

## 8. Braking system

### Notice before service

1. The content of this chapter requires certain maintenance experience . It is recommended to go to a qualified maintenance unit for inspection or maintenance.
2. Frequent inhalation of dust produced by brake pads , regardless of its composition, may have a certain impact on health. Inhalation of dust particles should be avoided .
3. Never use a dust gun or brush to clean the brake assembly. Use a vacuum cleaner instead.
4. Avoid dripping brake fluid onto the paint surface of covering parts or the surface of components . If accidentally splashed, rinse with clean water immediately .
5. When removing the front and rear disc brake master cylinders, ensure that the brake fluid in the oil cup is in a horizontal position . Do not turn it upside down to prevent air from entering, which may affect the braking effect and may cause brake failure and personal injury in severe cases.
6. The steps for replacing brake fluid and bleeding air are the same. For detailed steps, see the Brake Fluid section in the Maintenance chapter .
7. When there is oil on the brake pads or brake discs , the braking force will be reduced. The contaminated brake pads should be replaced, and the oil on the brake discs can be removed with a good quality degreasing cleaner .
8. After removing the main pump oil cup cover, prevent dust, water, etc. from entering .
9. If you need to add brake fluid after maintaining the brake system , you must use newly opened DOT4 brake fluid. Do not mix it with other brake fluids .
10. When the vehicle is powered on, switch and unplug the plug of the ABS hydraulic control unit. Excessive voltage may damage the hydraulic control unit. The vehicle must be powered off before maintenance .
11. The hydraulic control unit is a precision part and non- professionals are prohibited from disassembling it .
12. If there is a “  ” symbol on the right side of the step , you can click it to quickly jump to the corresponding step.

#### DANGER

- If brake fluid is swallowed by mistake, contact a poison control center or hospital immediately; if it gets into eyes, rinse with clean water and seek medical attention immediately.
- Keep brake fluid away from children and pets.
- The vehicle must be parked on a flat, stable ground or a lift .

#### WARNING

- You must wear protective gloves / protective clothing /protective goggles /protective mask to perform brake system maintenance.
- It is strictly forbidden to flush the main pump directly with high-pressure water .

## Troubleshooting

### Brake handle soft

- a. Air enters the brake system oil circuit
- b. Brake fluid leakage
- c. The brake pad or brake disc is oily
- d. Brake caliper or disc main pump piston seal is worn
- e. Brake pad or brake disc wear
- f. The disc brake caliper is oily
- g. The disc brake master pump is oily
- h. Disc brake caliper does not slide flexibly
- i. Insufficient brake fluid
- j. The brake oil circuit is blocked
- k. Distortion and deformation of brake disc
- l. Disc brake caliper piston wear and stickiness
- m. Disc brake master pump piston wear and stickiness

### Brake handle hard

- a. Brake oil circuit is blocked
- b. Disc brake caliper piston wear and stickiness
- c. Disc brake master pump piston wear and stickiness
- d. Disc brake caliper cannot slide normally
- e. Brake caliper or disc main pump piston seal is worn

## Disassembling the disc brake master cylinder and caliper

### Notice:

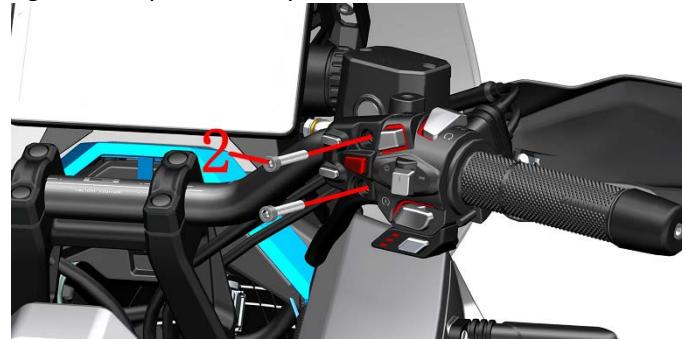
- The protective measures and hazards of brake fluid have been explained before and will not be repeated here.
- The two copper pads at the brake hose of the disassembled caliper and main pump must be replaced to prevent leakage. The surface where the disc brake oil pipe bolt and the copper pad meet can be reused if there is no scratch.
- Disassembling the master cylinder and caliper requires high hands-on skills and is recommended to be done by professional personnel or maintenance units. The replaced waste brake fluid should be handed over to professional units for recycling and proper disposal.
- The operator is responsible for the consequences caused by improper disassembly or assembly, and it is not covered by the three guarantees.
- Operate in a dry, dust-free or dust-free environment.

## Disassembling the front disc brake master cylinder

- a. First use a 12 # sleeve to loosen the disc brake oil pipe bolt (1). After loosening, tighten it slightly until there is no leakage. Otherwise, it will be more difficult to loosen the bolt later. Use a flat-blade screwdriver to lift the rearview mirror rubber plug (1), hold the mirror rod of the right rearview mirror, and then use a 6 # hexagon socket to remove the bolt (2), and then remove the rearview mirror. Pay attention to the  $\phi$  8 spring washer (3).



b. Hold the front brake master cylinder firmly and use a 5 # hexagon socket to remove the two bolts (2) and move the right auxiliary switch away.

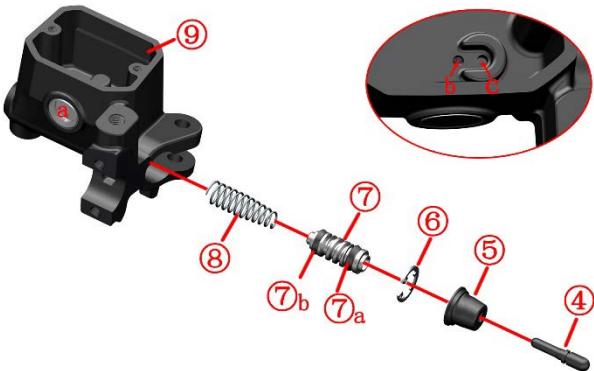


c. Tilt the front brake master cylinder so that the bolt (1) faces upwards, wear waterproof gloves and use a 12 # socket to remove the bolt (1), remove the copper washer (3), remove the FMC-HU oil pipe, and pour out the brake fluid in the master cylinder. The standard torque of the bolt (1) is 32 Nm ( 3.3 kgf.m, 24 lbf.ft ).



d. Refer to the steps for adding brake fluid to remove the top cover; refer to the steps for removing the brake switch and brake handle to remove.

e. Disassemble the front disc brake master cylinder  
a is the oil window assembly and cannot be disassembled unless necessary ; b is the  $\phi$ 0.5 oil hole ; c is the  $\phi$ 3 pressure relief oil hole .



