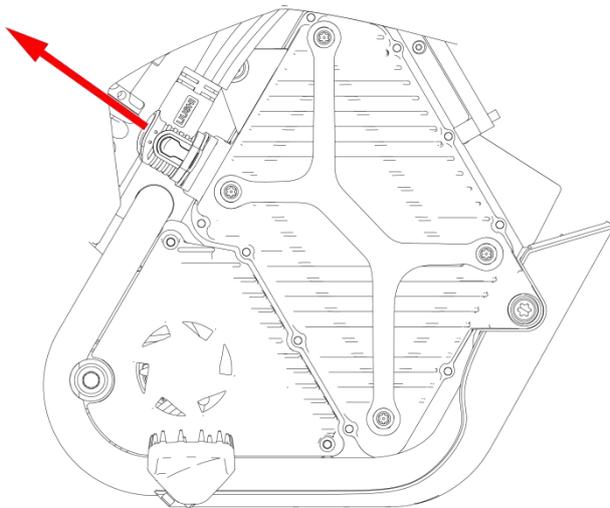
6.1 Vehicle Charging

1. Turn off the power



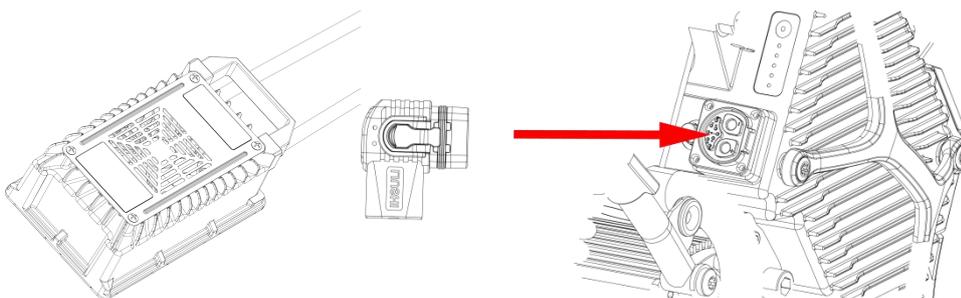
After stopping riding, press and hold the power button on the battery for 3 seconds to completely turn off the battery.

2. Remove the discharge plug



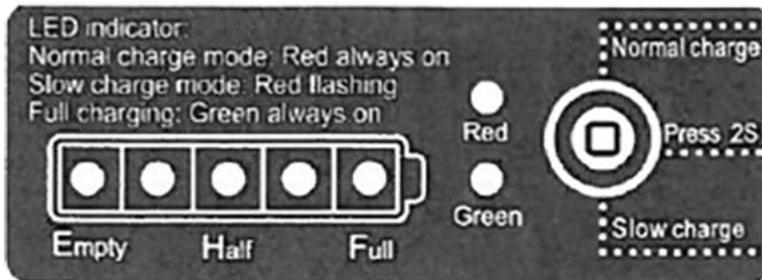
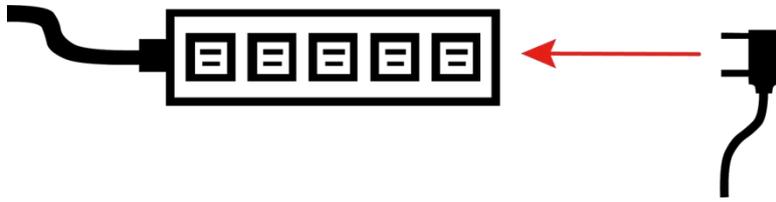
Locate the power cable connector, press the locking clip on the plug and pull it out.

3. Connect the charger plug



Insert the charger plug into the battery socket, the properly inserted plug's latch will naturally engage and lock.

4. Insert the charger power plug into a mains socket



Note!

The charger indicator light has rate indication and power indication;

Red light constant indicates fast charge, green light constant indicates slow charge, press and hold the button for 2 seconds to switch between fast/slow charging.

Note!

When the battery is fully charged, all charger power indicator lights remain constant and the working noise reduces.

⚠ CAUTION

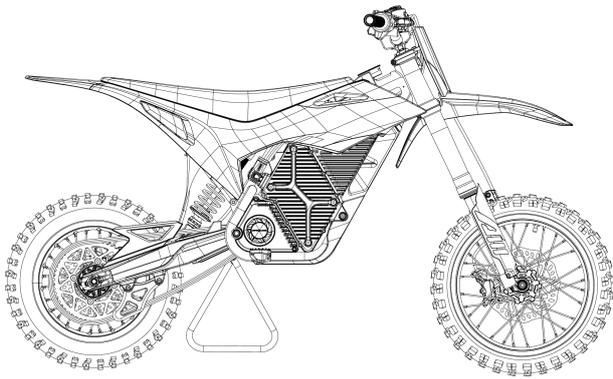
Batteries damaged by improper operation leading to excessive discharge cannot be repaired and must be replaced at the owner's expense.

If the charging head is not unplugged for a long time after the battery is fully charged, the charger will enter a flashing warning state.

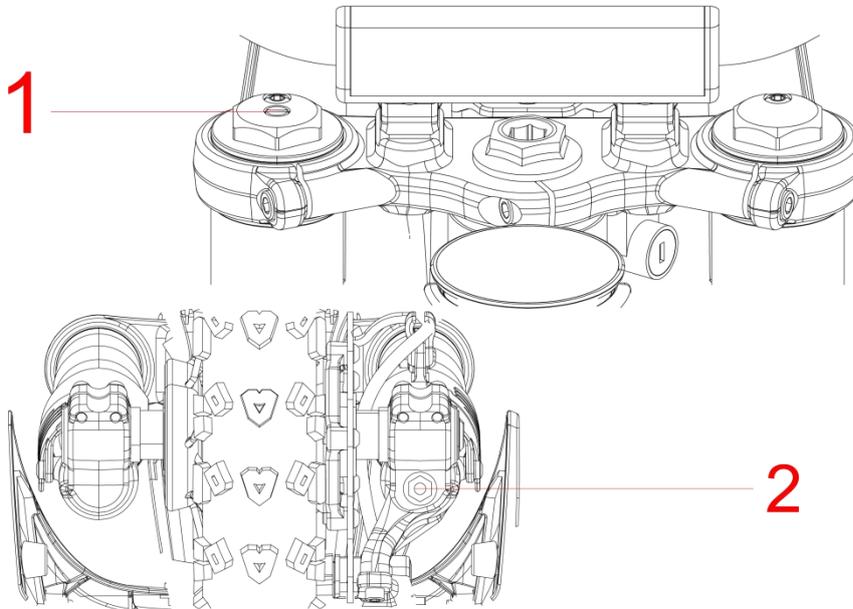
⚠ WARNING!

Do not press the power button to turn on the battery while it is charging.

6.2 Front Suspension Damping Adjustment



1. Ensure the motorcycle is powered off.
2. Park the vehicle securely using the parking stand.
3. Use the appropriate tool to adjust the upper and lower damping knobs on the fork.



Note!

The upper adjustment knob (①) on the front fork controls rebound damping.

Turning the knob clockwise (+) slows down the rebound.

Turning the knob counterclockwise (-) speeds up the rebound.

The lower adjustment knob (②) on the front fork controls compression damping.

Turning the knob clockwise (+) increases compression damping, making the suspension stiffer.

 **WARNING!**

Do not disassemble the suspension components. Doing so may result in serious injury.

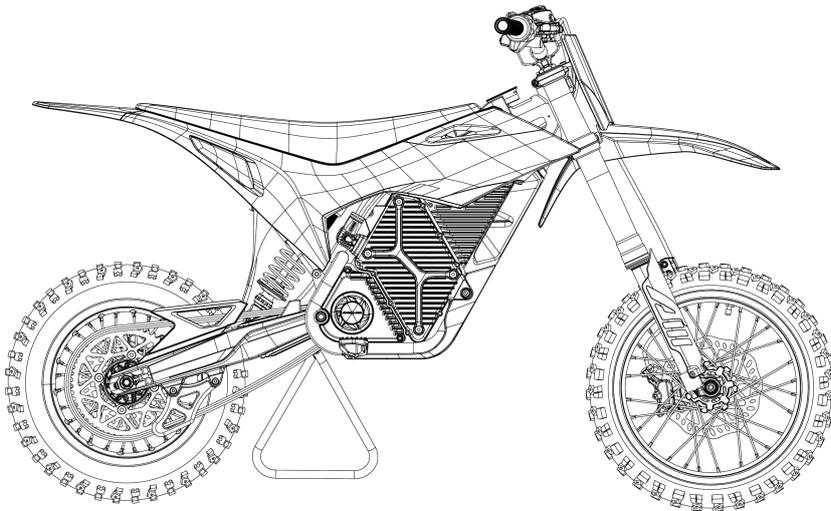
If damping adjustment becomes ineffective, contact your authorised dealer immediately.

 **CAUTION**

Avoid setting the rebound or compression damping adjusters to their extreme limits.

If maximum or minimum adjustment is required, it is recommended to turn back one click to prevent damage to the suspension

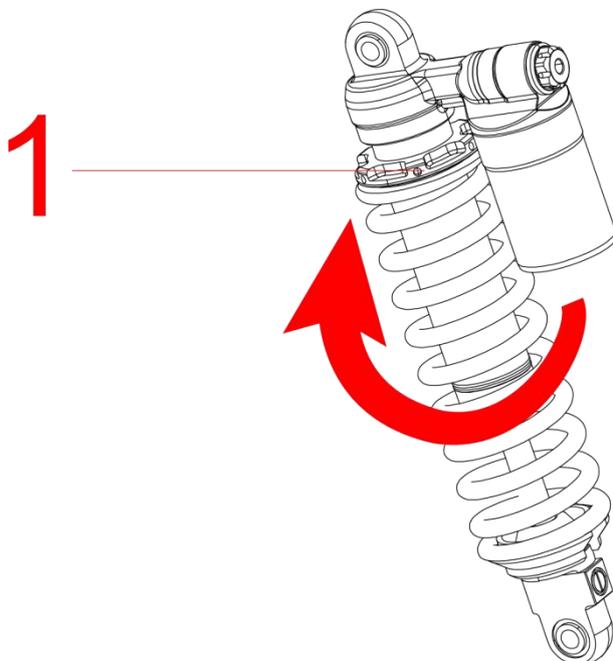
6.3 Rear Suspension Preload/Damping Adjustment



1. Ensure the motorcycle is powered off.
2. Park the vehicle securely using the parking stand.
3. Preload Adjustment:

Loosen the lock ring (①) at the top of the shock absorber spring.

- Turn counterclockwise to loosen
- Turn clockwise to tighten



The upper adjustment knob (①) controls compression damping.

The lower adjustment knob (②) controls rebound damping.

Compression Damping (①):

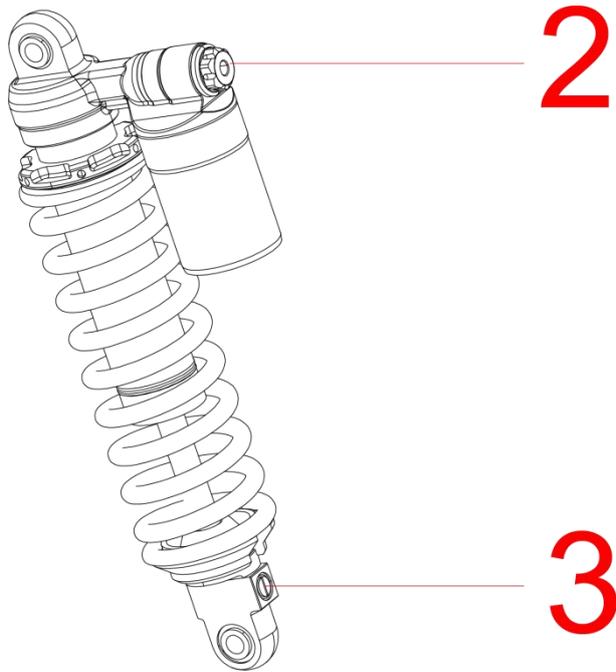
Turn clockwise (+): Suspension becomes stiffer (harder compression).

