



TROMOX

**MS1200DQ
Maintenance Manual**

FOREWORD

Due to maintenance needs of the vehicle, this manual is the guideline for professional technicians. Repairing the vehicle requires certain mechanical and electrician knowledge, as well as understanding of torque. If the user is in lack of professional knowledge, please send the vehicle to experienced technicians. Please read and fully understand this manual before the maintenance to assure safety of both user and the vehicle. All maintenance of the vehicle should be done by Tromox authorized distributors and dealers. Tromox is not responsible for damage, malfunctions, or performance problem caused by improper repair made by user him /herself, nor any other unprofessional person. Please pay extra attention that this vehicle has lithium battery. Any improper operation may cause serious fire or damage to the circuit. When maintain or repair the vehicle, keep it away from flammable and explosive materials and take necessary fire prevention measures. When the battery has a burning accident, the surrounding power supply must be cut off immediately, and the FE-36 fire extinguisher should be used to extinguish and cool the battery. When it is not available, water-based fire extinguishers are also applicable. Dry powder fire extinguishers must not be applied in this case.

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I. Safety Operation Issues

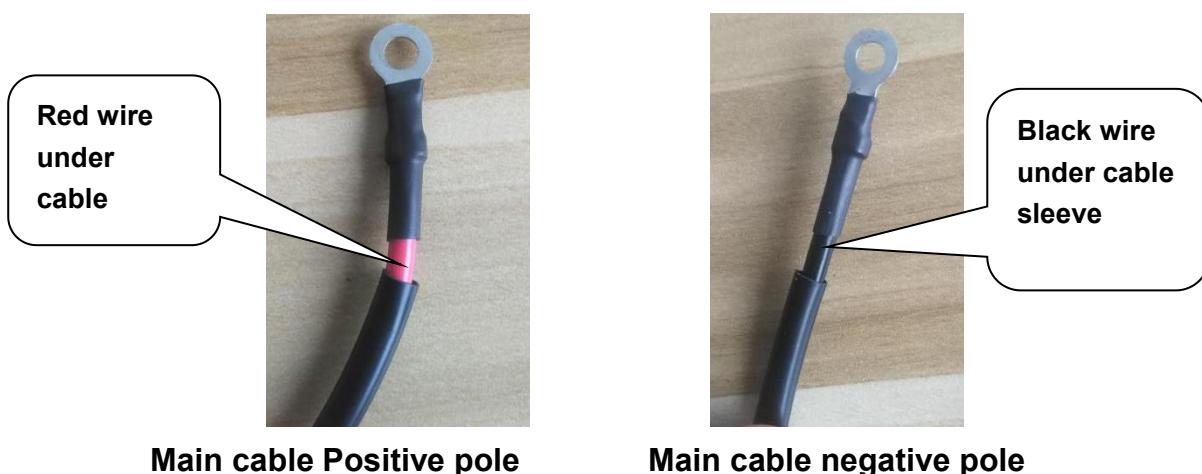
---**Anti-crushing:** wear protection clothes and shoes during maintenance. To prevent crushing and bumping, Slippers, sandals, and bare feet are not allowed.

---**Anti-clamping:** Since this vehicle is a chain drive vehicle, the sprocket and chain are dangerous during maintenance, which can easily cause serious injuries. During maintenance, power must be cut off. When more than two people are required to cooperate, each action must be directed by one of them to prevent accidental injury.



Pic 1. Attention: Dangerous area of sprocket

---**The identification of the positive and negative poles of the main cable and the methods for preventing errors:**



Pic 2. Identification of the positive and negative poles of the main

The insulating material under the copper part is black, with the symbol "-" in the front. It is the negative



The insulating material under the copper part is red, with the symbol "+" in the front. It is the positive pole

Pic 3. Identification of the positive and negative poles of the controller

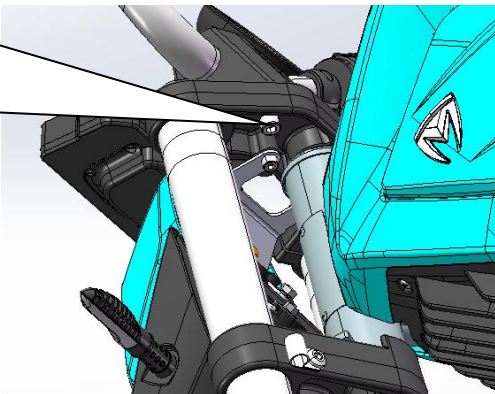
---Error prevention method: first identify the positive pole (red end) of the main cable, hold it, and then identify the positive pole (red end) of the controller, and then connect it.

---Fire prevention: Keep away from flammable and explosive materials during maintenance, and equipped with FE-36 type fire extinguisher. Without this type of fire extinguisher, water-based fire extinguisher is also applicable.

II. Disassembly and Assembly

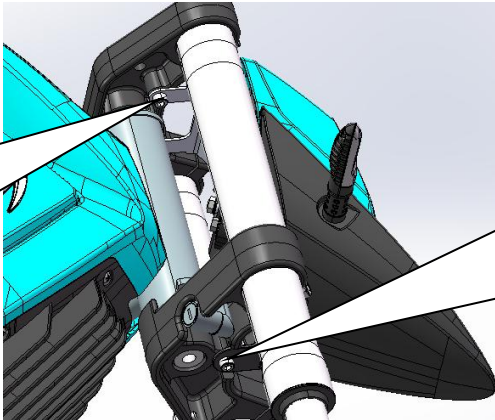
1 Steering disassembly and assembly:

1.Remove the M8 × 25 bolts (both left and right), dismantle the handlebar assy



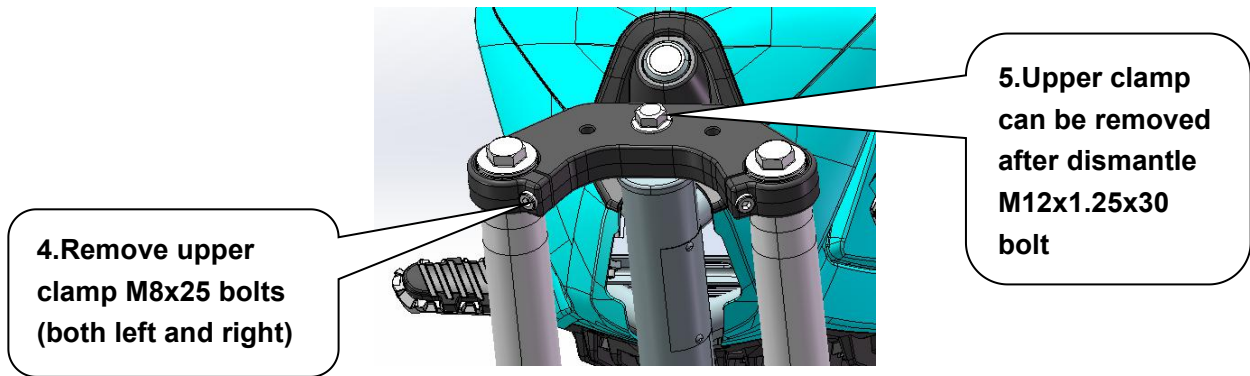
Pic 4. Dismantle handlebar assy

2.Remove headlight bracket M6x12 bolts (both left and right)