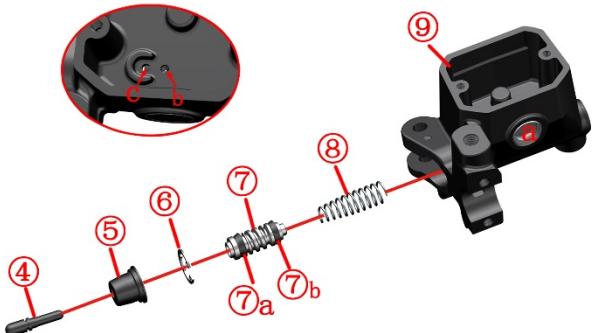
④Piston push rod ⑤Dust cap ⑥ retaining ring ⑦ piston assembly ( ⑦a outer sealing ring ⑦b inner seal ring ) ⑧ spring ⑨ main pump housing

The brake fluid can be cleaned with diesel or kerosene to facilitate the next step of disassembly. If the oil hole is blocked, it can be dredged with a dust gun or a small needle tool . After disassembly, use a soft brush that does not shed hair to clean all parts . It is not recommended to use a dust gun to blow dry. Air compressors with poor drying or filtering effects may blow dust, water vapor or other debris into the main pump housing that has been cleaned through the dust gun ; a vacuum cleaner with high vacuum can be used. A small amount of DOT4 brake fluid can be applied to the piston assembly and spring before assembly . Do not apply other lubricating materials such as lubricating oil, grease or rust-proof oil .

f . Refer to the requirements for lubricating the movable parts of the handle above and apply an appropriate amount of high vacuum silicone grease to the handle bolt and the outer end of the piston assembly. Refer to the disassembly steps to reinstall , and add the newly opened brake fluid and perform the exhaust operation according to the previous steps . Note that the copper gasket (3) needs to be replaced with a new one to prevent leakage . After assembly, confirm that the brake has been restored before driving the vehicle.

### Disassemble the rear disc brake master cylinder

rear disc brake master cylinder is mirror-symmetrical to the front disc brake master cylinder and can be disassembled by referring to the steps for disassembling the front disc brake master cylinder .



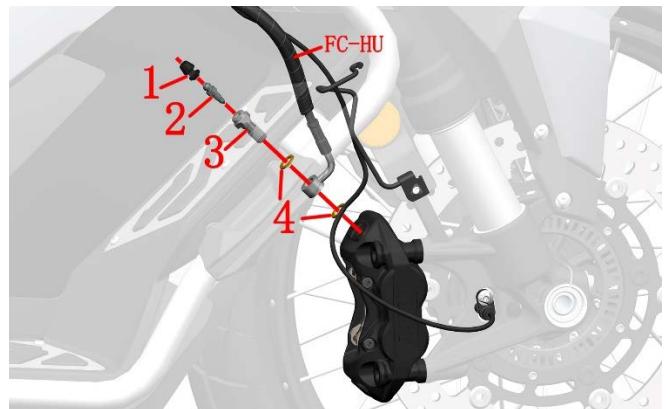
### Disassembling the front disc brake caliper

a. First, use 14 # to loosen the oil pipe bolts until there is no leakage. Then use 8# hexagon socket to remove the two M10 ×1.5×60 bolts (red circles). The standard torque of the bolts is 45 ~50N.m ( 4.6 ~5.1 kgf.m, 33 ~37 lbf.ft ). Do not operate the brake handle after removing the caliper .



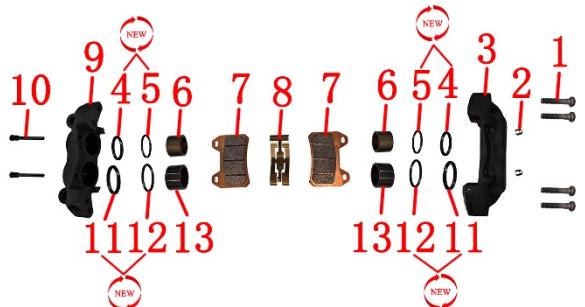
b. Place the oil pan under the front disc brake caliper.

First, remove the rubber cap of the screw (1), put on waterproof gloves and use an 8# plum wrench to remove the bolt (2), use a 14# plum wrench to remove the bolt (3), and remove the two copper washers (4).



c. Remove the brake pads

d. Disassemble the front disc brake caliper .



1- Bolt 2- Circlip 3- Inner housing of caliper 4-  $\phi 3$  0 oil seal 5-  $\phi 3$  0 dust seal 6-  $\phi 3$  0 piston 7- Brake pad 8- Brake pad spring 9- Outer housing of caliper 10- Pin 11-  $\phi 3$  4 oil seal 12-  $\phi 3$  4 dust seal 13-  $\phi 3$  4 piston

Use a dust gun to blow compressed air from the oil pipe bolt to blow out the piston . Place a towel or other soft material on the piston to prevent the piston from colliding with the caliper mounting plate and causing damage . Keep the dust gun away from the caliper body. If the distance is too close, the piston may suddenly fly out and cause damage .

Check the piston and caliper cylinder for scratches, damage , pits, etc. Check the pin for deformation.

#### Notice:

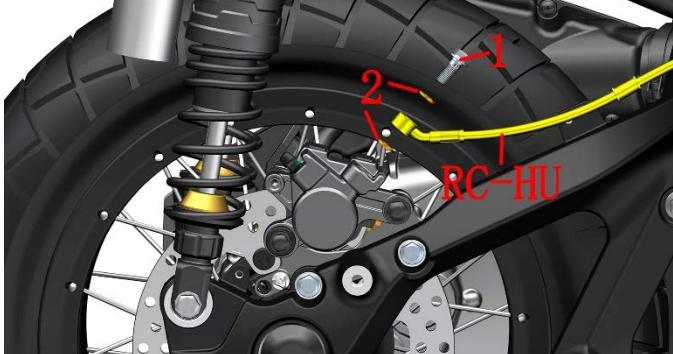
silicone grease to the two pin surfaces indicated by arrows .  
 • Oil seals and dust seals should be replaced with new ones after removal . Apply DOT4 brake fluid to the oil seals and pistons before assembly , and apply silicone grease to the outer ring of the dust seals .

- Apply thread lock glue to the threads of the caliper pin, torque: 22 Nm ( 2.2 kgf.m, 16 lbf.ft ).
- Bleed nozzle torque: 7~9N.m ( 0.7 ~0.9 kgf.m, 5 ~7 lbf.ft ).
- The open end of the piston should face the caliper mounting plate and should not be installed upside down.
- If there is slight rust on the piston surface, it can be polished off with 2000 grit fine sandpaper.

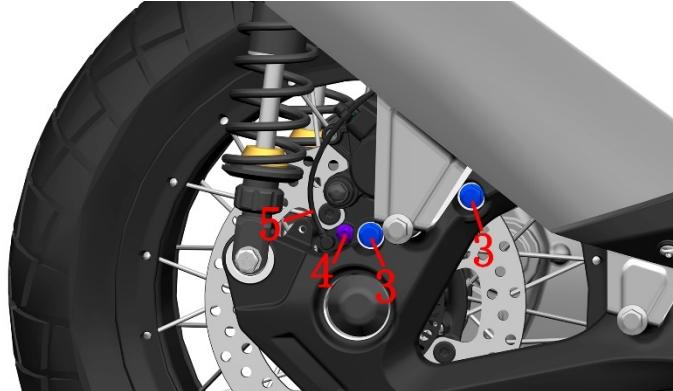
e. Refer to the disassembly steps to restore all parts and add new DOT4 brake fluid according to the steps for replacing the front disc brake fluid . The vehicle can be driven only after confirming that the brakes have been restored.