Turn counterclockwise (-): Suspension becomes softer (easier compression).

Rebound Damping (②):

Turn clockwise (+): Rebound becomes slower.

Turn counterclockwise (-): Rebound becomes faster.



⚠ WARNING!

Do not disassemble the suspension components. Doing so may result in serious injury.

If damping adjustment becomes ineffective, contact your authorised dealer immediately.

⚠ CAUTION

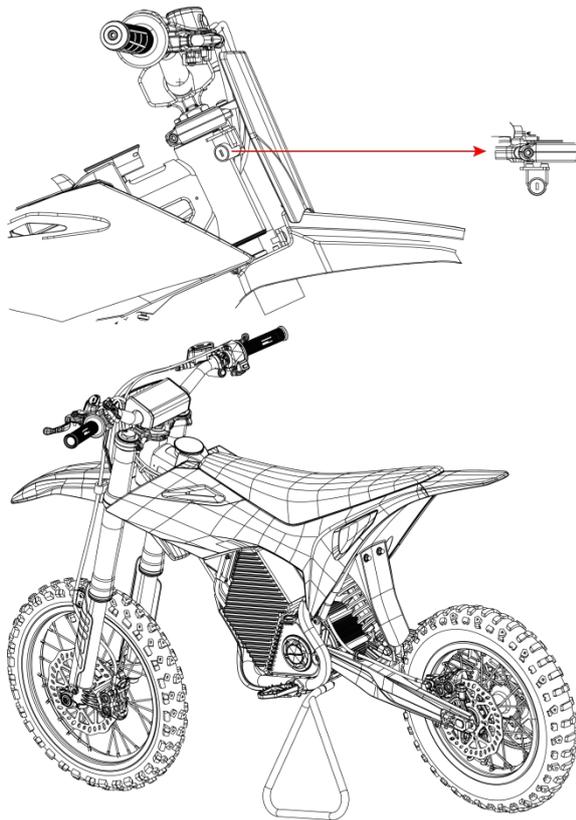
Avoid setting the rebound or compression damping adjusters to their extreme limits.

If maximum or minimum adjustment is required, it is recommended to turn back one click to prevent damage to the suspension

6.4 Steering Lock

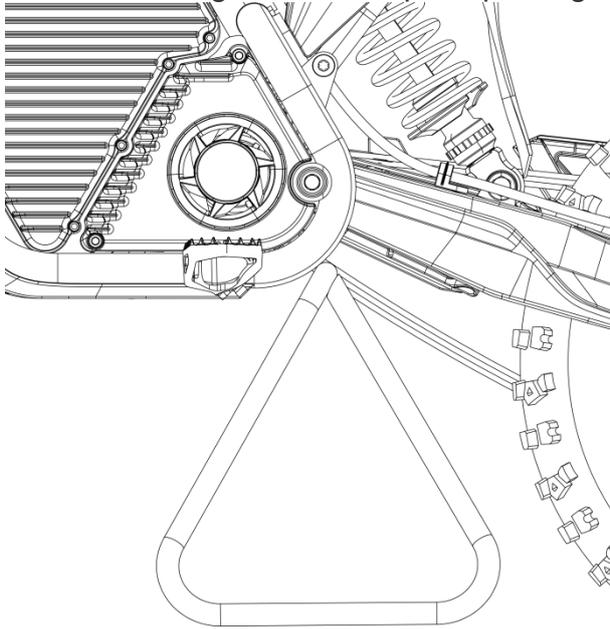
1. Ensure the motorcycle is completely powered off.
2. Turn the handlebars fully to the left.
3. Insert the key and rotate it to the left to engage the steering lock.

(The steering lock mechanism is located on the right side of the steering head.)



6.5 Parking

After stabilising the motorcycle, insert the parking triangle stand into the designated frame mounting hole to complete parking.



7 Pre-Ride Inspection

WARNING!

Do not ride the motorcycle if any component is found to be defective.

The manufacturer provides no warranty coverage for damage or safety incidents caused by:

- Negligence on the part of the authorised dealer
- Improper vehicle care and maintenance by the user
- Operation that violates the guidelines of this manual

CAUTION

For your own safety, always perform a pre-ride inspection before each use.

This helps prevent accidents resulting from unexpected mechanical failures.

Pre-departure Inspection Table:

Checkpoint	Verification
Brake System	Perform inspection while stationary. When you pull the brake, it must not be pulled all the way to the handlebar. The brake system must have stable pressure point when working. If you need to pull the brake lever several times to achieve the desired braking force, contact an authorized dealer to check the brake system. Check brake lines, no fluid leakage. Check brake pads. If brake pads are worn to only 1mm at any point, replace both brake pads.
Wheels	Check if wheels operate normally. Check tires for damage and tread wear. Check tire pressure, correct if necessary.
Throttle	Check if throttle functions normally, rotates smoothly without sticking. Check if it returns to position normally.
Side Stand	Check operating status. If the vehicle is turned on and the throttle lever is rotated, the side stand should not cut power when folded.
Vehicle Body and Suspension	Check that bolts, nuts, and screws are tight.
Chassis	Check the function of shock absorbers by compressing them several times. Also check front and rear shock absorbers for leaks and dirt. Apply front brake, push down on handlebars several times to check if front suspension works properly. Push down on seat several times to check if rear shock absorbers work properly.
Instrument and Lighting	Check if the instrument panel and all lights on the vehicle work properly. This is especially important to be noticed by other traffic participants.

Checkpoint	Verification
Li-ion Battery	Before use, make sure the battery is always fully charged.
Steering	Check for trouble-free operation, lubricate steering pivot if necessary.

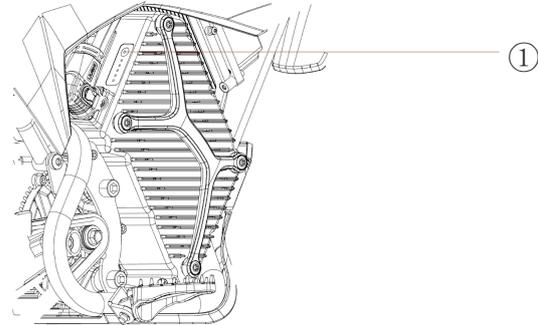
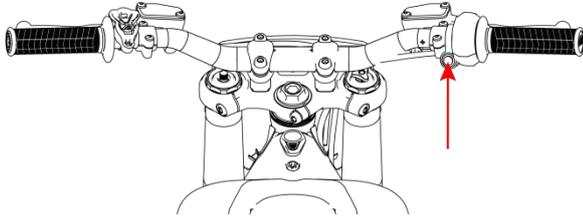
 **WARNING!**

Before riding, make sure you are fully familiar with all control components and their functions.

If you have any questions or uncertainties, contact your authorised dealer immediately.

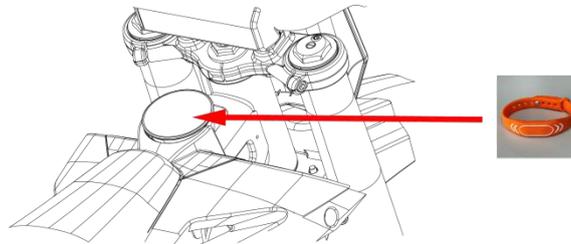
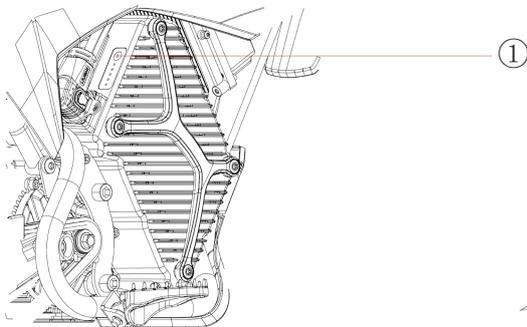
8 Riding Instructions

8.1 Starting



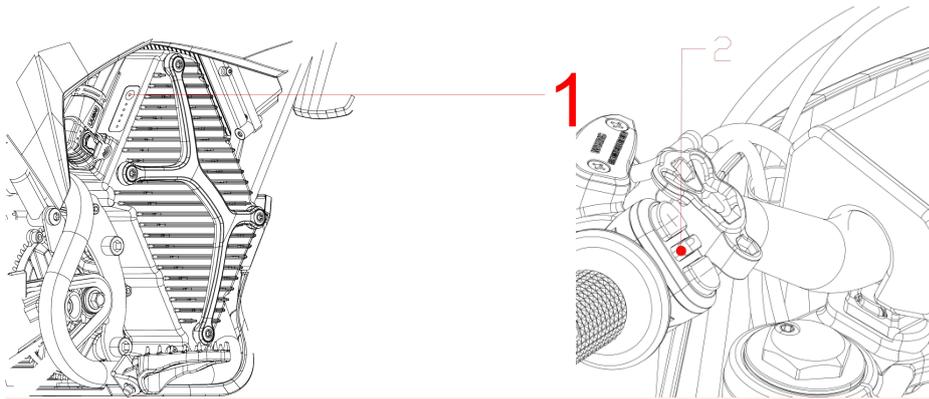
Mode 1:

- ☒ Locate the main power switch and press the button until it is fully depressed.
- ☒ Locate the battery button (①) on the battery, positioned on the right-hand side of the vehicle.
- ☒ Press and hold for 3 seconds to turn the power ON/OFF (short press to display the battery level).
- ☒ Ensure the throttle is in the neutral position, then press and hold the P button (②) for 2 seconds to unlock the P-gear. The “READY” indicator on the display will illuminate.