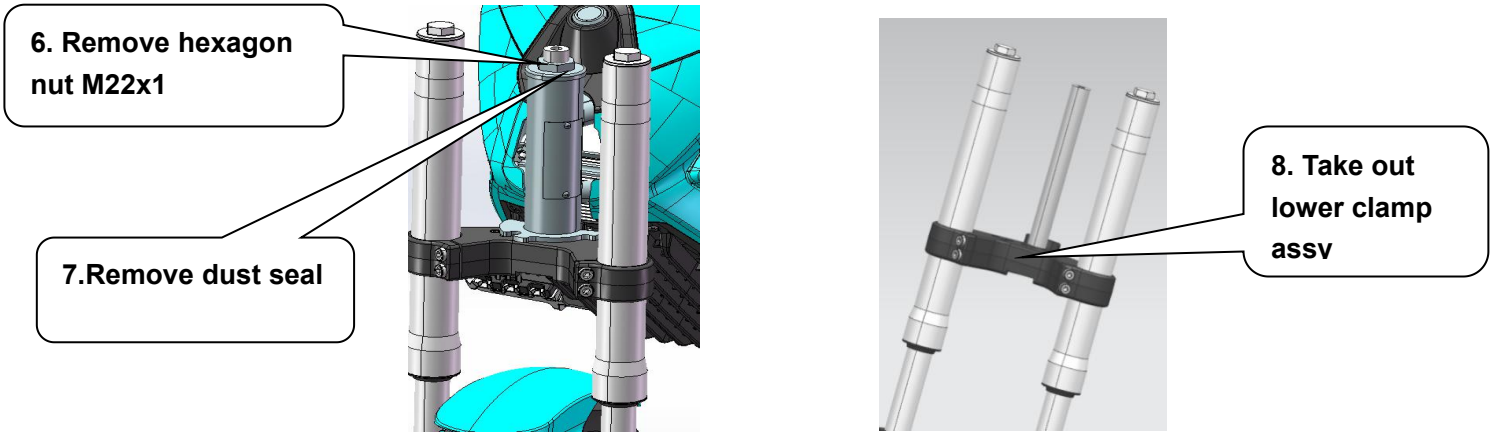


3. Remove one of the front cover M6 x 12 bolt, then dismantle front headlight and front cover assy

Pic 5. Dismantle head light+ Front cover assy



Pic 6. Dismantle the upper clamp



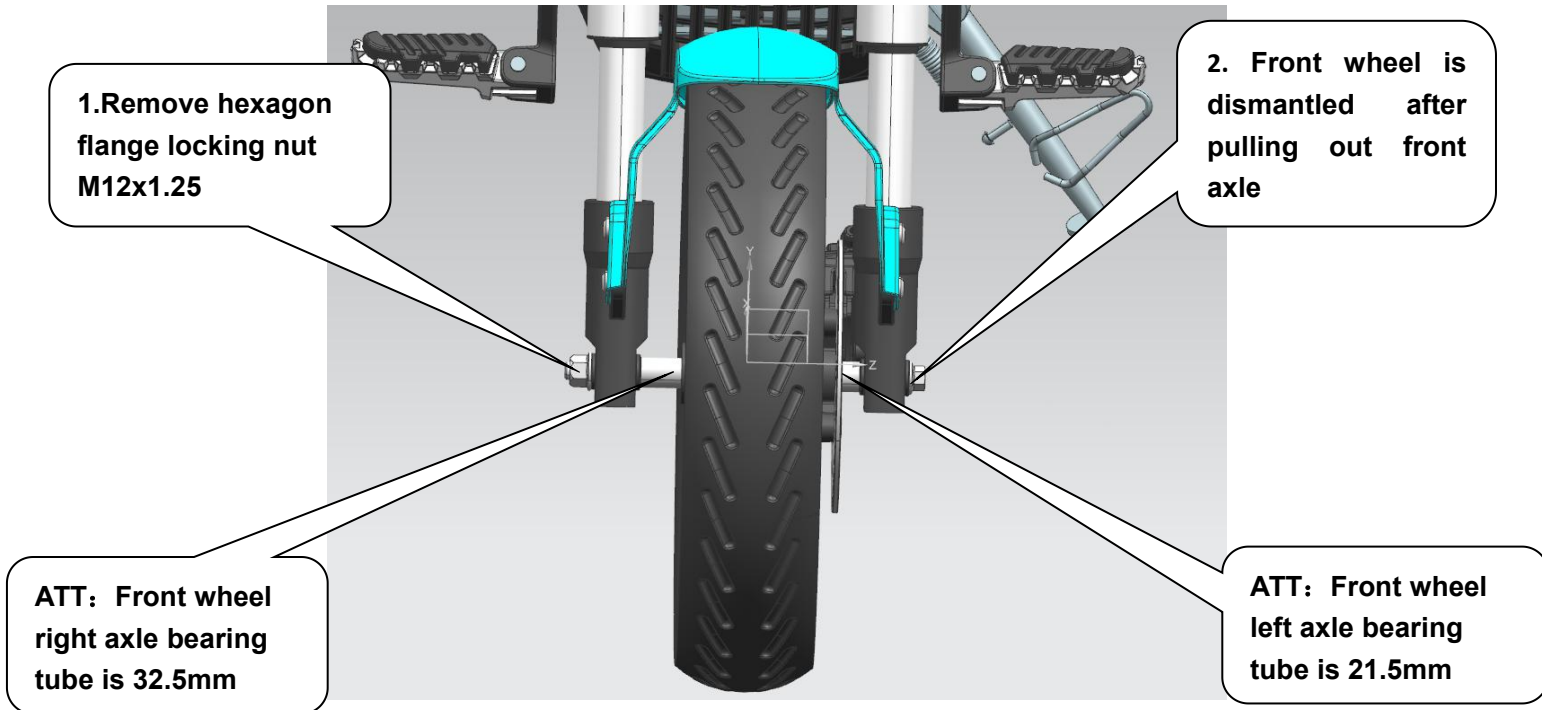
Pic 7. Remove the nut + dust seal

Pic 8. Dismantle the lower clamp assv

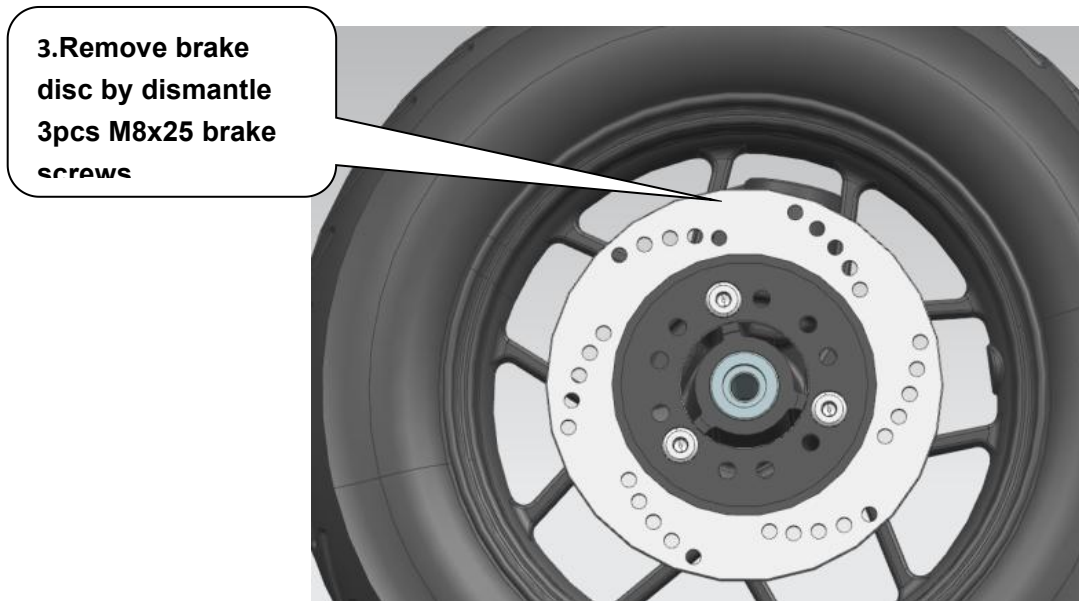
The reverse order of the above steps are the installation sequence. The torque of the fasteners involved in the installation process is shown in the following table:

Callout	Product Name	Description	Qty	Torque (N.M)	Note
1	Hexagon Socket Cap Screw	M8×25	2	15~22	
2	Hexagon Nut	M22×1	1	Subject to smooth steering	
3	Bolt	M12×1.25×30	1	30~40	