### Disassemble the rear disc brake caliper

a. Place the oil pan at the bottom of the caliper, wear waterproof gloves and use a 12# socket to loosen the bolt (1), remove the copper washer (2), and move the RC-HU oil pipe . Refer to the steps for adding brake fluid to the rear disc brake master pump to remove the master pump cover to accelerate the discharge of brake fluid. Standard torque of bolt (1) : 32 Nm ( 3.3 kgf.m, 24 lbf.ft ).



b. Remove bolt (3) with a 14# socket , remove bolt nut (4) with a box spanner, and take out wheel speed sensor (5). Standard torque of bolt (3) : 24 Nm ( 2.4 kgf.m , 18 lbf.ft ) .



c. Remove the brake pads first.

d. Disassemble the rear disc brake caliper

Refer to the steps for disassembling the front disc brake

caliper piston in the previous chapter to disassemble the rear disc brake caliper piston. Check the piston and caliper cylinder for scratches, damage , pits, etc. Check the pin for deformation. The precautions for cleaning and assembly are described in detail above and will not be repeated here.

#### Notice:

• Apply silicone grease to the surfaces of the pin and bushing indicated by the arrow .

- Oil seals and dust seals should be replaced with new ones after removal . Apply DOT4 brake fluid to the oil seals and pistons before assembly , and apply silicone grease to the outer ring of the dust seals .

• Apply thread lock glue to the caliper pin threads, torque: 27 Nm ( 2.8 kgf.m, 20 lbf.ft ).

• Bleed nozzle torque: 7~9N.m ( 0.7 ~0.9 kgf.m, 5 ~7 lbf.ft ).

- The open end of the piston should face the caliper mounting plate and should not be installed upside down.

• If there is slight rust on the piston surface, it can be polished off with 2000 grit fine sandpaper.

### Wheel speed sensor and induction gear ring

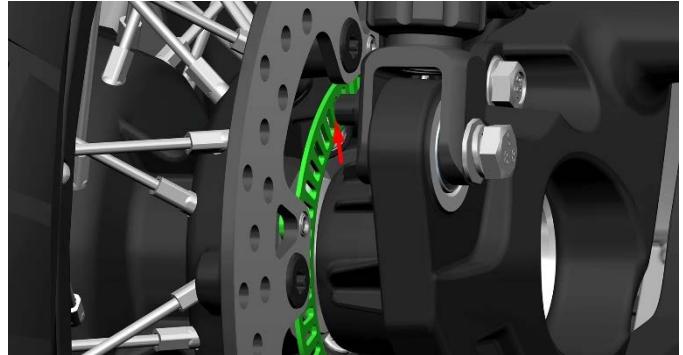
#### Notice:

•The vehicle must be parked on a stable lifting platform or level and flat ground .

Lower the main stand and park the vehicle securely , leaving the rear wheels hanging in the air.

Use a feeler gauge to check whether the clearance between the wheel speed sensor and the ABS sensing gear ring is within 0.4-1.2mm (0.02-0.05in).

If the clearance is not within the specified range , check whether the wheel speed sensor is damaged and whether the ABS sensor ring is loose . For the front wheel, check whether the position where the sensor is installed on the front disc brake caliper mounting plate is deformed, and for the rear wheel, check whether the installation position on the rear swing arm is deformed and whether the rear wheel nut is loose.



Front wheel



rear wheel

## 9. Battery /Charging System

### Notice before service

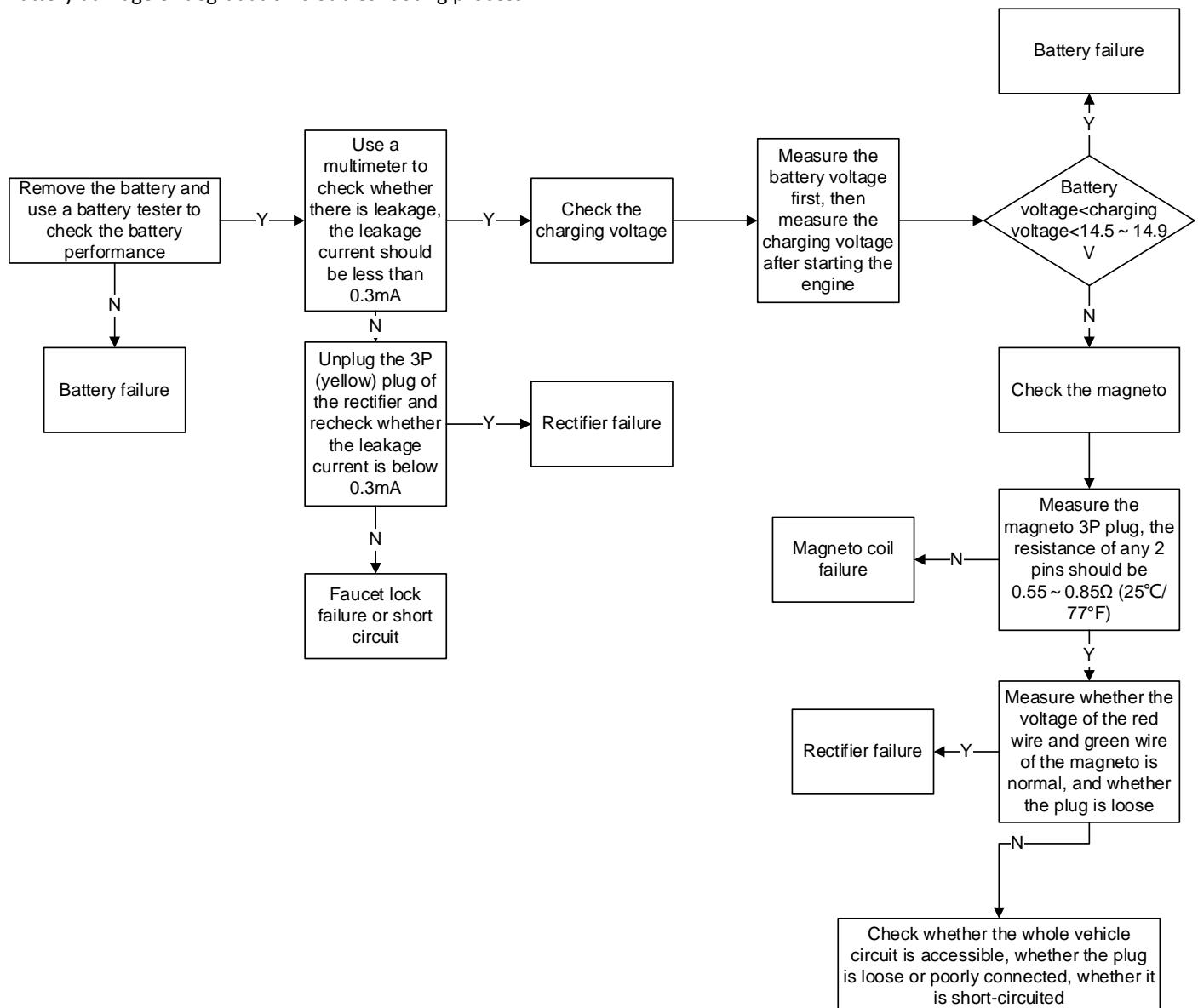
1. Discarded batteries must be properly disposed of and should not cause environmental pollution. It is recommended that the discarded batteries be handed over to professional recycling agencies for recycling .
2. It is prohibited to use untested chargers to charge batteries .
3. When reinstalling the battery , when there is a sudden power outage during driving , when the idling speed is abnormal, or when replugging the fuse, the EFI system needs to be reset. The specific method is as follows:
  - a. Unlock the vehicle and raise the main stand;
  - b. Press the brake and start the vehicle;
  - c. Increase the engine speed to over 3000 rpm ;
  - d. After releasing the accelerator, turn off the ignition switch and lock the vehicle;
  - e. Wait for 5 seconds and then unlock the vehicle again to reset the EFI system.
4. Before removing the battery , the vehicle must be powered off.
5. Before troubleshooting the charging system, check whether the battery is used and maintained normally. Check with the owner whether the owner often uses high-power electrical appliances, does not drive the motorcycle for a long time, or turns on the lights for a long time without starting the vehicle .
6. If there is a “

### WARNING

- When the engine cannot be started , do not press the electric start button frequently. Frequent operation may cause overheating or damage of the starter motor, flooding of the cylinder, battery failure , etc.
- When the vehicle is powered on , connecting or unplugging the plug may cause damage to some electrical components.
- Overcharging or undercharging, or discharging for a long time may cause battery damage.