Mode 2:

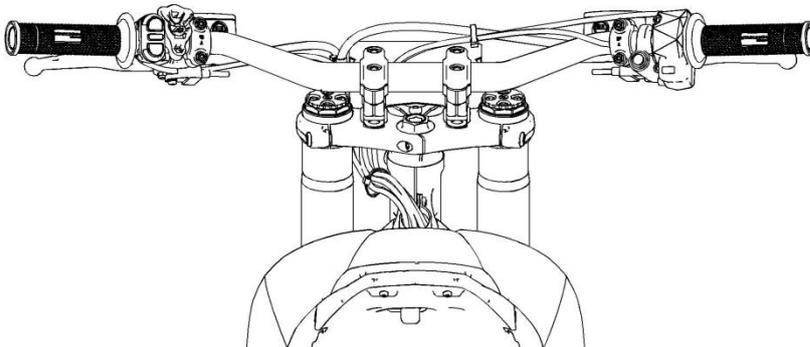
- ☒ Find the battery button (①) (on the battery, right side of vehicle)
- ☒ Press and hold for 3 seconds to turn on/off power (short press to display power level)
- ☒ Place the sensing side of the wristband close to the instrument panel, the NFC will turn on the instrument and controller after detection
- ☒ Ensure the throttle has returned to position, press and hold P button (②) for 2 seconds to unlock P mode, the "READY" icon lights up on the instrument

**⚠ WARNING!**

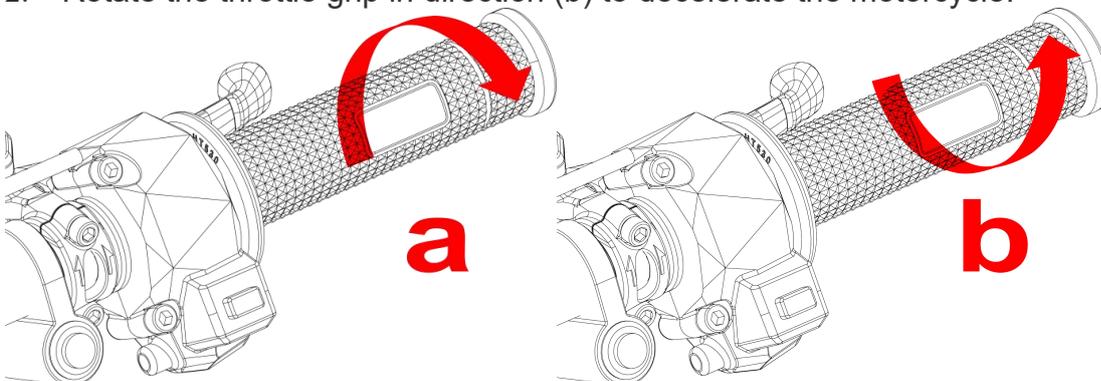
Children must not operate on their own, please operate under the supervision of a guardian to avoid danger.

8.2 Emergency Power Cut-off Switch

The emergency power cut-off switch is designed to immediately disconnect the main power supply of the vehicle in case of abnormal conditions or dangerous situations. Activating this switch will instantly stop the motor output, preventing unintended acceleration.

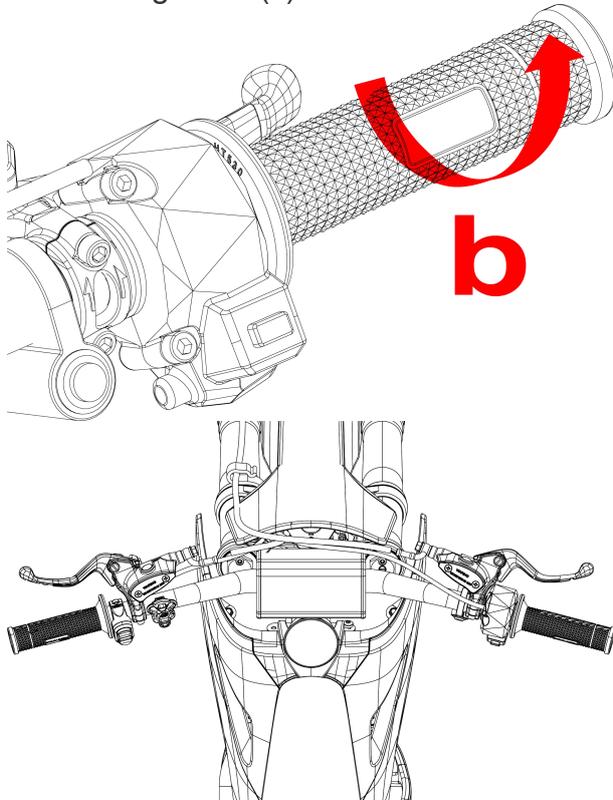
**8.3 Acceleration/Deceleration**

1. Rotate the throttle grip in direction (a) to accelerate the motorcycle.
2. Rotate the throttle grip in direction (b) to decelerate the motorcycle.



8.4 Braking

1. Fully release the throttle grip (b) to initiate deceleration.
2. Simultaneously apply both the front and rear brakes, gradually increasing braking force (c).



⚠ WARNING!

Avoid sudden or aggressive braking, as this may cause the tyres to lose traction and skid.

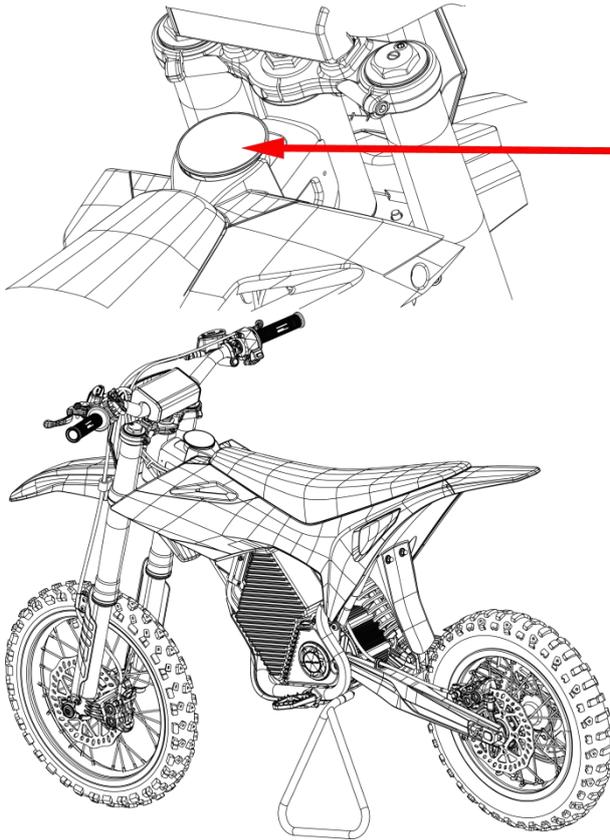
On wet or slippery surfaces, braking distances will be significantly increased.

Avoid riding in extreme weather conditions such as heavy rain whenever possible.

When riding downhill on dry roads, apply the brakes gently and continuously to maintain control and prevent brake overheating.

8.5 Shutdown and Parking

- After riding is finished, first stop securely, then lock P mode to turn off power response, or use the NFC wristband to sense the instrument to turn off, or reset the startup switch to turn off.
- Press and hold the button on the battery for 3 seconds to turn off the power
- Park using the tripod stand

**⚠ CAUTION**

Ensure the vehicle is parked on a stable and level surface.

8.6 APP Control

For detailed operation instructions, please scan the QR code provided.



9 Settings and Maintenance

The safety and condition of the motorcycle depend on proper maintenance, regular inspections, adjustments, and lubrication.

On the following pages, you will find relevant instructions.

These maintenance guidelines will assist you in performing preventive care and basic servicing.

However, some maintenance tasks require specialised tools.

WARNING!

Do not attempt any maintenance work that you are unfamiliar with or that may affect warranty coverage.

Unauthorised modifications to the motorcycle may alter its performance and compromise safe operation.

Any such modifications performed without manufacturer approval will void the warranty.

When checking tyre pressure, ensure that the tyres are at ambient temperature.

Always inspect tyre pressure before every ride to ensure it is within the recommended range.

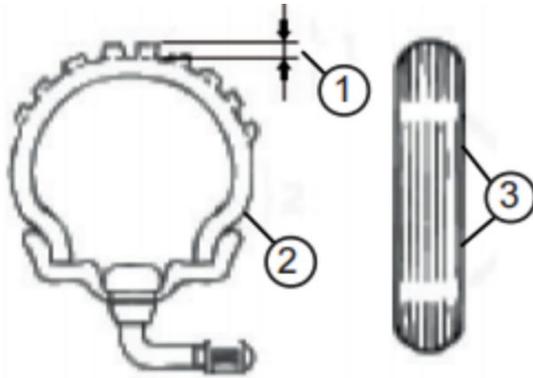
CAUTION

All maintenance work should be performed by an authorised and qualified dealer.

9.1 Tires

For best tire performance, durability, and safe operation, please refer to the following tire instructions.

Tire Inspection



Front Tyre and Rim Size

Rim: 14 × 1.4

Tyre: 60/100-14

Rear Tyre and Rim Size

Rim: 12 × 1.85

Tyre: 80/100-12

Tyre Tread Depth Inspection ①

The recommended minimum tread depth is 3 mm.

If tread depth is below this value, replace the tyre immediately.

Tyre Sidewall Inspection ②

If cracks or visible damage appear on the tyre sidewall, replace the tyre immediately.

Tyre Wear Indicator Inspection ③

If the tread wears down to the wear indicator, the tyre is no longer safe for use and must be replaced promptly.

Tire	Tire Pressure
Front Tire	1.3 Bar (19.1 psi)
Rear Tire	1.3 Bar (19.1 psi)

⚠ WARNING!

Do not overload the motorcycle.

Excessive load increases pressure on the tyres during rotation and adds strain to the braking and steering systems.

This can lead to component failure or accidents.

Proper weight distribution on the motorcycle is critical for safe operation.

⚠ WARNING!

Inspect tyre wear before every ride.

If the tread has reached the wear indicator, contact a qualified technician immediately to replace the tyre.

This is essential for your safety.

⚠ WARNING!

Tyre wear directly affects riding stability.

Do not continue riding if the tyre is worn beyond the limit or visibly damaged.

Dealers are responsible for checking tyre condition at the time of sale and during maintenance.

⚠ CAUTION

Tyre pressure must be checked before every ride and corrected as needed.

Check tyre pressure regularly.

⚠ CAUTION

To ensure optimal performance, durability, and safe operation of the motorcycle, always follow the guidelines related to rims.

Before each ride, inspect the rims for cracks or deformation.

Damaged rims must be replaced by an authorised dealer.

Do not attempt to repair bent or broken rims yourself — they must be replaced.

⚠ CAUTION

The technical values provided are for reference and may differ from legal requirements in your region. Always comply with local regulations.

9.2 Brake System

(For safe use of brakes, please refer to the following tire instructions.)

9.2 Brake System

For safety guidelines related to braking, refer to the tyre section above.

9.2.1 Brake Lever

Front Brake Lever ① (located on the right side of the handlebar):

Power off the motorcycle and park it on level ground or lift it securely using a stand.

Check that the lever moves smoothly. If there is any stiffness or sticking, apply lubricant to the pivot point ③.

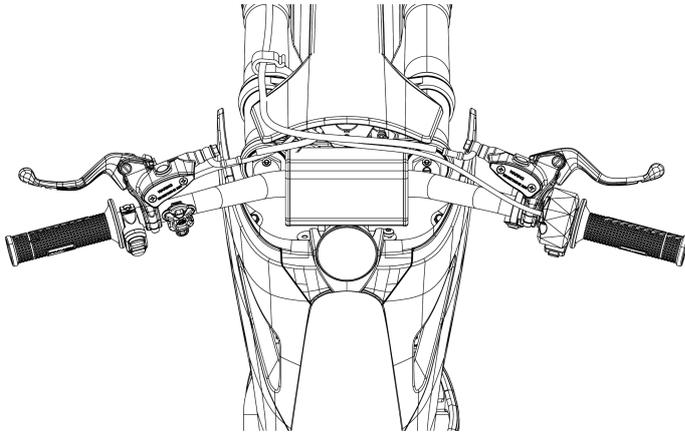
Pull the brake lever and assess the brake feel. If it feels excessively soft, brake fluid or brake pads may need to be replaced.

Rear Brake Lever ② (located on the left side of the handlebar):

Power off the motorcycle and park it on level ground or lift it securely using a stand.

Check that the lever operates smoothly. If movement is stiff, apply lubricant to the pivot point ③.

Pull the brake lever and assess the braking force. If it feels too soft, brake fluid or brake pads should be replaced promptly.



⚠ WARNING!

If the brake lever feels soft or spongy and braking performance is reduced, this may be due to water or air entering the brake system, or damaged brake components.