2. Front wheel disassembly and assembly



Pic 9. Dismantle the front wheel



Pic 10. Remove the brake disc

The reverse order of the above steps are the installation sequence. The torque of the fasteners involved in the installation process is shown in the following table:

Callout	Product Name	Description	Qty	Torque(N.M)	Note
1	Flange locking nut	M12×1.25	1	40~50	
2	Brake disc crew	M8×25	3	15~22	

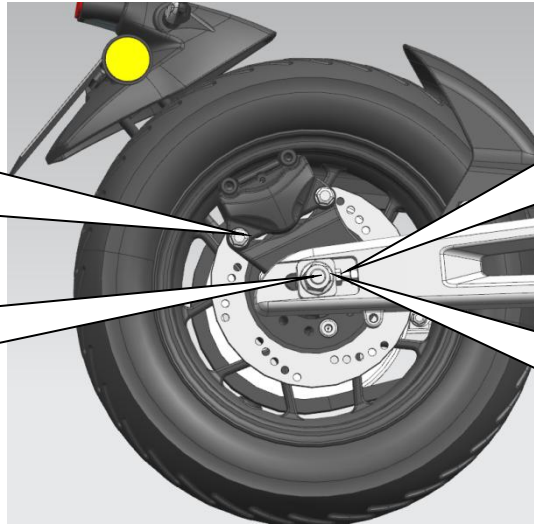
3. Rear wheel disassembly and assembly

1. Dismantle the two rear brake caliper M8x 20 hexagon flange bolts, then remove the rear brake caliper

2. Remove the M14x1.5 hexagon flange locking nut from rear wheel shaft

3. Loose the M8 tension bolt and nuts, both left and right

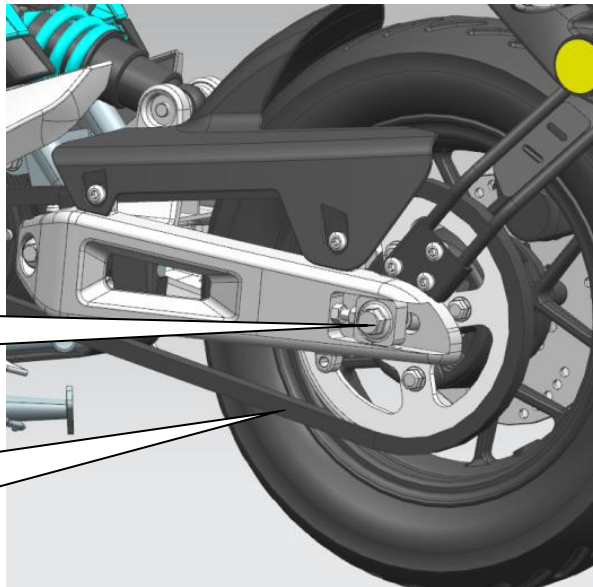
4. Loosen the M8 x40 tension bolts, both left and right



Pic 11. Dismantle the brake caliper, loosen the rear axle nut, and adjust the tension bolt

5. Pull out the rear wheel shaft

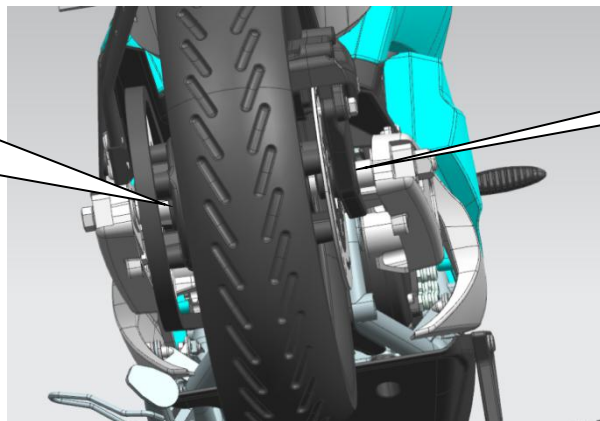
6. Rear wheel is removed after removing the chain



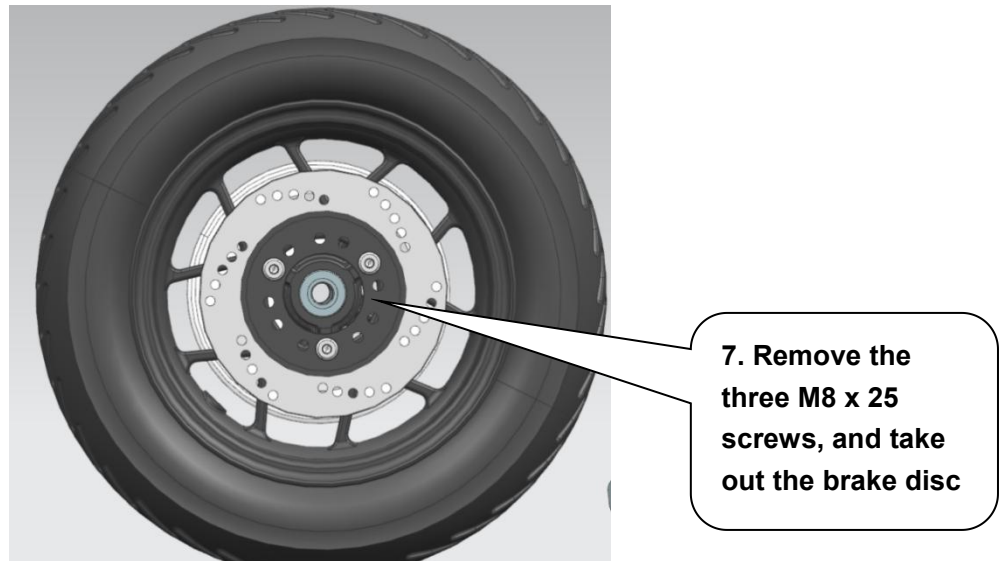
Pic 12. Pull out the rear wheel shaft, loosen the chain, and remove the rear wheel

ATT: Rear wheel left axle bearing tube is 34.5mm

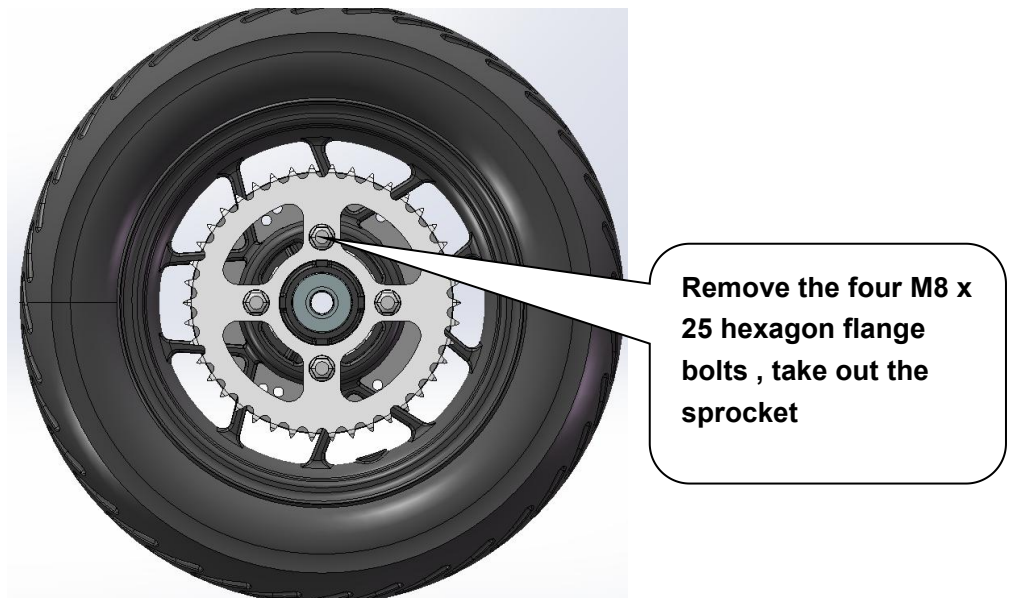
ATT: Rear wheel right axle bearing tube is 14.5mm