## Troubleshooting

Battery damage or degradation troubleshooting process

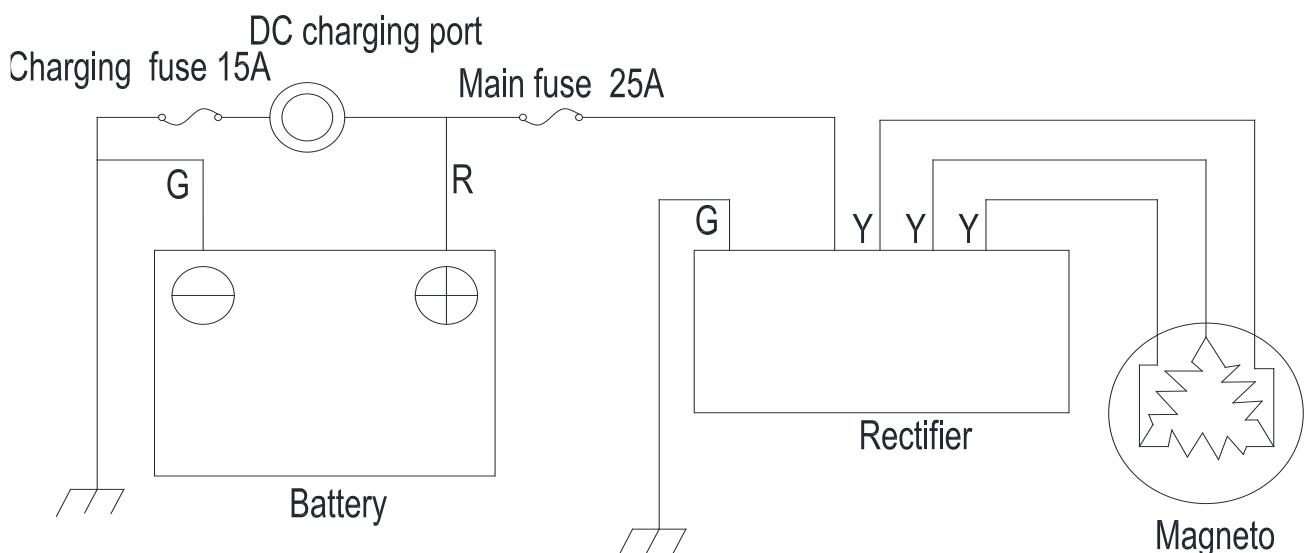


## Charging system layout



1-Battery 2-Main fuse ( 25A ) 3-Charging port ( PKE ) 4 - Magneto 5 – Rectifier

## Electrical Schematic



letter	G	R	Y
Chinese	green	red	yellow
English	Green	Red	Yellow

## Battery disassembly and assembly

### 1. Disassembly

#### Notice:

- The entire vehicle must be powered off before removing the battery .
- The negative pole must be removed first , then the positive pole. The opposite is true during installation .
- The positive and negative electrode protection caps must be properly covered when reinstalling .
- After removing the battery, you need to reset the instrument time and the EFI system.

### 2. Inspection

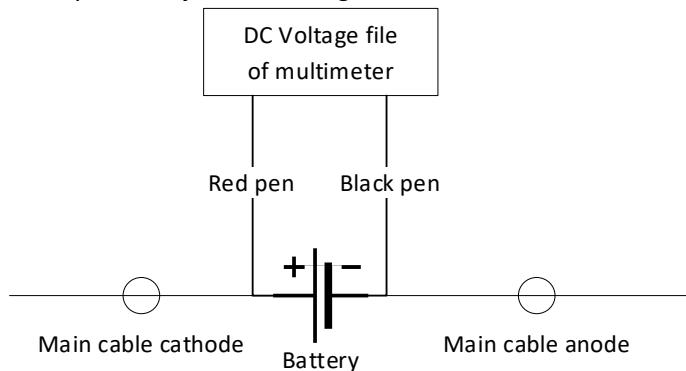
Refer to the head cover removal method and remove the upper part of the hood .



Voltage	Full power voltage	13.3V
	Charging voltage required when not installed	$\leq 12.8V$
	voltage required for loading	$\leq 12.5V$

#### Notice:

- The battery that has just been charged needs to be left for about 30 minutes before measurement. The voltage of the battery that has just been charged will fluctuate .



### 3. Charging

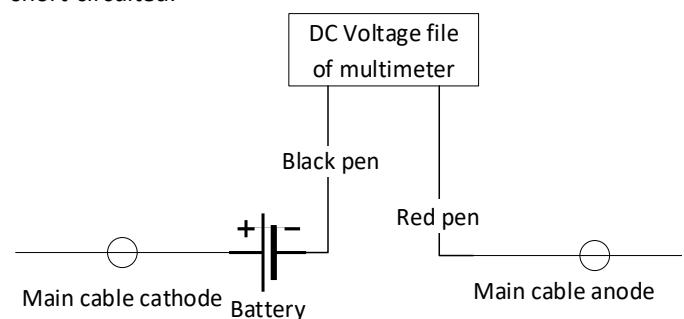
If the battery fails to start due to insufficient power , you can use the charger provided with the vehicle to charge it. Open the right storage box cover and remove the cover to see the DC charging port of the PKE .



## Charging system inspection

### 1. Leakage test

- a. Turn off the vehicle and disconnect the negative battery cable .
- b. Set the multimeter to the current range. Connect the black test lead to the negative terminal of the battery, and the red test lead to the removed negative wire. Note that you should first adjust the current to a high level, and then gradually reduce it to a suitable level .
- c. Measure the leakage current to see if it is below 0.3mA . If it exceeds the standard value , check if the circuit is short-circuited.