This condition can severely reduce braking force and may lead to loss of control.

If such symptoms occur, stop riding immediately and contact an authorised dealer for inspection and repair.

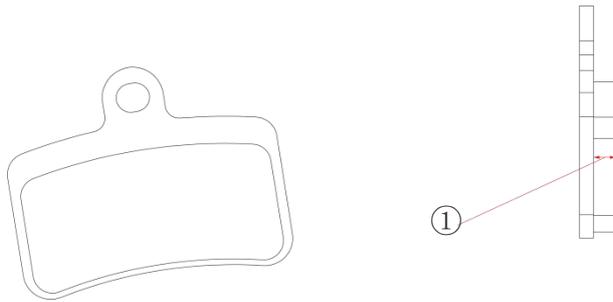
⚠ CAUTION

Check both front and rear brake levers regularly to ensure they function properly.

The pivot points of both brake levers must be lubricated periodically to maintain effective braking force.

If you encounter any braking issues, contact an authorised dealer for a thorough inspection of the brake system.

9.2.2 Brake Pads



Front / Rear Brake Pad Inspection

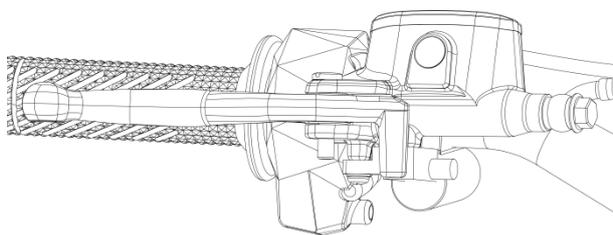
Before every ride, inspect the front and rear brake pads as outlined in the maintenance schedule.

If the brake pad thickness has worn down to the wear limit indicator or is less than 0.5mm (①), replace the entire set of brake pads immediately.

⚠ CAUTION

If you experience any braking issues, contact an authorised dealer to inspect the brake system.

9.2.3 Brake Fluid



Brake Fluid Inspection

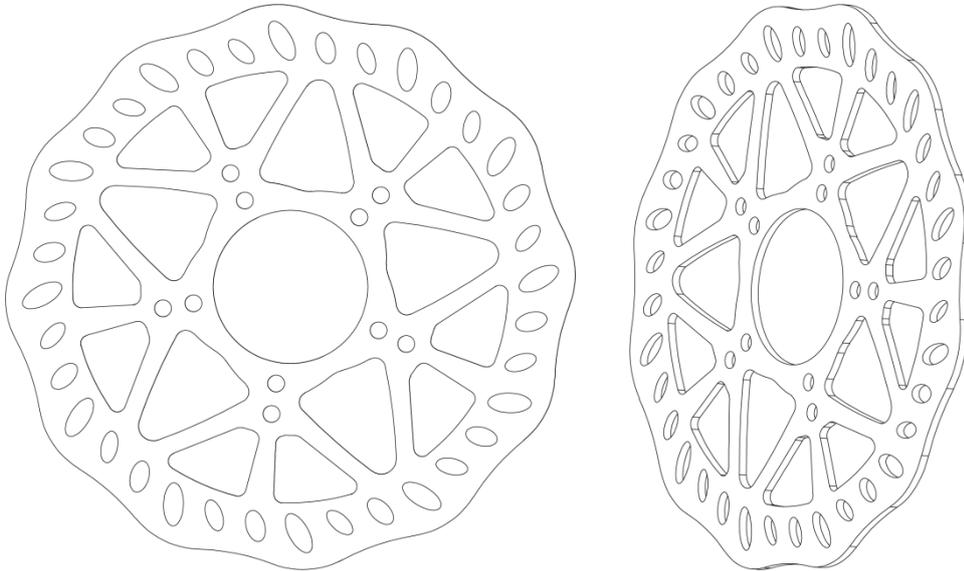
Check that the brake fluid level is within the appropriate range using the inspection window (①).

Brake fluid must only be replaced by an authorised dealer.

The brake fluid specification must not be lower than DOT 4.

⚠ CAUTION

If you experience any braking issues, contact an authorised dealer to inspect the brake system.

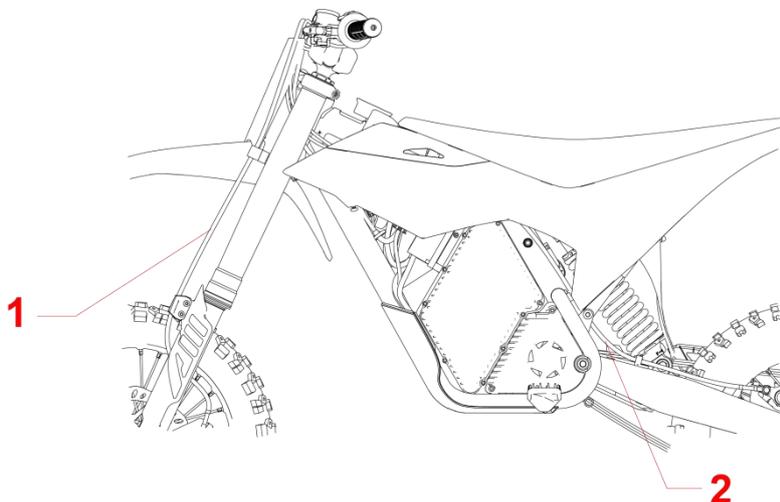
9.2.4 Brake Disc

Before every ride, inspect the brake disc for signs of warping or unusual wear marks on the disc surface.

If any deformation or abnormal friction patterns are found, do not ride and have the brake disc inspected by an authorised dealer.

⚠ CAUTION

If you experience any braking issues, contact an authorised dealer to inspect the brake system.

9.2.5 Brake Hoses

Before every ride, inspect the brake hoses (①, ②) for signs of bending, ageing, or abnormal abrasion.

If any damage or wear is found, contact an authorised dealer to replace the hoses.

 **WARNING!**

Do not attempt to disassemble the brake hoses yourself — brake fluid is corrosive and may cause injury.

Do not modify the routing of the brake hoses, as this may lead to abnormal pressure points and brake failure.

 **CAUTION**

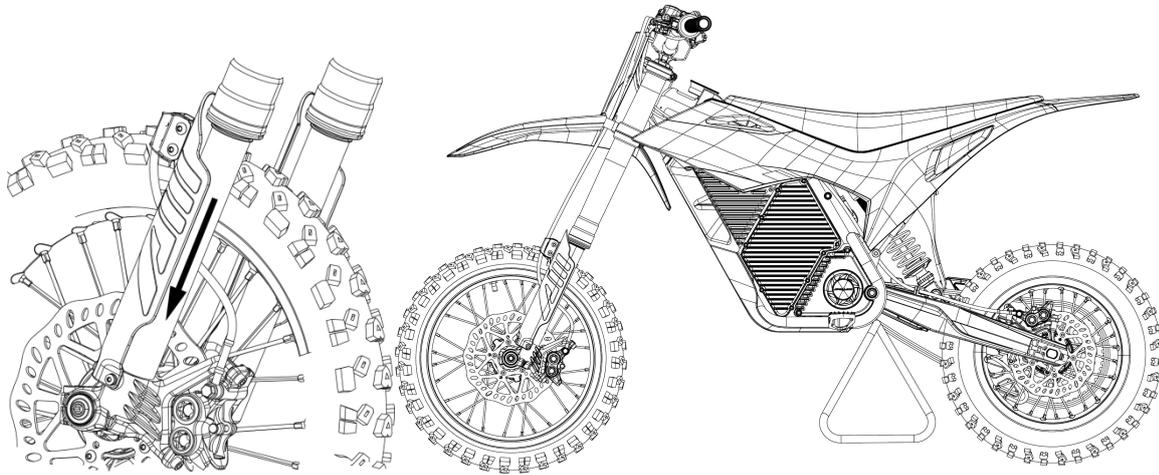
Ensure the brake hoses do not interfere with any part of the vehicle during operation.

If you experience any braking issues, contact an authorised dealer for a complete brake system inspection.

9.3 Suspension System

Before each ride, a brief inspection of suspension components must be carried out, and repairs should be made if necessary.

9.3.1 Suspension System Inspection

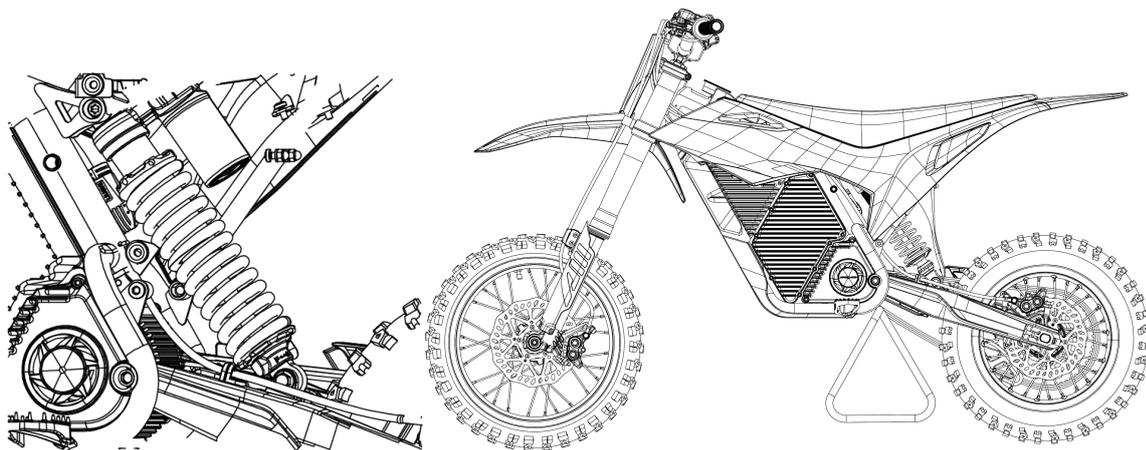


1. Front Fork Inspection:

Park the motorcycle upright on level ground.

Check the fork tube surfaces for scratches, damage, or oil leakage.

Hold the front brake lever and press down on the handlebars several times to verify that the front suspension compresses and rebounds smoothly.



2. Rear Shock Absorber Inspection:

Inspect the shock shaft and housing for scratches, damage, or oil leakage.

Press down firmly on the seat multiple times to ensure the rear suspension is operating correctly.



Before riding, check that the front suspension and fork guards do not interfere with the tyres or brake system.

Also inspect for oil leakage.

Any interference or leakage may lead to a serious safety hazard.

If such issues are found, stop riding and contact an authorised dealer immediately.