Pic 13. Pay attention to the size of the left and right axle sleeves of the rear wheel



Pic 14. Remove rear brake disc



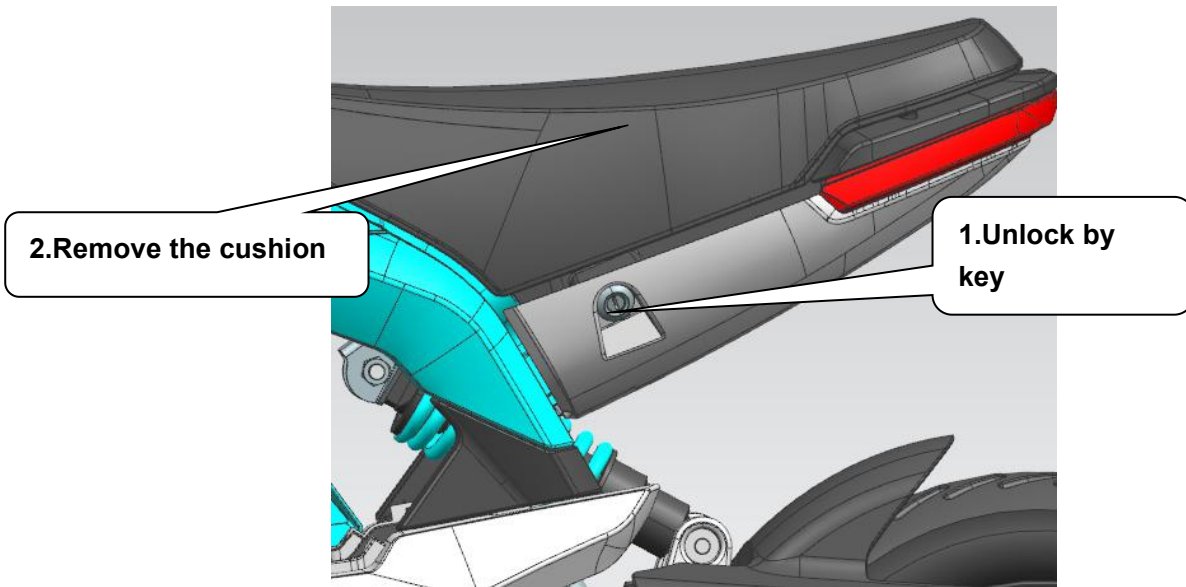
Pic 15. Remove sprocket

The reverse order of the above steps are the installation sequence. The torque of the fasteners involved in the installation process is shown in the following table:

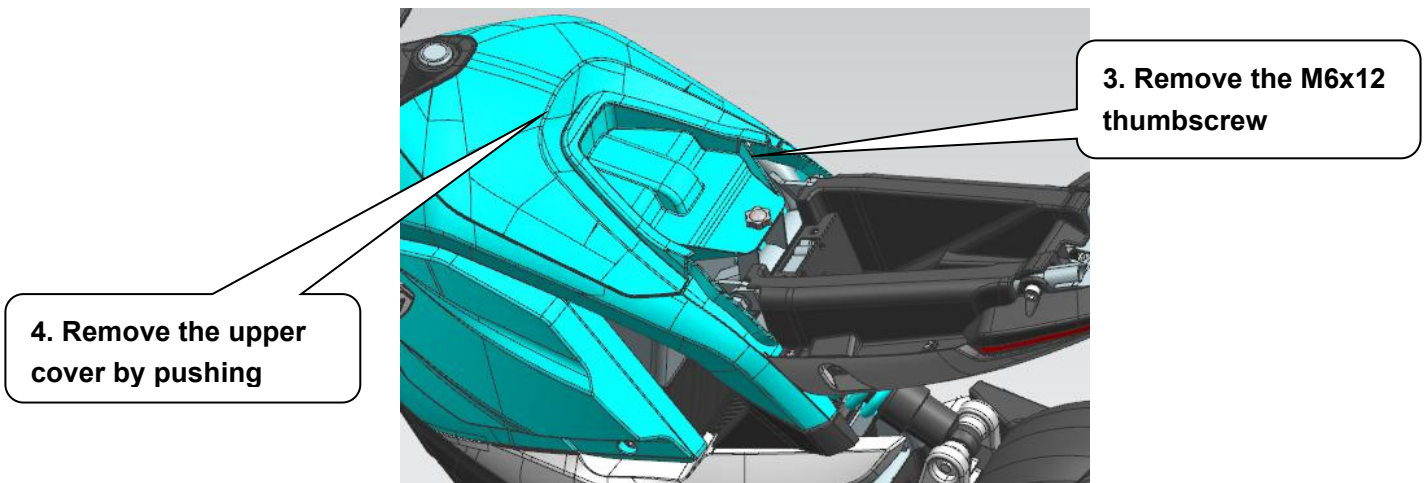
Callout	Product Name	Description	Qty	Torque(N.M)	Note
1	Hexagon flange bolt	M8×20	2	15~22	
2	Hexagon flange locking nut	M14×1.5	1	70~80	
3	Brake disc crew	M8×25	3	15~22	

4	Hexagon flange bolt	M8×25	4	15~22	
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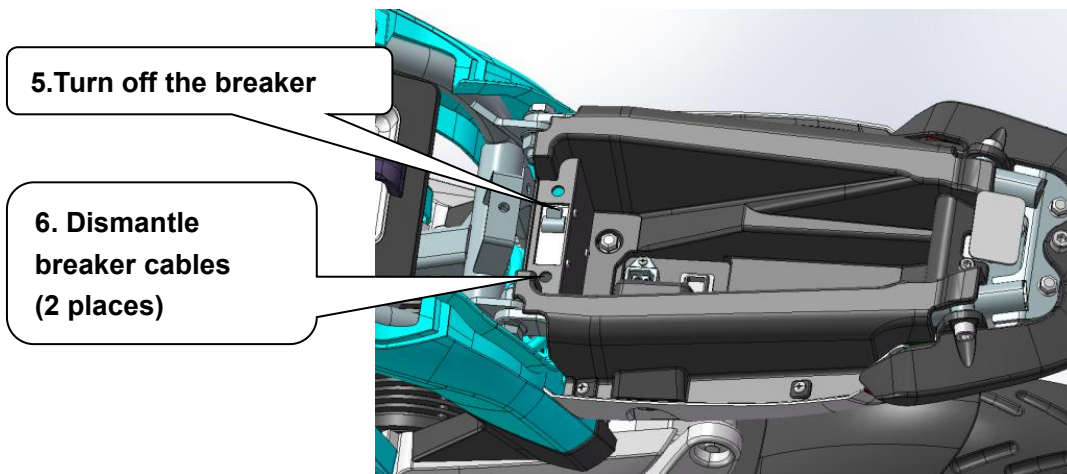
4. Body trim disassembly and assembly