### 2. Check the charging voltage

#### Notice:

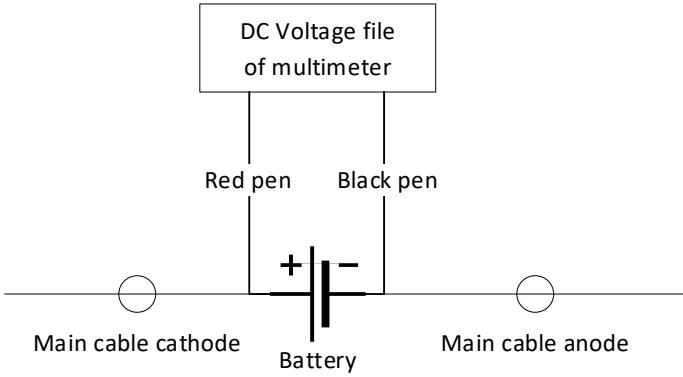
- Make sure the battery is in good condition before testing .
- The battery or any electrical components cannot be disconnected before the vehicle is powered off .

a. Preheat the engine to normal operating temperature and then turn off the engine.

b. Connect the red probe of the multimeter to the positive pole of the battery and the black probe to the negative pole. Adjust the multimeter to the 20V DC voltage position . Turn on the high beam of the headlight and start the engine . Measure the charging voltage when the engine speed is 5000 rpm.

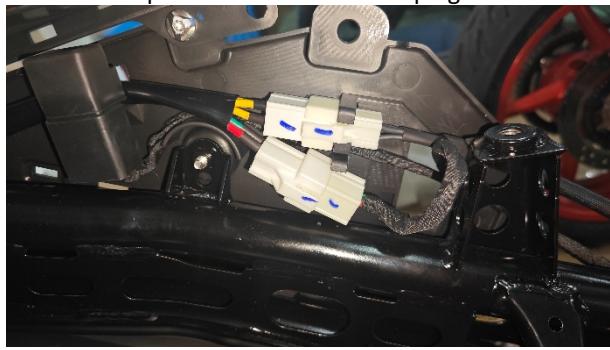
standard :

Battery voltage < charging voltage < 15V

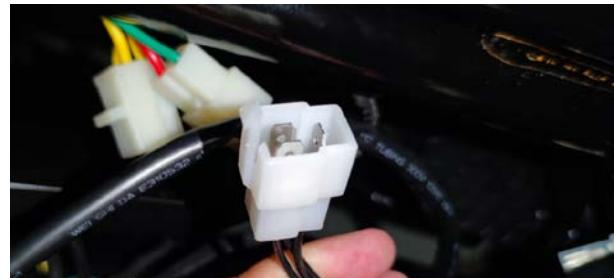


### 3. Inspection of magneto stator charging coil

the steps of "Replacing the rear shock absorber" to remove the rear tail group and taillight, find the 3P plug of the yellow wire of the rectifier on the frame tube on the left side of the rear part of the frame and unplug it.



- b. Check whether the plug is loose or corroded.
- c. Use the resistance range of a multimeter to measure the resistance of any two wires of the black 3P plug . The standard resistance is  $0.55\sim0.85 \Omega$  ( $25^\circ\text{C}/77^\circ\text{F}$ ).



- d. After unplugging the 3P plug of the yellow wire, use a multimeter to measure the red positive wire and the green negative wire. The battery voltage should be measured. Use the beep mode of the multimeter to check whether the green negative wire and the ground wire (the ground wire can be found at any stud directly connected to the frame ) are always conducting .

## 10. Front fork assembly

### Notice before service

1. Use high-quality tools or special tools and fixtures designed by our company. Using inferior tools may cause damage to parts, coating shedding, inadequate assembly , etc.
2. O-rings , paper gaskets , copper gaskets, component sealing rings, etc. used for sealing must be replaced before assembly .
3. For fasteners with torque requirements, a torque wrench should be used to check the torque; for those without torque requirements, refer to the general torque values recommended for general fasteners .
4. Clean before assembly ; check whether the assembly is correct and in place after assembly.
5. The vehicle should be parked in a balanced position and attention should be paid to safety during disassembly and assembly, including but not limited to the use of electric tools , hand tools, pneumatic tools, hydraulic tools, and handling ; avoid contact with skin, eyes, burns, etc.
6. All types of replaced oils, liquids , batteries , etc. must be collected and handed over to qualified institutions for disposal; it is prohibited to dump them at will to pollute the environment or water sources.
7. Swallowing or inhaling coolant , brake fluid, etc. will cause certain harm to the human body. Wash hands, face and any exposed skin thoroughly after each addition. If swallowed by mistake, contact the poison control center or hospital immediately; if inhaled, go to a ventilated environment immediately. If accidentally splashed into the eyes, rinse the eyes immediately with plenty of running water and seek medical attention or treatment in time. Keep away from children and pets.
8. When replacing the front wheel , a jack or similar device is required to support the entire vehicle.
9. Contaminated disc brake discs and disc brake pads will reduce the braking effect. Please replace new disc brake pads and clean contaminated brake discs.
10. When the front wheel is removed , please do not operate the brake handle .
11. After the front wheel is installed , press the brake handle repeatedly until the brakes regain their braking effect.
12. If there is a “  ” symbol on the right side of the step , you can click it to quickly jump to the corresponding step.

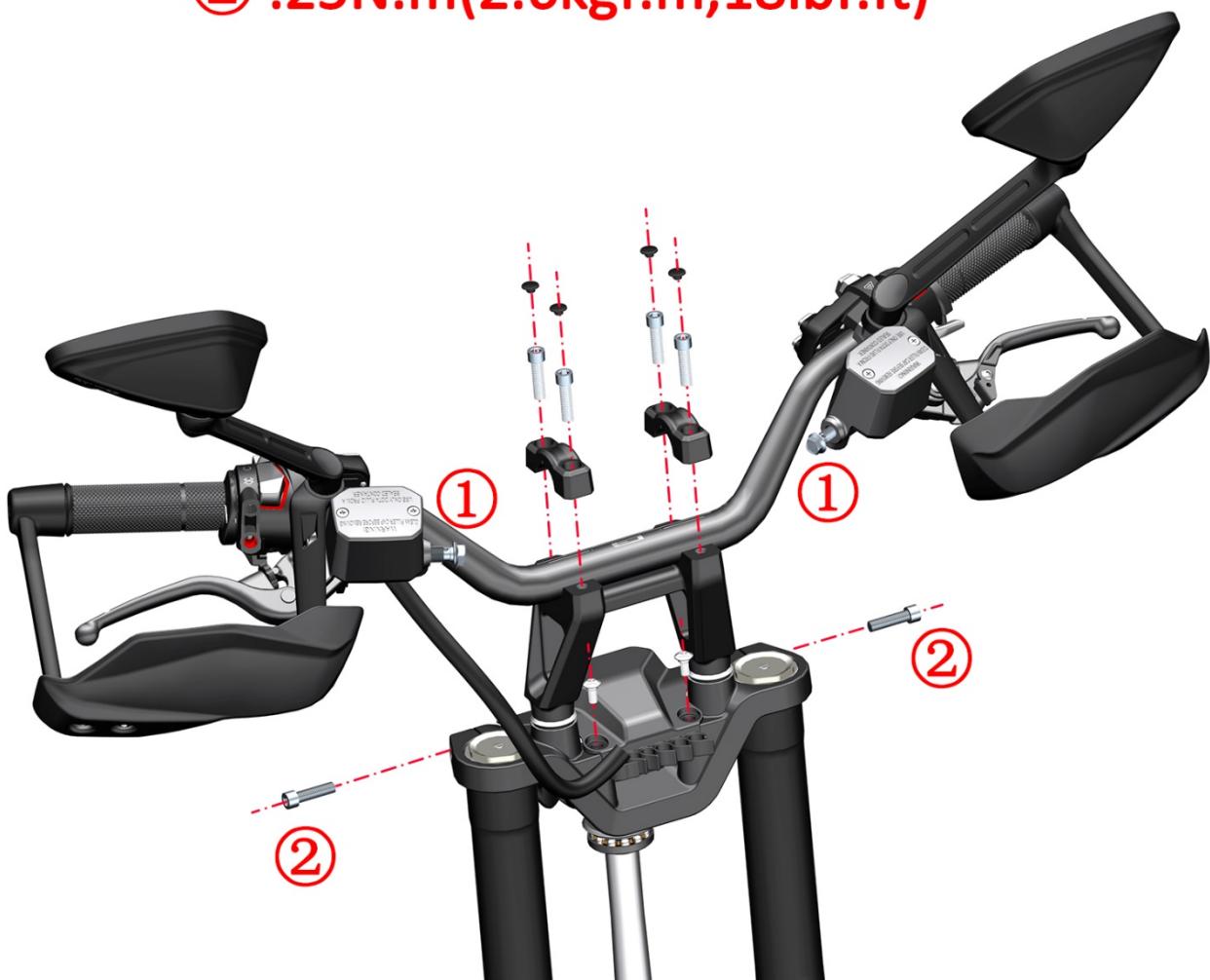
the things that need to be paid attention to and the basic requirements for preventing accidental injuries ; it is impossible to list all situations in detail . Be sure to stay vigilant during the disassembly and assembly process to prevent accidents.