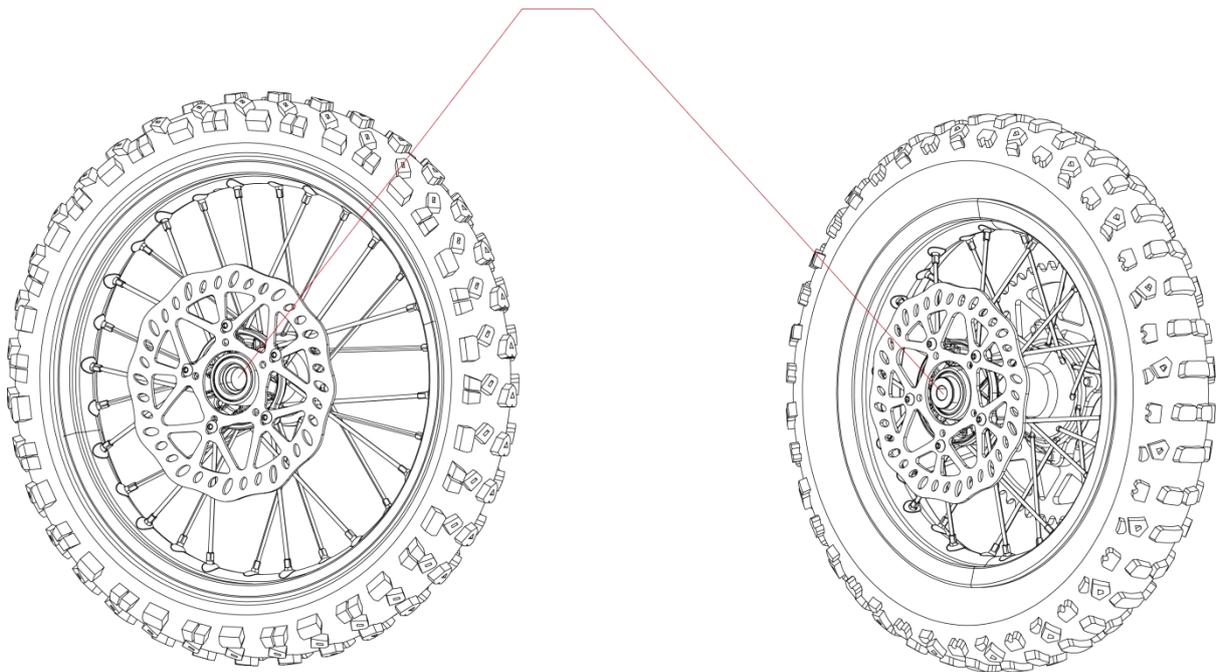
⚠ CAUTION

The suspension must operate smoothly without any shaking or vibration.

If abnormal behaviour is observed, have the vehicle inspected by an authorised dealer.

Perform regular maintenance and minor repairs as recommended.

9.3.2 Wheel Bearings



Wheel Bearing Inspection

Place the motorcycle on a lift stand and remove the wheel.

Use a suitable tool to move the wheel bearing side-to-side and assess any play or looseness.

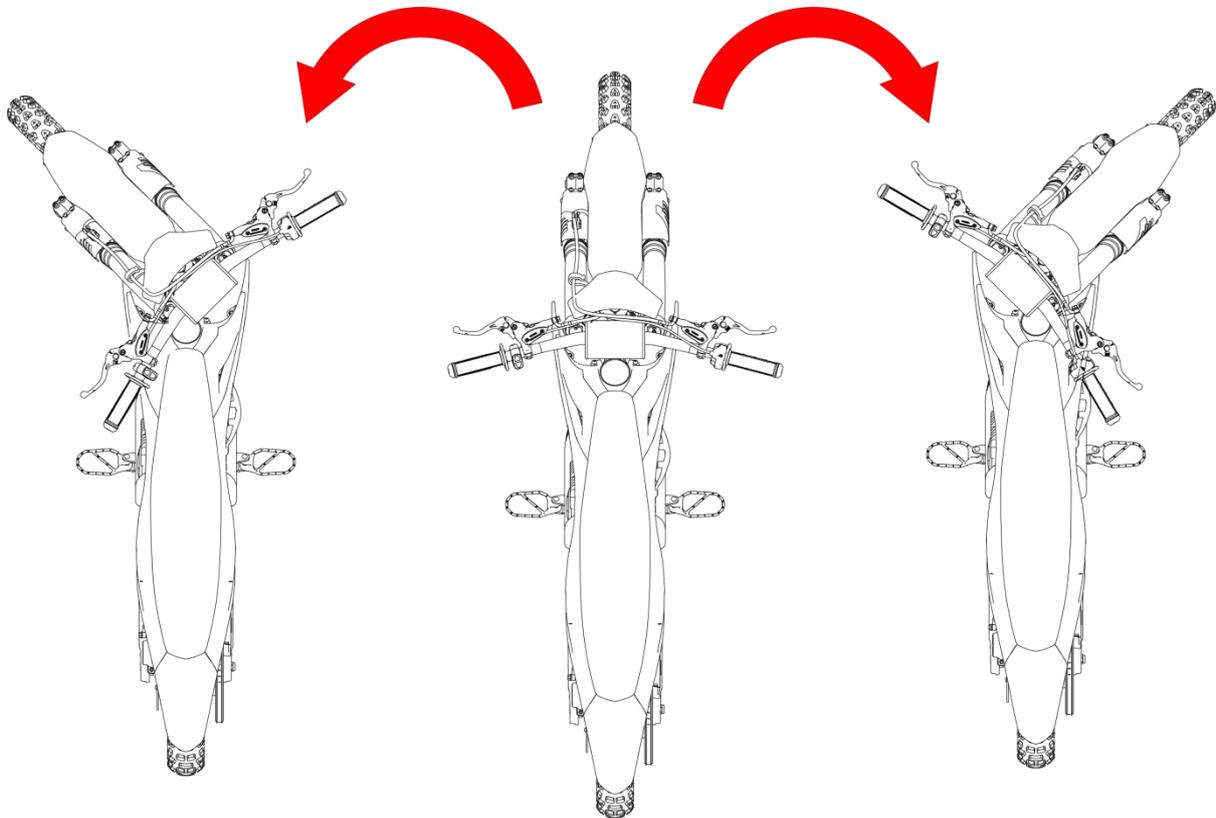
⚠ CAUTION

Before every ride, perform a brief check of the steering components and service them if necessary.

Wheel bearings must be inspected in accordance with the maintenance schedule.

If you notice excessive play in the hub or difficulty in wheel rotation, contact your authorised dealer for further inspection.

9.3.3 Steering Column Bearings



Steering Head Bearing Inspection

Place the motorcycle on a lift stand.

Gently move the front end side to side to check for any noticeable play in the steering head bearings.

⚠ WARNING!

Regularly inspect the condition of the steering head bearings.

Worn or loose bearings can lead to hazardous riding conditions.

Always lubricate and service the steering bearings as part of scheduled maintenance, and replace them if necessary.

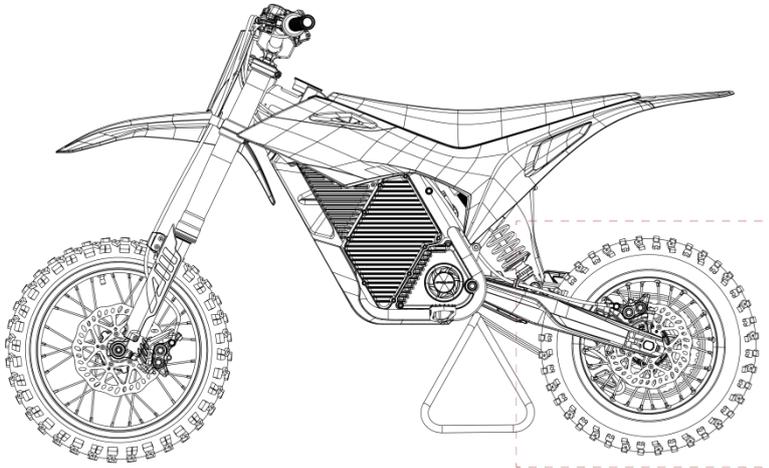
⚠ CAUTION

Before every ride, perform a brief check of the steering components and arrange for servicing if needed.

If any looseness or abnormality is detected, have the motorcycle inspected by an authorised dealer.

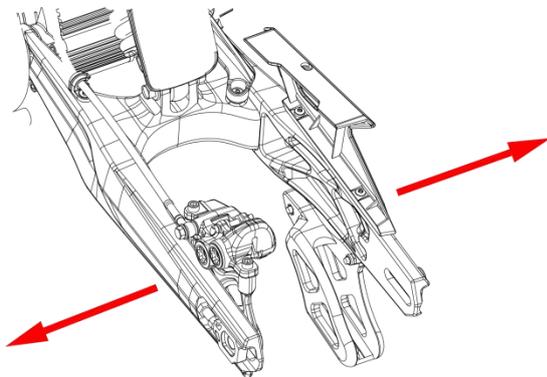
9.3.4 Rear Fork Bearings

Rear Swingarm Bearing Inspection



Place the motorcycle on a lift stand and remove the rear wheel.

Detach the rear shock absorber, then gently move the swingarm side to side to check for any noticeable play in the bearings.



⚠ WARNING!

Regularly inspect the condition of the rear swingarm bearings.

Excessive wear or looseness may pose a safety risk.

Ensure that the bearings are properly lubricated and serviced as needed, and replace them if any abnormalities are found.

⚠ CAUTION

Before every ride, briefly inspect the swingarm assembly.

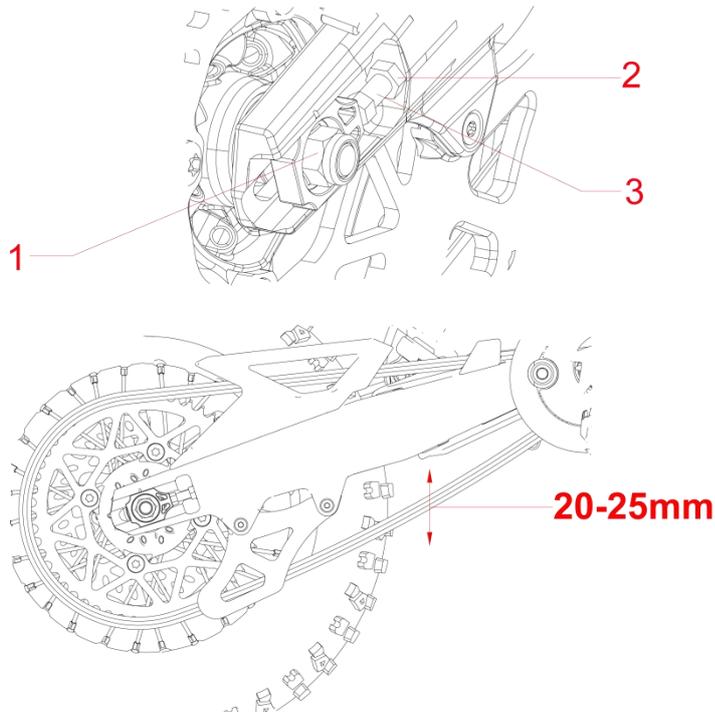
If any irregularities are detected, have the component serviced or inspected by an authorised dealer.

9.4 Drive System

9.4.1 Chain

Drive Chain Adjustment

Place the motorcycle on a lift stand.



Loosen the rear axle nut (①).

Loosen the chain adjuster lock nuts (②).

With the motorcycle unloaded, turn the adjustment bolts (③) until the chain slack is between 20–25 mm.

Tighten the rear axle nut to a torque of 55–60 N·m.

⚠ CAUTION

The rear axle nut must be torqued using a certified torque wrench to avoid damage to the vehicle.