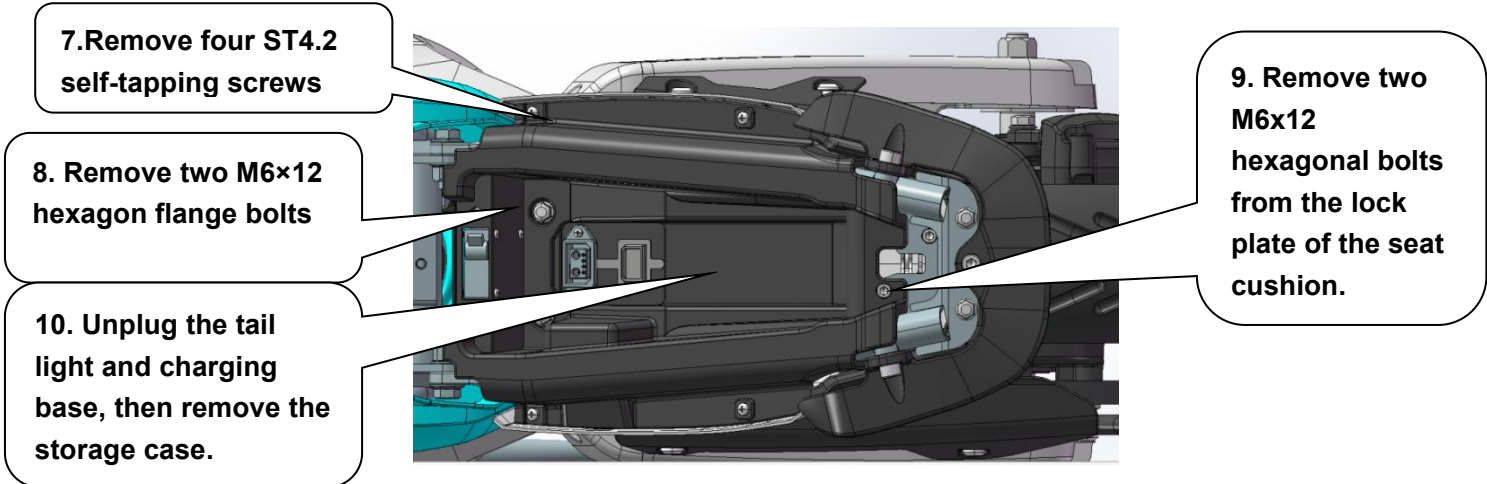
Pic 16. Unlock and remove the cushion



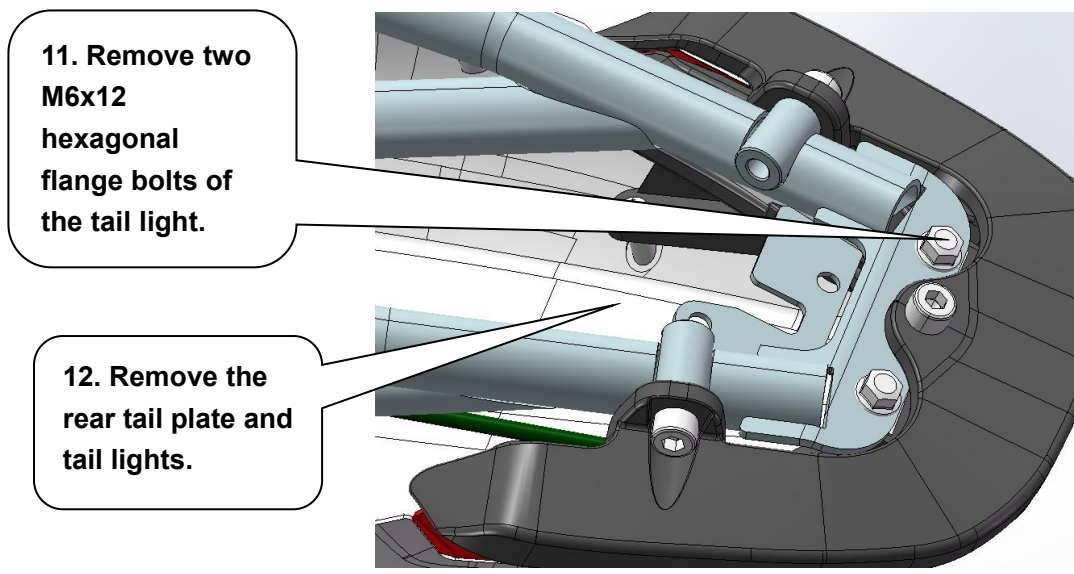
Pic 17. Dismantle the upper housing



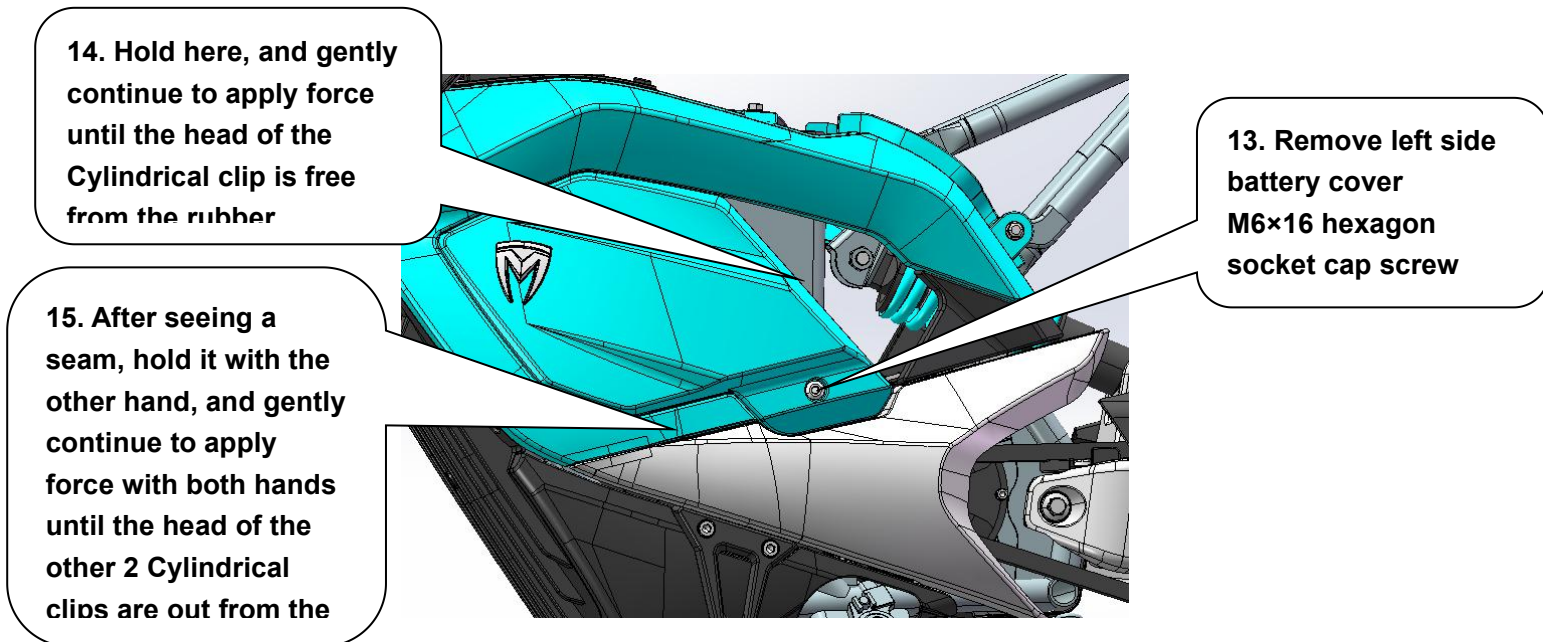
Pic 18. Shut off power, dismantle breaker cables



Pic 19. Dismantle storage case, locking plate for the seats and pull out the plug