**Exploded view of the front fork assembly :**

**Exploded view of the steering wheel**

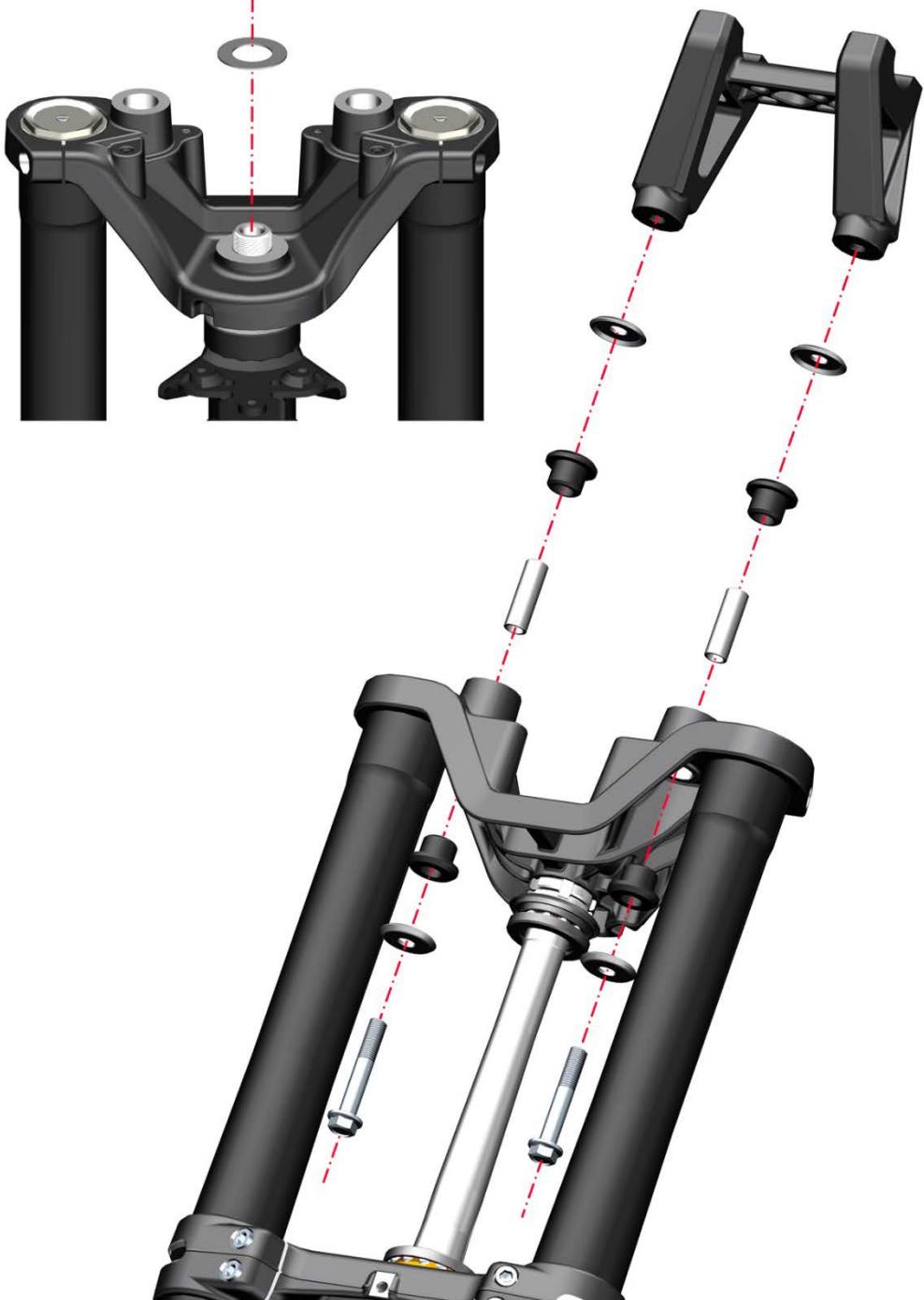
① :32N.m(3.3kgf.m,24lbf.ft)

② :25N.m(2.6kgf.m,18lbf.ft)