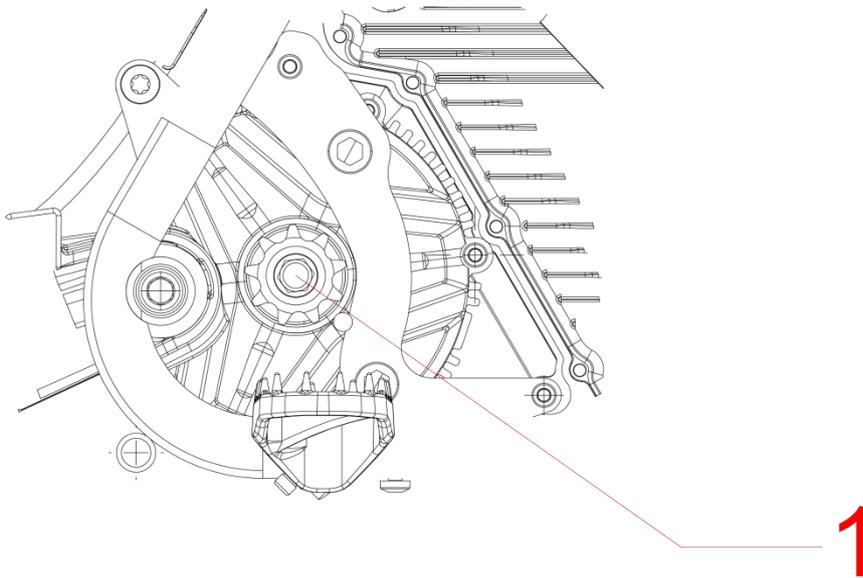
Incorrect chain slack may lead to premature wear or damage to the sprockets, bearings, chainwheel, or the chain itself.

In the worst case, the chain could break or derail, which may result in a traffic accident.

If the chain is rusty, kinked, or has excessive lateral movement, it must be replaced immediately.

9.5 Electrical System

9.5.1 Motor



Motor Inspection

Place the motorcycle on a stand so that the rear wheel is lifted off the ground.

Remove the drive chain and inspect the front sprocket for signs of wear.

Power on the motorcycle and gently rotate the throttle grip to observe the motor (①).

Check for abnormal noise or resistance during rotation.

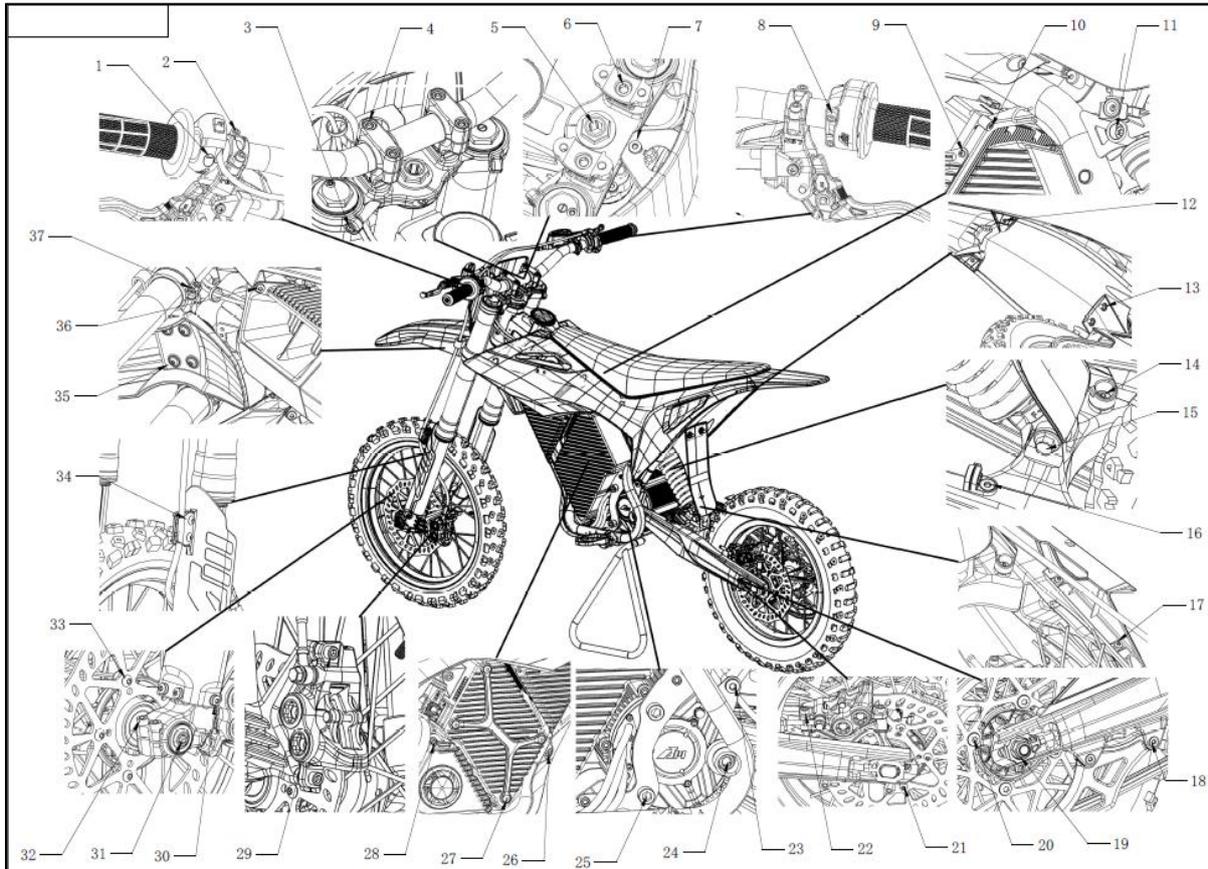
⚠ CAUTION

If the motor exhibits abnormal noise or any signs of binding, contact your authorised dealer immediately.

Keep hands, tools, and loose items away from rotating components during operation.

Do not touch the sprocket or motor while it is in motion.

9.6 Vehicle Torque Specifications



No.	Component/Installation Position	Spec.	Qty	Torque (N·m)
1	Gear selector switch	M4	2	3.5–4.5
2	Master cylinder clamp	M5	4	8–10
3	Upper triple clamp plate	M6	3	14–16
4	Upper triple clamp	M8	4	25–27
5	Steering stem end cap	M24	1	15–17
6	Lower triple clamp	M10	2	30–32
7	Number plate	M6	1	4–6
8	Throttle housing	M5	2	4–6
9	Controller cover	M4	2	3–5
10	Controller body	M6	4	8–10
11	Rear shock upper mount	M10	1	40–45
12	Rear fender bracket	M4	2	3–5

No.	Component/Installation Position	Spec.	Qty	Torque (N·m)
13	Rear mudguard	M6	2	8–10
14	Swingarm protector	M5	3	3–5
15	Rear shock lower mount	M10	1	40–45
16	Rear brake hose holder	M6	1	5–7
17	Chain guard	M5	7	4–6
18	Chain guide	M6	2	6–8
19	Rear axle	M12	1	55–60
20	Rear sprocket	M8	4	28–33
21	Rear brake disc	M6	5	12–14
22	Rear brake caliper	M6	5	12–14
23	Lower subframe mount	M8	2	25–30
24	Swingarm axle	M12	2	55–60
25	Traction motor mount	M12	4	55–60
26	Battery mount	M10	2	35–40
27	Battery handle	M8	4	25–30
28	Motor cover	M6	4	6–8
29	Front brake caliper	M6	2	12–14
30	Fork decorative cap	M5	6	4–6
31	Front axle bolt	M16	1	15–17
32	Fork bottom mount	M6	4	12–14
33	Front brake disc	M6	5	12–14
34	Front brake hose clamp	M6	2	6–8
35	Front mudguard	M6	4	6–8
36	Side panel front mount (L/R)	M6	2	6–8
37	Lower triple clamp plate	M6	4	12–14

10 Cleaning and Storage

10.1 Vehicle Cleaning

Preparation Before Cleaning

Wait until the motor, battery, and controller have fully cooled down.

Ensure all electrical connectors are securely fastened to prevent water intrusion.

Use a pressure washer or water spray to clean the vehicle.

Note!

Do not use gasoline, rust remover, brake cleaner, or similar chemicals on plastic or painted parts — these substances may cause ageing or damage.

After riding in salty or corrosive environments, clean the vehicle as soon as possible to prevent corrosion.

WARNING!

Ensure no cleaning agents or lubricants remain on the brake discs.

Any contamination may lead to brake failure during operation, posing a serious safety risk.

If such substances come into contact with the braking system, clean thoroughly before use.

CAUTION

Use only water and mild cleaning agents, or products specifically recommended by authorised dealers.

Do not use acidic cleaners.

If such agents are used accidentally, clean the affected area immediately to prevent damage.

Dry the motorcycle with a clean towel or sponge after washing.

Always follow the manufacturer's care and cleaning guidelines.

Do not use high-pressure washers or steam cleaners on the motorcycle.

High-pressure water may force moisture into bearings or electrical components, such as connectors, switches, or lighting systems.

This may also damage brake pads, seals, paint, or other parts.

⚠ CAUTION

Salt is highly corrosive.

Follow these cleaning instructions after riding in salty or coastal environments:

Wait until the motor has cooled completely.

Use water and a mild detergent to wash all surfaces.

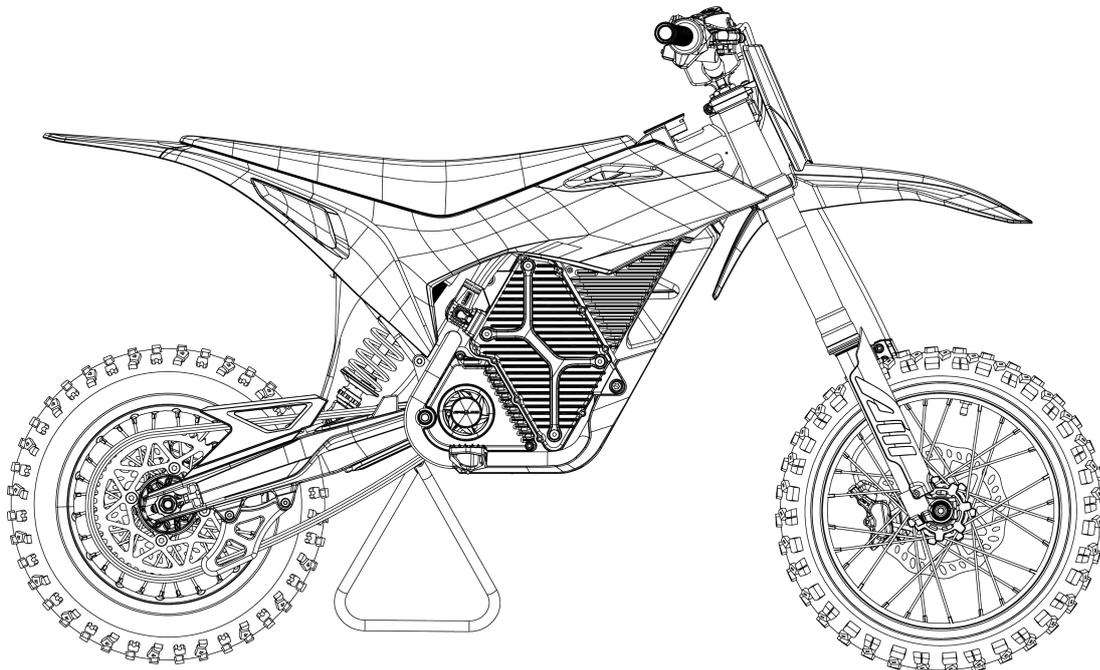
Clean all metal parts thoroughly and apply anti-corrosion spray to components, including nameplates and nickel-plated surfaces.

Use warm water, gentle detergent, and a soft, clean sponge to remove dirt.

Rinse thoroughly with clean water.

Use a small brush to clean hard-to-reach areas.

After cleaning, apply appropriate protective products to prevent rust.

10.2 Vehicle Storage

For long-term storage, place the vehicle in a cool, dry place, store the sensing wristband safely, and protect with a waterproof cloth cover if necessary.