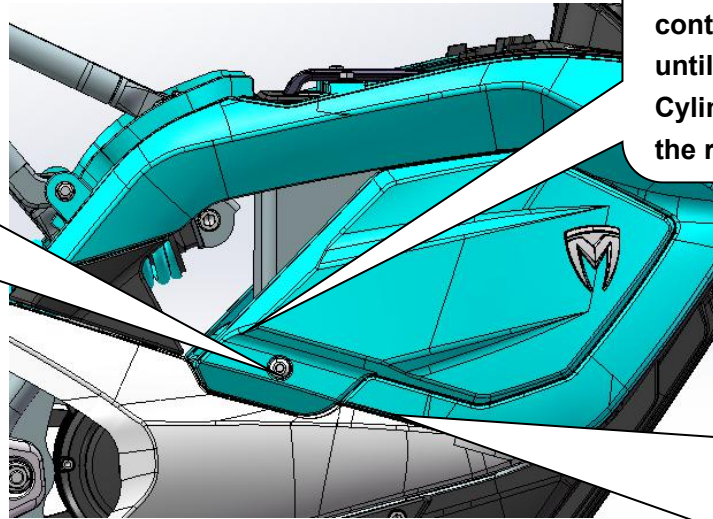


Pic 20. Dismantle the seat lock, rear handrail and tail light



Pic 21. Remove the left side cover of the battery

16. Remove the hexagonal screw M6 × 16 from the right side cover of the battery.



17. Hold here, and gently continue to apply force until the head of the Cylindrical clip is free from the rubber.

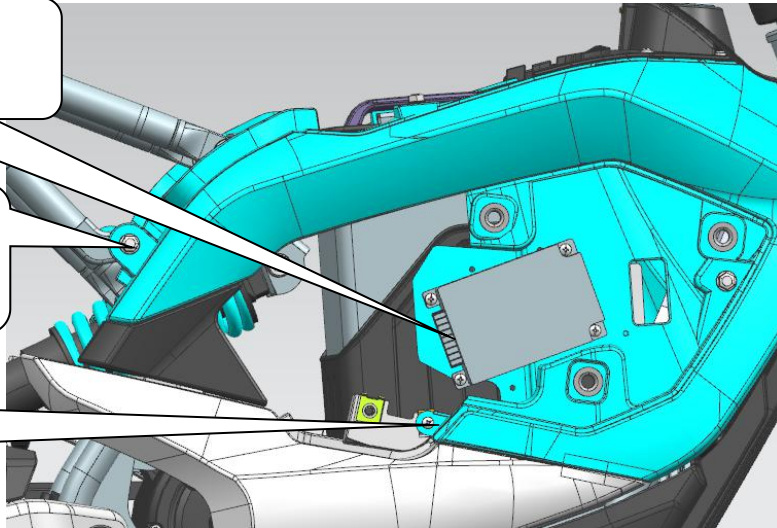
18. After seeing a seam, hold it with the other hand, and gently continue to apply force with both hands until the head of the other 2 Cylindrical clips are out from the

Pic 22. Remove the right side cover of the battery

19. Remove the central control plug

20. Remove two M6 × 12 hexagonal flange bolts

21. Remove one ST4.2 self-tapping screw.



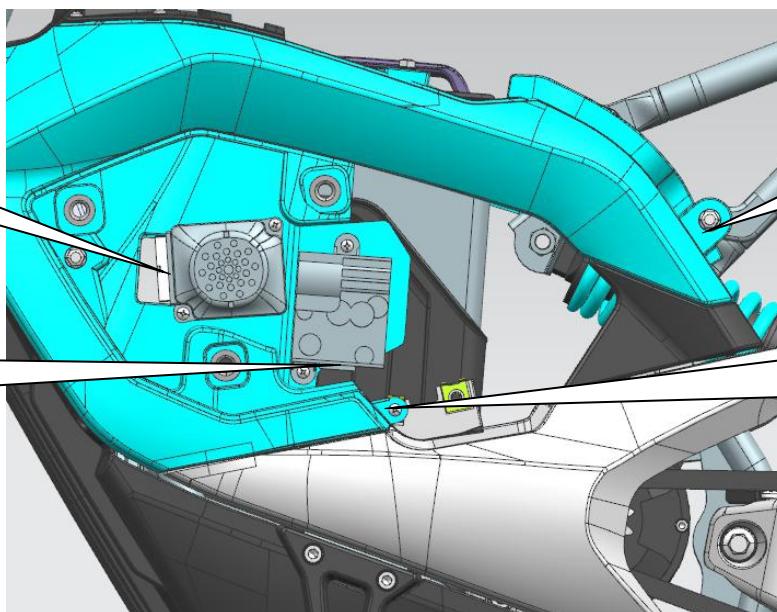
Pic 23. Remove the central control plug on the right side cover and remove the screws

22. Unplug anti-theft alarm

23. Unplug the power converter

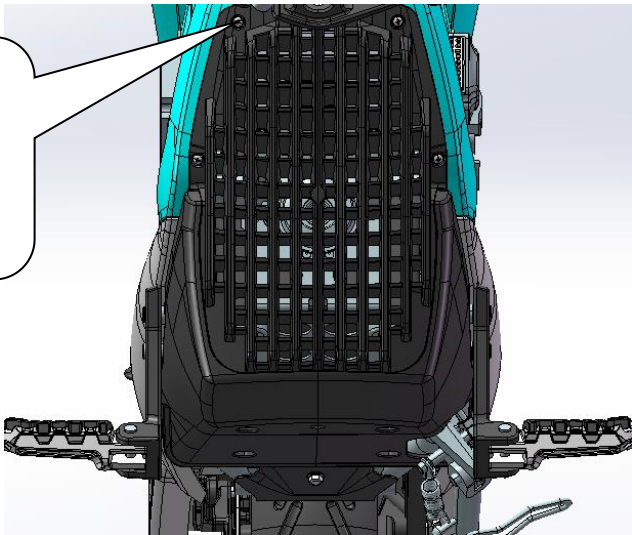
24. Remove two M6 × 12 hexagonal flange bolts

25. Remove one ST4.2 self-tapping screw.



Pic 24. Unplug anti-theft alarm and power converter on the left side cover, remove the screws