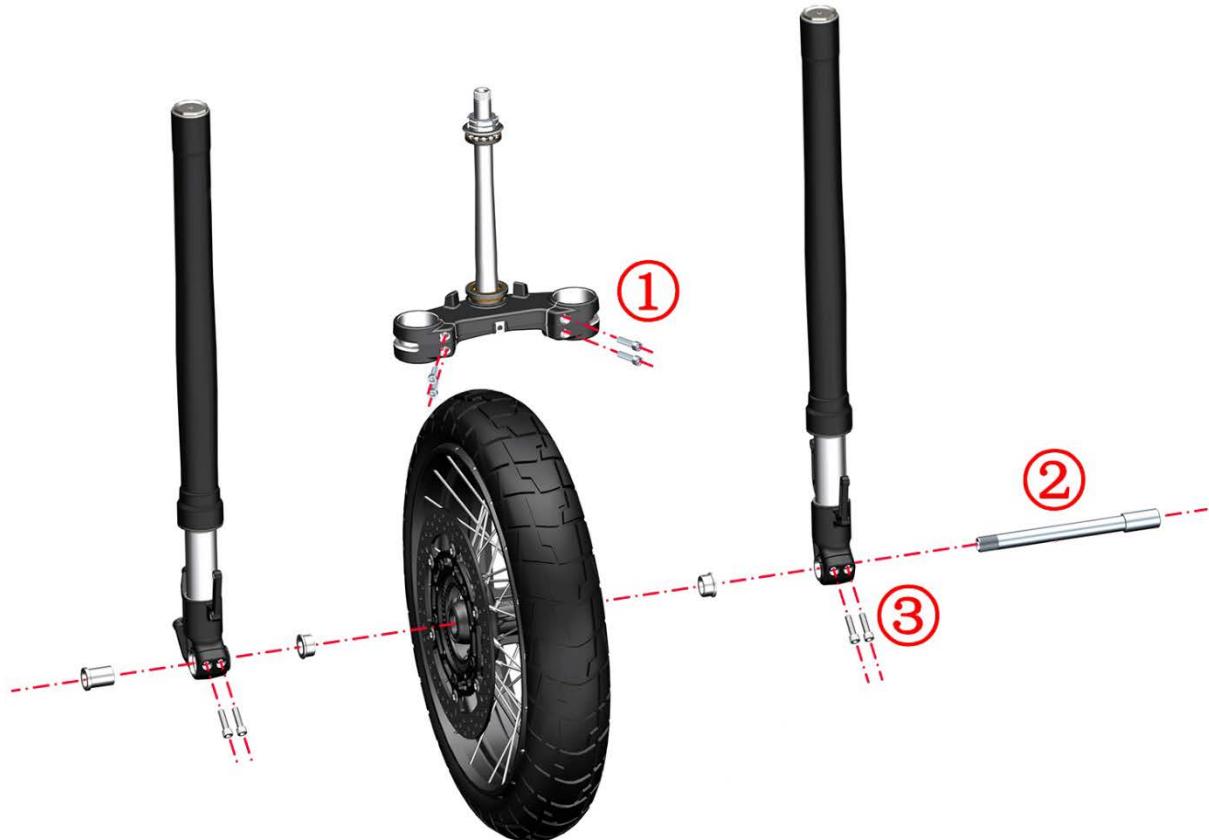


①

①:100N.m(10.2kgf.m,74lbf.ft)



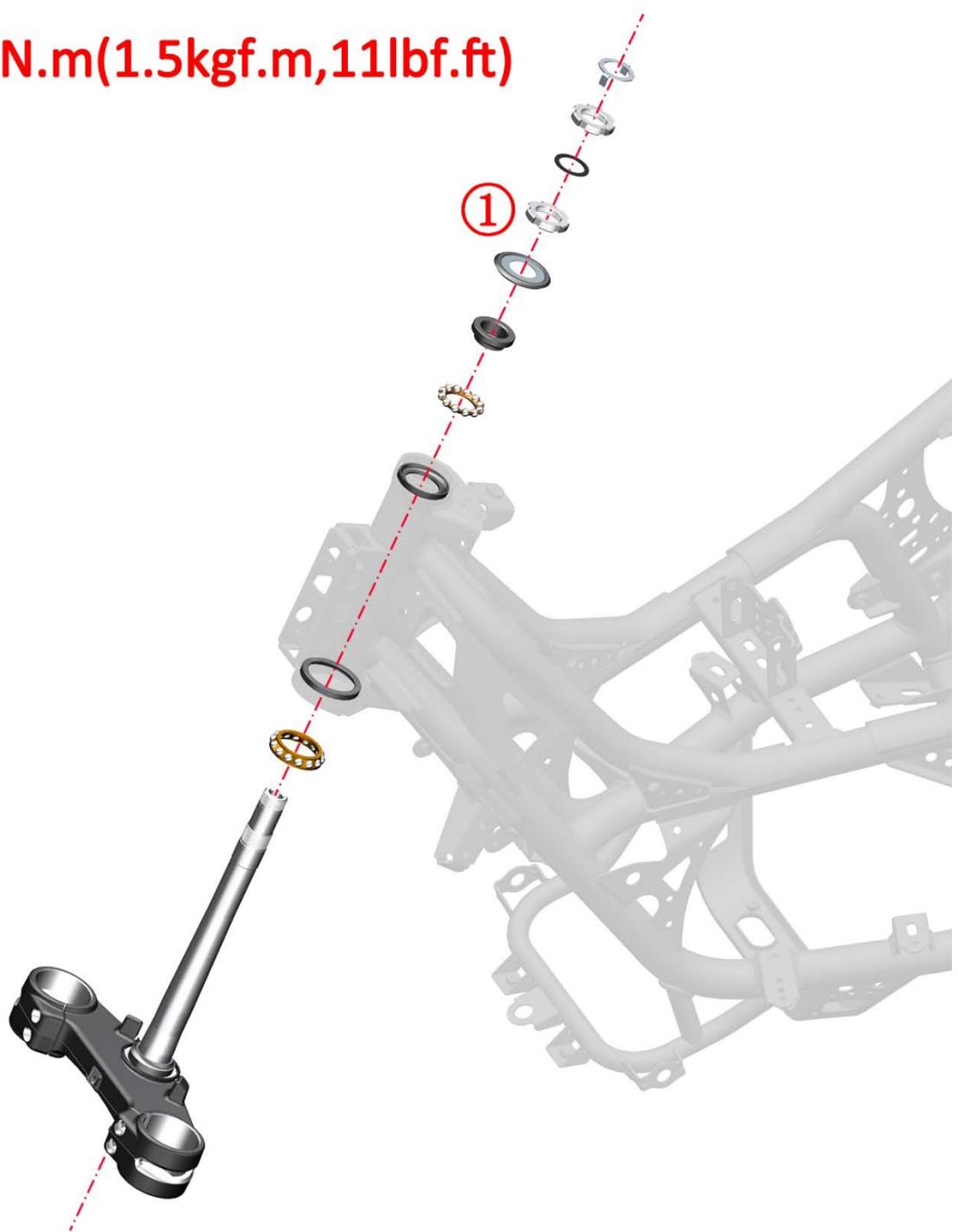
## Front fork exploded view



- ①:25N.m(2.6kgf.m,18lbf.ft)
- ②:50N.m(5.1kgf.m,37lbf.ft)
- ③:20N.m(2kgf.m,15lbf.ft)
- ④:45-50N.m  
(4.6-5.1kgf.m,33-37lbf.ft)

Lower connection board exploded view

① :15N.m(1.5kgf.m,11lbf.ft)



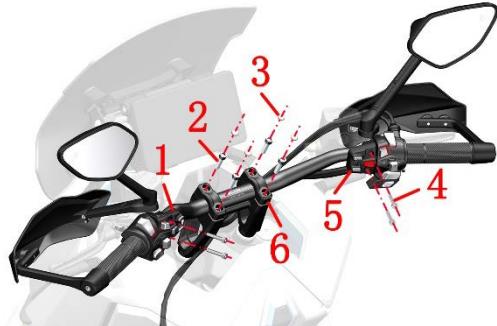
## Replace the steering wheel

### Notice:

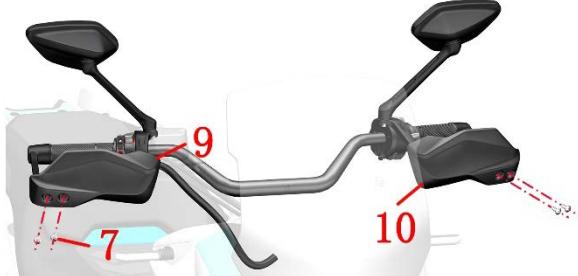
- When removing the disc brake oil cup , be sure to point it vertically upwards to prevent air from entering the brake line.
- When disassembling or assembling the handle switch , pay attention to adjusting the internal wiring harness of the switch to avoid the wire sheath being damaged by the housing or bolt column.