10.3 Li-ion Battery Storage

Dispose of the battery immediately if the battery case is damaged, do not continue to store it.

Keep the battery away from open flames, cigarettes, or other dangerous environments, and ensure it is placed in a dry and safe location.

Ensure the storage place is equipped with safety protective devices (fire-fighting equipment, fire-fighting facilities).

For detailed information about the battery, please refer to the "Power Components" section.

 **CAUTION**

Always keep the battery with a certain amount of charge. Storing a depleted battery will cause permanent damage to the battery.

 **WARNING!**

Store the vehicle in a well-ventilated place. High humidity air will cause vehicle rust causing component sealing failure.

If you are not familiar with the battery, please contact a professional dealer.

11. Technical Specifications

The following technical specifications describe the standard configuration of the RFN WARRIOR SX-E8 electric off-road motorcycle. Specifications are subject to change without notice.

Basic Vehicle Parameters

Model	SX-E8
Name	RFN WARRIOR
Vehicle Type	Two-wheel Electric Off-road Motorcycle
Compliance	CE
Rated Voltage	60V
Dimensions (L×W×H)	1630×720×985 mm (64.2×28.3×38.8 in)
Wheelbase	1145 mm (45.1 in)
Rake Angle	26°
Seat Height	745 mm (29.3 in)
Ground Clearance	290 mm (11.4 in)
Steering Angle	45°
Trail	90 mm (3.5 in)

Li-ion Battery Pack and Range

Capacity	35 Ah / 2100 Wh
Discharge Rate	8C
Rated Discharge Current	120A
Peak Discharge Current	220A
Certification	CE 1542, R136
Control System	CANBUS
Range	60 km (37.3 mi)
Battery Detachable	Yes, removable for charging
Battery Lifecycle	300 cycles
Charging Time	3 hours

Motor and Performance

Motor Type	Permanent Magnet Synchronous Motor
Rated Power	5 kW (6.7 hp)
Maximum (Peak) Power	11.8kW (17.7 hp)
Maximum Speed	78 km/h (49.7 mph)

Maximum Wheel Torque	300 N·m (221.3 ft·lbf)
Climbing Angle @10km/h	25°
Wading Depth	0.6 m (23.6 in)
Cooling Method	Air-cooled

Transmission System

Drive System	Chain Drive
Drive Ratio	9:54
Chain Type	420

Suspension System

Front Suspension	Total Length: 700 mm (27.6 in) Travel: 200 mm (7.9 in)
Rear Suspension	Total Length: 320 mm (12.6 in) Travel: 80 mm (3.1 in),

Braking System

Front Brake	203 mm (8.0 in) Disc Brake
Rear Brake	190 mm (7.5 in) Disc Brake

Tires and Weight

Front Tire Size	60/100-14
Rear Tire Size	80/100-12
Front Rim	WM1.4-14
Rear Rim	WM1.85-12
Curb Weight	58 kg (127.9 lb)
Maximum Load	75 kg (165.3 lb)

Battery Operating Parameters

Standard Configuration	60V 35Ah Li-ion Battery Pack
Charging Temperature Range	0°C to 45°C (32°F to 113°F)
Discharging Temperature Range	-15°C to 55°C (5°F to 131°F)
Maximum Discharge Current	220A
Long-term Storage Temperature	5°C to 35°C (41°F to 95°F)
Relative Humidity for Storage	20% to 80%
Battery Lifecycle	300 cycles

Recommended Tire Pressure

Front Tire	1.3 Bar (19.1 psi)
Rear Tire	1.3 Bar (19.1 psi)

NOTE: The specifications listed above are standard for the RFN WARRIOR SX-E8. The actual vehicle may differ slightly due to continuous product improvement. If you have any questions about the specifications, please consult your authorized dealer.

 **WARNING!**

Maximum rider weight must not exceed 75 kg(165.3 lb) Exceeding this limit may affect vehicle performance and safety.

12. Warranty and Guarantee

Before operating the motorcycle, carefully read the user manual to become familiar with its operation.

You must follow all usage, care, and maintenance instructions provided in this manual to retain warranty coverage and eligibility for claims.

Proper adherence to these guidelines will significantly increase the service life of your motorcycle.

From the date of first delivery to the end customer, a 12-month limited warranty (or the applicable legal warranty period) is granted on major vehicle components, covering defects in materials or workmanship (see “After-Sales Service and Warranty Scope” table for details).

All warranty repairs must be carried out by an authorised service facility.

No warranty claims may be made for damages caused by improper use, operation, or disregard of the instructions in this manual.

Warranty claims are valid only when any damage is reported directly to the seller or an authorised dealer without delay.

Under warranty, the customer is entitled solely to the correction of the defect.

No compensation will be provided for direct or indirect damages.

Neglected vehicles are excluded from warranty and guarantee claims.

To maintain the condition of the bodywork and trim components:

Clean regularly to remove dirt and grime.

Never use high-pressure washers, jet sprays, sharp tools, corrosive, or abrasive cleaners, as these can permanently damage surfaces and paintwork, and may accelerate rust.

Use mild cleaning and care products as recommended by your authorised dealer.

For refined metal surfaces (e.g. chrome, anodised, or polished aluminium), apply suitable protective products to prevent oxidation.

Always apply proper corrosion protection to the frame and metal components to avoid rusting.

Vehicles that are parked outdoors for extended periods must be covered with a waterproof protective cover to prevent weathering of painted parts, and to protect seats and other plastic components from cracking.

Note!

If the vehicle is used in competitive racing events, all warranties and guarantees are void.

13. After-Sales Service and Warranty Coverage Table

13.1 Start Date & General Provisions

- Warranty start date: calculated from the vehicle production date.
- When both calendar time and mileage are specified, whichever comes first applies. If only one is specified, that condition applies.
- The warranty covers defects in materials or workmanship only; damage due to misuse, impact/water ingress/modification, overloading, lack of maintenance, or use of non-approved parts/fluids is excluded.

13.2 Coverage Table (materials/workmanship defects only)

System/Component	Coverage Period	Scope of Coverage	Notes/Exclusions
Battery pack (incl. BMS)	24 months	Charging/discharging anomalies; BMS/cell manufacturing defects	Excludes deep discharge/improper storage, water/high- pressure ingress, mechanical shock, unauthorized opening, or use of non- OEM charger.
Electric motor (PMSM)	24 months	Internal electrical/mechanical manufacturing defects	Excludes water/foreign- object ingress, mis- wiring, tuning/flashng, over- temperature use, or improper cleaning.
Motor controller / inverter	24 months	Functional failure or abnormal derating due to manufacturing defects	Excludes reverse polarity/shorts, non- authorized tuning/flashng, or non- approved accessories.
Charger (on- board / external)	24 months	Charging failure or protection malfunction due to manufacturing defects	Excludes non- compliant power sources, connector modification, liquid ingress/corrosion, or misuse.
Front/rear hubs (excl. tires)	10,000 km	Casting/machining/assembly defects	Excludes impact deformation, spoke loosening from misuse, rim dents.
Front fork assembly	6 months or 3,000 km (whichever comes first)	Structural/manufacturing defects of the fork assembly	Seals/dust wipers are wear items; excludes leaks due to contamination, scratches, modifications, or heavy jump impacts.
Rear shock absorber	6 months or 3,000 km (whichever comes first)	Structural/manufacturing defects of the shock body	Seals are wear items; excludes leaks due to modifications, severe impacts, or contamination.
Instrument cluster	12 months	Display/button/PCB manufacturing defects	Excludes impact cracks, liquid ingress/corrosion, or non- authorized disassembly.
Main wiring harness	12 months	Open circuits/poor connections caused by manufacturing defects	Excludes abrasion wear, bent pins, water/corrosion, or modified splices.
Seat assembly	12 months	Foam/cover manufacturing defects	Excludes normal wear, scratches, UV aging, chemical damage.
Brake disc (rotor)	Lifetime replacement for manufacturing defects	Material/manufacturing defects only	Excludes normal wear, heat fade/warpage from misuse/incorrect installation.
Mode/gear buttons & switches	12 months	Internal switch/circuit manufacturing defects	Excludes water ingress, impact, unauthorized disassembly, or wiring modifications.
Emergency cut- off switch	12 months	Contact/reset mechanism manufacturing defects	Excludes water ingress, impact, unauthorized disassembly, or wiring modifications.
Front brake assembly (excl.	12 months	Master cylinder/caliper casting or seal defects	Pads are consumables; excludes leaks caused by

pads)			misuse/modification/contamination.
Rear brake assembly (excl. pads)	12 months	Same as front	Same as front.
Rear/front sprocket	5,000 km	Material/machining defects	Excludes normal wear or abnormal wear due to improper chain tension.
Drive chain	1,500 km	Manufacturing defects (early breakage/rivet defects, etc.)	Consumable; excludes elongation wear due to lack of lubrication, improper tension, or dirt ingress.
Electronic throttle (Hall-sensor throttle)	12 months	Manufacturing defects of internal Hall sensor/return spring/circuit causing abnormal output, dead zone, or return failure.	Excludes impact damage, liquid ingress/corrosion, wiring modifications, unauthorized disassembly, or contamination causing sticking.

13.3 Exclusions / Warranty Void

- Any competition or racing use (official or not) is excluded.
- Misuse or operation contrary to this manual (overloading, deep- water immersion, corrosive/high- pressure washing, prolonged outdoor storage without protection, etc.) is excluded.
- Non- authorized disassembly, modification, ECU re- flash, or use of non- OEM/non- approved parts/fluids is excluded.
- Abnormal wear or failures due to missed service, missing records, or usage far beyond intended conditions are excluded.
- No compensation for direct/indirect or consequential losses; the sole remedy is defect correction (repair or replacement).
- Wear parts excluded unless proven manufacturing defect at delivery: tires, brake pads/discs, chain/sprockets, bearings, seals, bulbs, grips, seat cover, fastener loosening, normal fading/scratches, etc.

13.4 Customer Rights & Service Modality

- During the warranty period the customer is entitled to defect correction (repair or replacement with equivalent parts). Replacements do not extend the original term.
- Service is available only through RFN Authorized Service Centers.

13.5 Claim Procedure

- 1) Stop using the vehicle and contact the seller or an authorized service center without delay.
- 2) Provide VIN, proof of purchase, service records, fault description, and photos/videos.
- 3) Authorized diagnosis → factory review → approved warranty repair/replacement.



4) If deemed non-warranty, transport/disassembly/diagnosis costs are borne by the customer.

13.6 Transfer

- Warranty is transferable with the vehicle provided full maintenance/repair records are supplied and further service continues within the authorized network.

14. Maintenance Guide

*The inspection frequency must be observed, otherwise the warranty will be invalid.		The 1st 1000KM	Every 1000 KM	Every 3000KM	Every year
Component	Activity				
display , switch	Check	Check			
electric system	Check	Check			Check
battery	Check	Check			Check
front-wheel bearing	Check and replace	Check		Check	
rim	Check and replace	Check	Check		
brake system	Check and replace	Check		replace	
braking line	Check			Check	
brake disc	Check, clean and replace	Check		clean	
braking flu id	Check and replace	Check		Check	
brake pads	Check and replace	Check	replace	replace	
chain, rear sprocket	Check, clean and replace	Check and clean		replace	
front shock absorber	Check and clean	Check		Check and clean	
rear shock absorber	Check and clean	Check		Check and clean	
steering bearing	Check	Check		Check	
side stand	Check, clean and lubricate	Check, clean and lubricate	Check, clean and lubricate		
tight of all visible screws and nuts	Check	Check		Check	
Light	Check and clean	Check and clean	Check and clean	Check and clean	Check and clean

Maintenance should be performed based on whichever comes first: the specified time interval or mileage.