26. Remove four ST4.2 self-tapping screws from front ventilation board

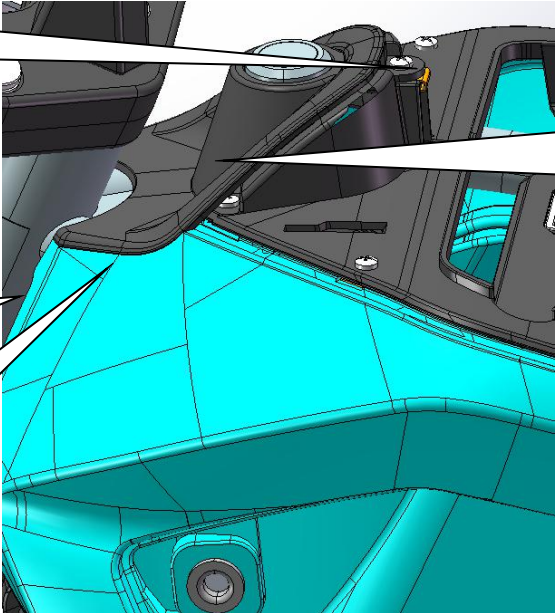


Pic 25. Remove self-tapping screws on front ventilation board

27. Remove front cover ST4.2 self-tapping screw

28. Use two fingers to push outwards here to separate the front cover clip from the left cover.

Front cover clip location

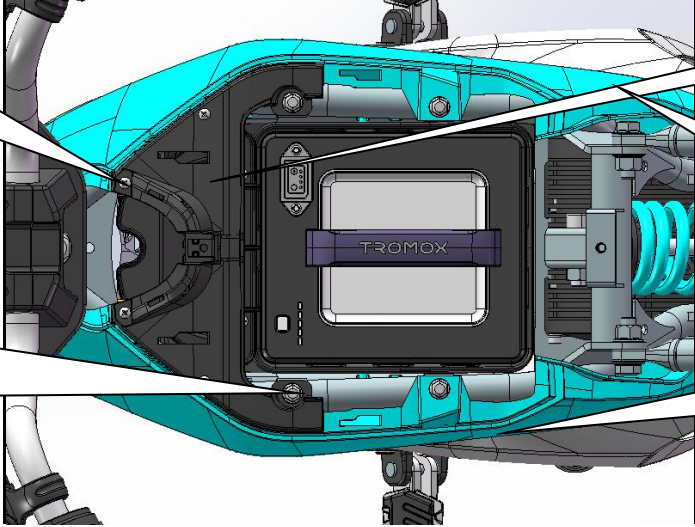


29. Remove front cover and pull out start button cable plug

Pic 26. Remove front cover

30. Remove four ST4.2 self-tapping screws.

31. Remove the inner cover and both sides four M6 x 12 flange bolts.



32. Remove the inner cover

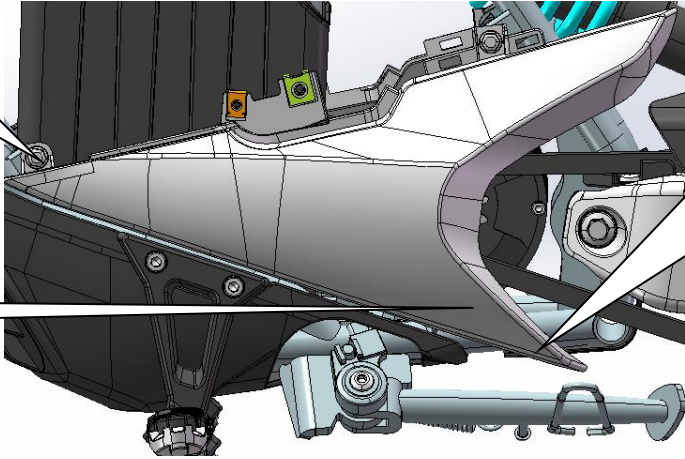
33. Remove the right side cover

34. Remove the left side cover

Pic 27. Remove the top screw, inner cover, left and right side covers

35. Remove two M6x12 Flange bolts

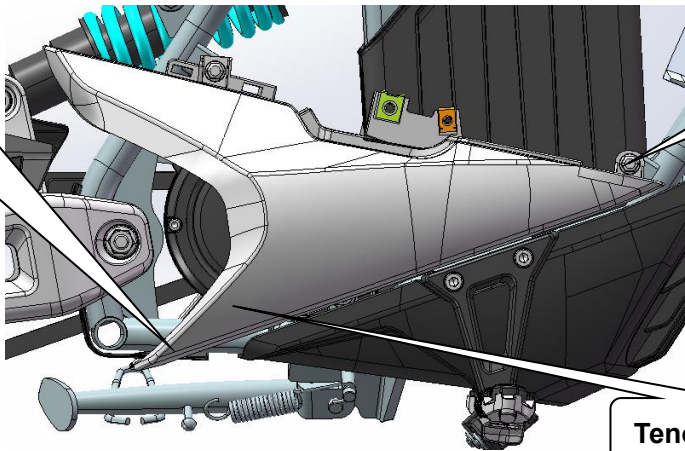
Tenon position



36. Gently apply force outwards until the clip is free from the rubber

Pic 28. Remove left side motor cover

38. Gently apply force outwards until the clip is free from the rubber

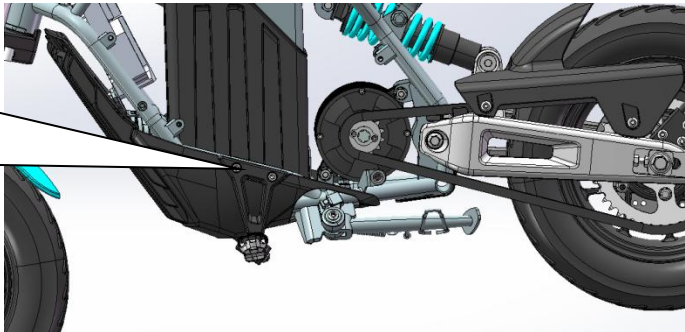


37. Remove two M6x12 Flange bolts

Tenon position

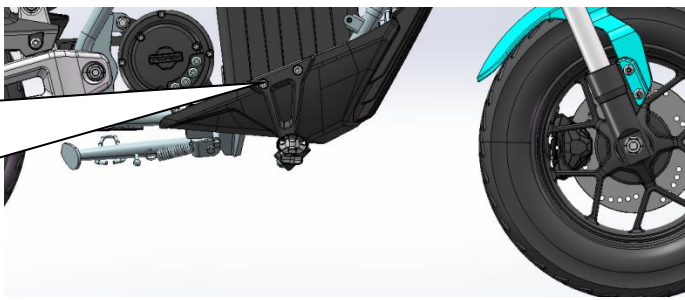
Pic 29. Remove right side motor cover

39. Remove two M8 x 20 hexagon socket head screws. Remove the left footpeg.



Pic 30. Remove left side footpeg

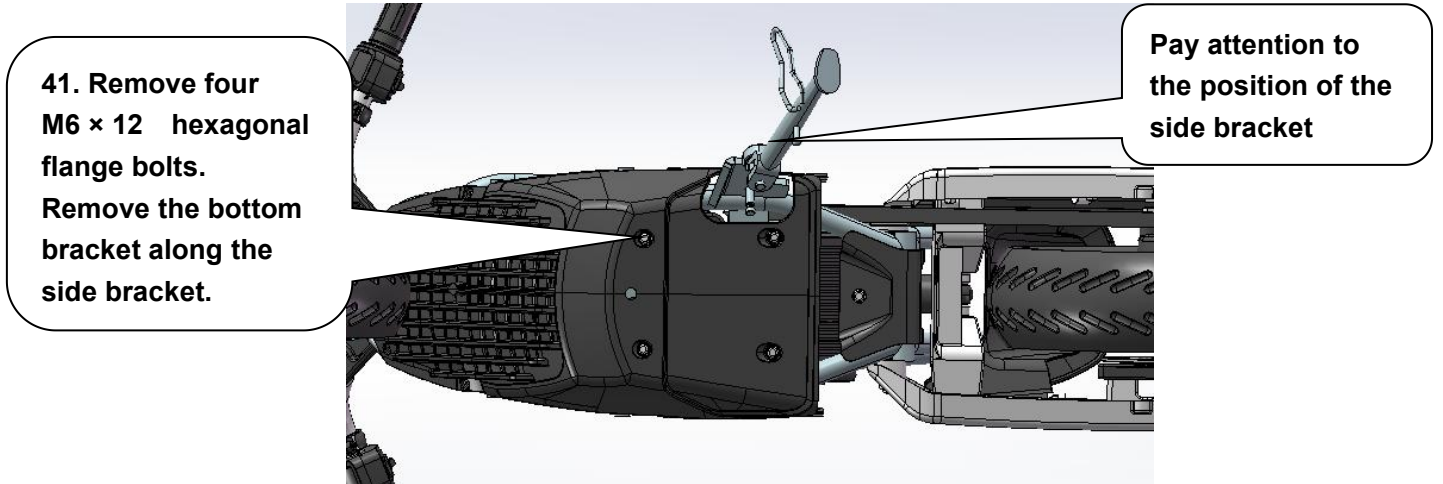
40. Remove the two M8 x 20 hexagon socket head screws. Remove the right footpeg



Pic 31. Remove the right side footpeg

The torque of the fasteners involved in the installation process is shown in the following table:

Callout	Product Name	Description	Qty	Torque (N.M)	Note
1	Hexagon flange bolt	M8×20	2	15~22	



Pic 32. Remove the bottom

5. Front wheel brake pad disassembly and assembly



Pic 33. Remove the bolt

Pic 34. Remove cotter pin

Pic 35. Pull out brake pad



Pic 36. The brake pads are not installed properly, dangerous! **Pic 37.** Brake pads installed in place

6. Rear wheel brake pad disassembly and assembly

1.Remove two
M8 × 25
hexagonal
flange bolts



2.Remove
the cotter pin
and pull out
the pin.



3.Pull out the
brake pad



Pic 38. Remove the bolt **Pic 39.** Remove the cotter pin and remove the pin **Pic.40.** Pull out brake pads

Warning: After the brake pads are properly installed, they must be tested before use!

The torque of the fasteners involved in the installation process is shown in the following table:

Callout	Product Name	Description	Qty	Torque (N.M)	Note
1	Hexagon flange bolt	M8×20/25	2	15~22	

III. Regular Check-ups

1	1 month	Check whether the front and rear wheels are fastened.
2	15 days	Check whether the brake calipers are fastened.
3	2 months	Check the level of brake oil.
4	15 days	Check brake pad status and the braking performance of brake system.
5	1 month	Check whether the handlebars are fastened.
6	1 month	Check the tightness of the chain.
7	15 days	Check the lubrication condition of the chain (make sure to cut off the power before lubricating and chain inspection).
8	1 month	Check whether the cable line is worn out or damaged.
9	1 week	Check whether the vehicle has abnormal sound or the sound caused by loose parts.
10	1 week	Check whether the tire pressure is 250kPa.

IV. Maintenance Standard

No.	Part Name	Maintenance Standard	Note
1	Bearing	Over heating or noises during rotation	
2	Brake Pads	When the braking distance exceeds 4 meters (25km / h), the brake pads are seriously worn out.	
3	Tire	Tire cracks and bulges happen when the tire depth of the tread is less than 0.8mm	
4	Sprocket	Abrasion exceeds 0.4mm.	

V. Troubleshooting

Faults	Causes	Solutions
1.The whole vehicle is powered off; the “Engine start” light is off; the remote control and APP cannot be on.	Battery connection failed	Connect the battery plug correctly.
	Battery management system (BMS) subjected to power-off protection	First, ensure there is no short circuit; after 10 minutes, turn on the power again
	Anti-theft alarm fault	Replace the anti-theft alarm.
	Fuse burned	Replace the main cable fuse.
	Breaker is not on	Turn on the breaker.
2.The motor	Side stand is not folded	Fold the side stand.

doesn't run when you turn the governor handle	Start button is not pressed, "Ready" indicator light is off	Press the start button.
	Battery is low	Charge the battery.
	Brake handle is not back to the correct position	Lubricate the brake handle joint and turn it to the correct position.
	Handlebar fault	Replace the handlebar.
	Controller plug loose	Re-insert the controller plug.
	Handlebar plug subjected to poor contact	Adjust the handlebar plug pins.
	Motor Hall plug subjected to poor contact	Adjust the motor Hall plug pins.
	Motor failure	Overhaul or replace the motor.
	Controller failure	Replace the controller.
3.The riding speed is low or the riding range is relatively short.	Battery is low	Charge the battery.
	Tire pressure insufficient	remain the tire pressure at 250kPa.
	Overloaded seriously	Avoid overloading
	Brake pad interfering	Overhaul the brake caliper and adjust its installation position.
	Battery aged or normally scrapped	Replace the battery
4.The brake failure	DC-DC failure	Replace the DC-DC
	Brake handle switch damaged or subjected to open circuit	Replace the switch and inspect the circuit
5.The battery cannot be charged.	The main charging plug subjected to poor contact	Check whether the main plug is correctly inserted.
	Wrong charger	Use the Tromox charger with designated model.
	Battery aging or normal scrap	Replace the battery.
6.There is metal scraping sound while braking	Brake pad is worn out	Replace the brake pad.
	Brake disc loose	Tighten the bolts of brake disc.
7.The headlight and tail light cannot be switched on.	Control switch failure	Replace the switch.
	Plug loose or not inserted	Check the plug.
	DC-DC failure	Replace the DC-DC.
	Lamp holder burnt out	Replace the lamp.
8. The turn signal light doesn't work.	DC-DC failure	Replace the DC-DC.
	Control switch failure	Replace the switch.
	Flasher failure	Replace the flasher.
	Lamp holder is burnt out	Replace the lamp.
9. The vehicle can be turned on, but the dashboard light is not on.	Dashboard failure	Replace the dashboard.
	DC-DC failure	Replace the DC-DC.
10. There is no	VCU communication module	Replace the VCU.

battery level, speed, time, temperature or other information displayed on the dashboard.	failure	
	Anti-theft alarm communication module failure	Replace the Anti-theft alarm.
	Controller communication module failure	Overhaul the controller communication module.
	Instrument communication module failure	Overhaul the instrument communication module.

VI. Fault Code

1. Controller fault code

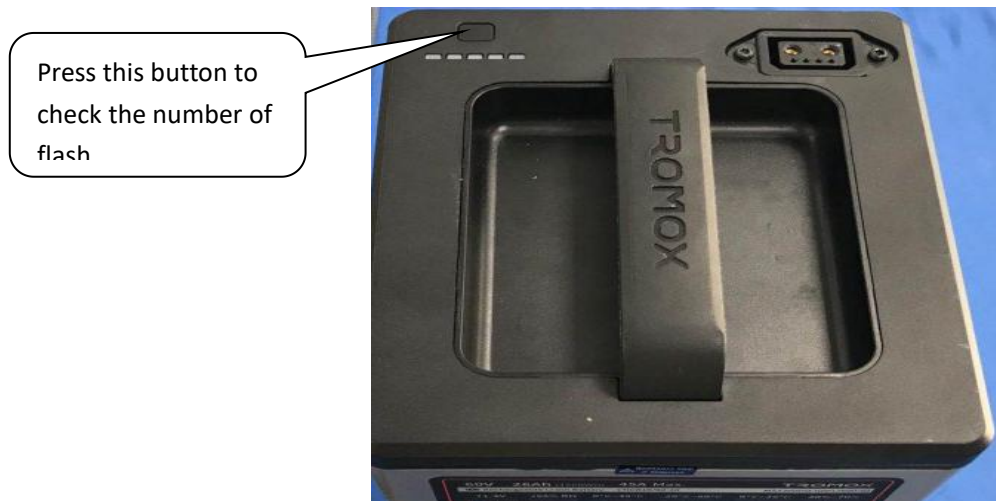


No.	Controller system protection features		LED flash frequency
1	Overvoltage protection	The battery voltage is higher than the setting in the system	1
2	Undervoltage protection	The battery voltage is lower than the setting in the system	2
3	Overcurrent protection	The phase wire of the motor is shorted or the phase wire is shorted to the power supply	3
4	Stall protection	Motor stall working time exceeds the system setting value	4
5	HALL protection	HALL input abnormal	5
6	MOSFET protection	MOSFET self-test failed	6
7	Phase loss protection	One of the phase wires of the motor is disconnected	7

8	Brake status	The controller is in the braking state	9
9	Self-check error protection	Abnormality found during self-test inside the system when power is on	10
10	Controller over temperature protection	The operating temperature of the controller is higher than the setting in the system	11
11	Rotary handle protection	Controller handlebar turning failure	14

2. Battery fault code

When an error occurs, the LED indicators will flash specific times in accordance with the following table. If two or more errors occur, the LED lights will first flash with a smaller number of times and then flash with a bigger number of times at an interval of about 1 second, and the LED indicator panel will continue to display for 1 minute.



No.	Battery system protection features	LED flash frequency	No.	Battery system protection features	LED flash frequency
1	Protection chip error	1	16	Pre-charge overtime	16
2	Cell disconnection	2	17	MOSTemp damage	17

3	Cell non-equalizing	3	18	CellTemp damage	18
4	Measurement error	4	19	Overtemperature in discharge	19
5	Storage error	5	20	Overtemperature in charge	20
6	Clock error	6	21	Under-temperature in discharge	21
7	Discharge MOS damage	7	22	Under-temperature in charge	22
8	Charging MOS damage	8	23	Discharge MOS overtemperature	23
9	Overcharge	9	24	Charge MOS overtemperature	24
10	Level 1 over discharge	10	25	Overtemperature in pre-boot	25
11	Level 2 over discharge	11	26	ROM error	26
12	Software discharge overcurrent	12	27	Discharge fuse damage	27
13	Level 2 overcurrent	13	28	Charge fuse damage	28
14	Overcurrent in charge	14	29	Level 3 overcurrent	29
15	Pre-boot failure	15	30	Level 4 overcurrent	30