CAUTION

Inspect the motorcycle regularly for signs of rust.

The owner is responsible for performing routine anti-corrosion maintenance.

WARNING!

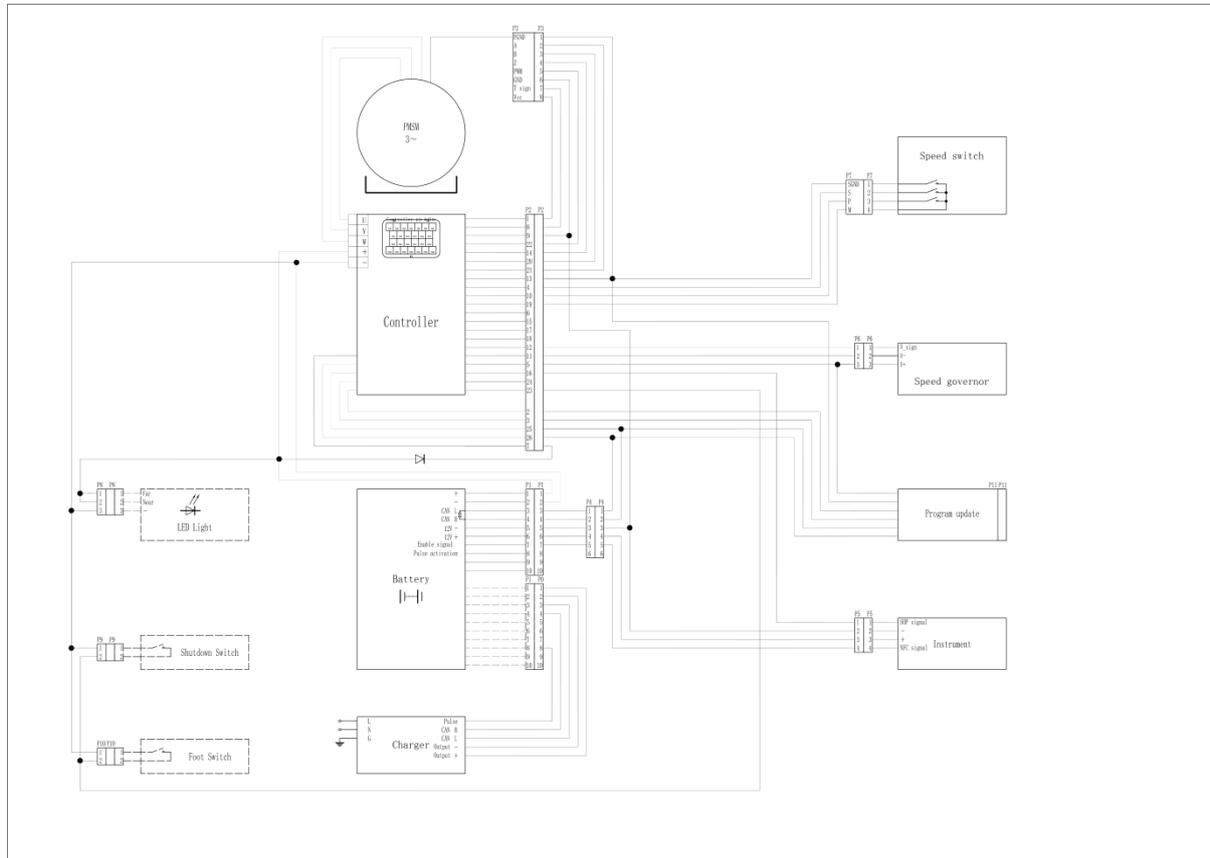
Appropriate maintenance must be carried out in accordance with the prescribed schedule.

Warranty coverage is valid only if the vehicle has been properly maintained according to this plan.

14.1 Electrical System Diagram

Note!

Dashed lines in the schematic represent optional accessories that may be installed additionally.



14.2 Electric Motorcycle Troubleshooting

All RFN WARRIOR electric motorcycles undergo strict quality inspection before delivery.

However, despite thorough checks, technical issues may still occur over time.

The following information provides guidance to help you identify possible problems and carry out minor maintenance where applicable.

If you are unable to resolve the issue, please take the vehicle to an authorised dealer.

If no dealer is available in your region, contact the manufacturer's after-sales service team.

Important Safety Notice – High Voltage Handling

RFN WARRIOR motorcycles contain high-voltage components.

Please observe the following safety precautions at all times:

High-voltage components can cause burns, electric shock, or serious injury.

Always follow the warning labels affixed to components.

Do not touch, remove, or attempt to replace any high-voltage parts, cables, or connectors.

In the event of an accident, do not touch any orange high-voltage cables or connected components.

If the motorcycle catches fire, and only if it is safe to do so, use a Class D fire extinguisher.

After extinguishing the flame, cool the area thoroughly with large volumes of water or a water-based extinguisher.

WARNING!

Always obey the warning labels attached to the motorcycle.

RFN WARRIOR operates on a 60V high-voltage system.

Beware of high voltage and also high temperatures in the drive system immediately after operation — do not touch.

EXTREME DANGER!

High-voltage cables are marked in orange for easy identification.

The high-voltage system must never be serviced by users.

Removing or replacing any high-voltage components, cables, or connectors may result in severe burns, electric shock, or even death.

Battery Safety Lockout Behavior

To protect the battery pack, the Battery Management System (BMS) may activate one or both of the following protective lockouts if a critical internal fault is detected:

Operation lockout:

If the battery is fully discharged or if a critical fault is detected, vehicle operation will be disabled until the issue is resolved.

Charging lockout:

If a serious fault is detected, the system will prevent charging even when the battery is connected to a charger and AC power is supplied.

System Fault Alerts

If a system fault is detected, the instrument panel will display a fault warning along with the corresponding error code.

Note!

In fault conditions, the vehicle may be locked in P mode, or limited to restricted riding modes.

Speed, units, and mode indicators may also disappear from the instrument cluster.

A table listing common fault codes, possible causes, and suggested solutions is typically provided on the next page for reference.

14.3 Fault Code Table – Error List and Recommended Actions

Fault Code	Fault Description	Recommended Solution
20	Controller bus overvoltage	Do not push the vehicle externally; disable regenerative braking
20	Controller bus undervoltage	Recharge the battery pack
20	Controller phase overcurrent	Check if the drivetrain is locked; shut down or switch to lowest power mode
20	Controller overload	System enters power limitation mode
30	Controller U-phase loss	Shut down the vehicle and inspect motor phase cable connection
30	Controller V-phase loss	Shut down the vehicle and inspect motor phase cable connection
30	Controller W-phase loss	Shut down the vehicle and inspect motor phase cable connection
30	Motor stall	Check for blockage in the motor and cut power signal
31	Motor over-temperature	Stop and wait for the motor to cool down
30	Motor overspeed	Stop riding; do not push the vehicle externally
21	Controller over-temperature	Stop and wait for the controller to cool down
50	Throttle fault (not returning or disconnected)	Ensure throttle grip returns and inspect for short/open circuits
60	Gear switch fault	Check for button sticking or replace gear switch
10	Battery cell overvoltage	Shut down, unplug battery, contact dealer or manufacturer
10	Battery cell undervoltage (SOC too low)	Recharge battery immediately
10	Excessive cell voltage deviation	Shut down, unplug battery, contact dealer or manufacturer
10	Battery discharge overcurrent	Stop and contact dealer or manufacturer
10	Battery hardware overcurrent protection	Stop and contact dealer for BMS inspection
11	Battery over-temperature	Wait until battery cools before use
12	Battery under-temperature	Do not charge; wait until battery temperature rises
11	BMS over-temperature	Do not charge; wait until battery cools before use
12	BMS under-temperature	Wait until temperature rises before use
10/11/40	Battery discharge MOS overheating	Wait until battery returns to normal temperature
10	Battery pack over-discharge protection	Shut down and recharge
10	Individual cell over-discharge protection	Recharge battery or contact dealer or manufacturer
10	Battery high humidity protection	Shut down and place in dry environment or contact dealer
10	Battery water ingress	Contact dealer or manufacturer to replace the battery
40	Charger input undervoltage protection	Replace charger or contact manufacturer
40	Charger output overvoltage protection	Replace charger or contact manufacturer
41	Charger over-temperature protection	Unplug charger or replace

14.4 General Troubleshooting Table

Symptom	Possible Cause	Recommended Action
Vehicle has no power after startup	Battery plug not properly connected	Check battery plug
	Battery in sleep mode due to low charge	Recharge battery
	Battery protection due to low/high temperature	Wait until battery returns to normal temperature
	Battery malfunction	Contact authorised service centre
	DC output cable disconnected	Check for pin damage or loose contact
	Main cable diode damaged	Inspect and replace harness
	Display/start switch connector loose	Check and reinsert plug firmly
	Faulty display or switch	Inspect or replace instrument/switch
Power on, but throttle not working	Kickstand switch protection active	Check or retract side stand
	Emergency cut-off switch active	Reset switch or check wiring
	Throttle not returned on startup	Return throttle to rest or replace
	Battery low-voltage protection	Recharge battery
	Motor/controller over-temperature protection	Wait to cool
	Throttle grip malfunction	Replace throttle
	Controller plug loose	Reconnect controller signal plug
	Motor encoder plug loose	Reconnect encoder plug
Controller or encoder failure	Replace at authorised service centre	
Battery info not shown on display	Communication fault or broken wire	Repair or replace battery at service centre
	Display damaged	Replace at authorised service centre
Charger not working	Battery too cold/hot	Wait for temperature normalization
	Loose charger plug	Reconnect charger
	Charger malfunction	Replace charger
	Battery malfunction	Replace or service battery
Power mode invalid / power reduced	Low battery charge	Recharge battery
	Battery temperature too low/high	Wait until temperature is within range
	Motor/controller over-temperature	Wait until cooled
	Motor internal wear/failure	Replace motor
	Power mode switch failure	Replace switch

Reminder:

For other fault codes, connect to the vehicle's mobile app or use diagnostic equipment at an authorised dealer.

Severe faults may require dealer-only tools with elevated permissions.

Always refer to the latest service documents from your dealer or manufacturer.

15. Technical Specifications

At the time of vehicle handover, the following information must be completed and retained as part of the official service record.

Current Mileage: _____

Date: _____

Dealer Stamp & Signature:

(Authorised Dealer/Technician)

Current Mileage: _____

Date: _____

Dealer Stamp & Signature:

(Authorised Dealer/Technician)

Current Mileage: _____

Date: _____

Dealer Stamp & Signature:

(Authorised Dealer/Technician)

Current Mileage: _____

Date: _____

Dealer Stamp & Signature:

(Authorised Dealer/Technician)

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(Authorised Dealer/Technician)

Current Mileage: _____

Date: _____

Dealer Stamp & Signature:

(Authorised Dealer/Technician)

Current Mileage: _____

Date: _____

Dealer Stamp & Signature:

(Authorised Dealer/Technician)

Current Mileage: _____

Date: _____

Dealer Stamp & Signature:

(Authorised Dealer/Technician)

This record confirms the official delivery of the vehicle to the end customer and establishes the baseline for future warranty and maintenance tracking.

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Complies with:

- EU: EMC Directive 2014/30/EU
- US: CPSC 16 CFR Part 1512
- Battery disposal: Follow local WEEE regulations (♻️ symbol)