### 1. Disassemble the handlebar assembly

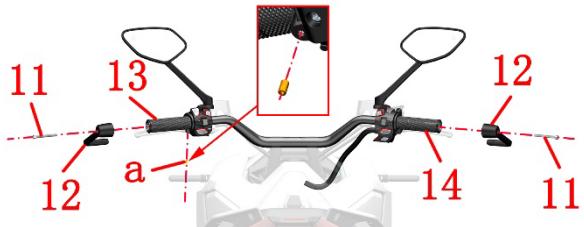
- a . Remove the four decorative buckles (3), use a 6 # hexagon socket to remove the four bolts (2), and remove the two clamps (6). Use a 5# hexagon socket to remove the four bolts (4), and remove the left and right auxiliary handle switches (1) and (5).



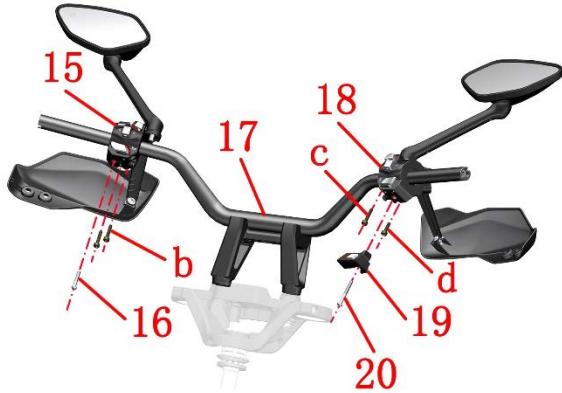
- b . Use a T25 hexagon socket wrench to remove the M6×16 bolts (7) from the left handlebar guard (10) and the right handlebar guard (9).



- c. Use a 2.5# hexagon socket tool to remove the fixing bolt a below the left handle rubber sleeve (13), and use a 5 # hexagon socket tool to remove the left and right bolts (11), and remove the hand guard (12), the left handle rubber sleeve (13), and the right handle rubber sleeve (14).

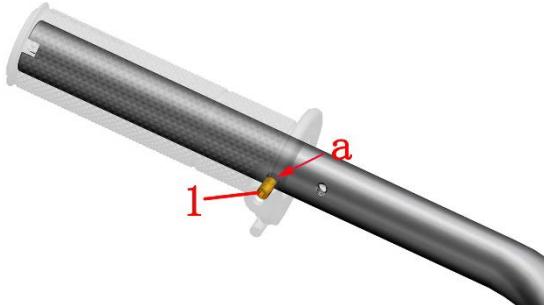


- d. Remove bolts (16) with a cross screwdriver, remove the two bolts b on the left-hand switch (15) with a 5# hexagon socket , separate the upper and lower parts of the left-hand switch (15) , and remove the left-hand switch (15). Remove bolts (20) with a cross screwdriver, and remove the heating switch (19). Remove bolts c and bolts d on the right-hand switch (18) with a 5# hexagon socket , separate the upper and lower parts of the right-hand switch (18) , and remove the left-hand switch (18). Remove the direction handle (17).



### 2. Install the direction handle assembly

- a. Stick 4 rubber strips on the inner wall of the left heated handlebar , and then install the left heated handlebar into the left handlebar ; the inner wall of the right heated handlebar does not need to be glued with rubber strips, and can be directly installed . Note that there are positioning holes on the rubber sleeve of the left handlebar , which need to be aligned with the hole position a of the handlebar, and then tighten the fixing bolt (1) with a 2.5 # hexagonal tool. Do not remove the throttle cable on the rubber sleeve of the right handlebar. Reinstall the left and right hand guards according to the disassembly steps , and tighten the M6×60 bolts with a 5# hexagonal tool .



- b . When installing the left-hand switch, align the cross head bolt (2) with the positioning hole ① on the handlebar and the direction handle, and then tighten it with a cross screwdriver . Align the upper and lower parts of the left-hand switch, and use a 5 # hexagon socket to tighten the two bolts that come with the left-hand switch .



- c. When installing the right-hand switch, align the cross-head bolts (3) with the positioning holes ② on the handlebar switch and the direction handle, and then pre-tighten them with a cross-head screwdriver . Align the upper and lower parts of the right-hand switch and combine them, and use a 5 # hexagon socket to tighten the two bolts that come with the right-hand switch . Remove the pre-tightened

bolts (3), align the hole position of the heating switch (4) with the positioning holes (2) on the handlebar switch and the direction handle, and then tighten the bolts (3).



d. When installing the auxiliary handlebar switch , align the joint surface of the auxiliary handlebar switch and the disc brake master cylinder with the triangle mark on the handlebar switch , and then use 5 # hexagon socket to tighten the four M6×30 bolts .



e . Place the handlebar on the pad, and use bolts and pressure blocks to pre-fix the handlebar on the pad. It is necessary to leave adjustment positions for the handlebar, and there is no need to tighten the bolts for the time being. As shown in Figures (3) and (4), place the handlebar according to the scale position until it coincides with the positioning point of the pressure block, and then use a 6 # hexagonal tool to tighten the four bolts.



## **WARNING**

- After installation, check whether the throttle cable is properly assembled and whether it can return to its original position flexibly.
- Self-tapping screws must be installed vertically and the torque should not be too large.
- After installation, check the switch buttons of the left and right handlebar switches and the left and right auxiliary handlebar switches to check whether they can be used normally and whether there is any wire pressure.

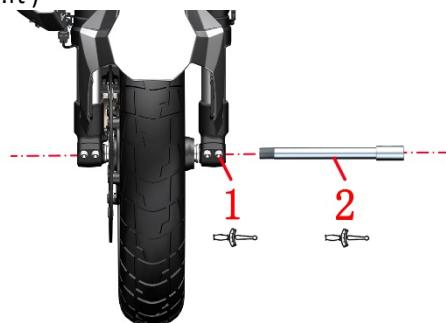
## **Replace the front wheel**

**Notice:**

- Be careful not to damage the ABS coil during disassembly . wheel is removed, do not press the brake handle .
- The vehicle must be parked on a flat, stable ground or a lift.
- Do not use a high-pressure water gun to flush the oil seal at close range.

## **1. Disassemble the front wheel assembly**

- a . Lower the main support, and then use a jack or a suitable device to support the vehicle so that the front wheels are off the ground.
- b. Use a 6 # hexagon socket to loosen the two M8×30 bolts (1) at the front left shock absorber , then use a 17 # hexagon socket to remove the front wheel shaft (2), and remove the front wheel and two bushings. 45 ~ 50N.m ( 4.6 ~ 5.1 kgf.m, 33 ~ 37 lbf.ft )



## **2. Install the front wheel assembly**

- a. Use a flat-blade screwdriver to separate the two brake pads in the brake caliper. If the resistance is too great and the two brake pads cannot be separated , refer to the method in " Adding Brake Fluid " to remove the upper cover of the disc brake oil cup and then separate the two brake pads .



- b. Put the front wheel into the middle of the front shock absorber, shake the front wheel left and right to make the disc brake disc fit into the middle of the brake pad, align it with the shaft hole, insert the front wheel shaft ( 2 ), tighten the front wheel shaft with a 17 # hexagon socket , torque: 50N.m ( 5.1 kgf.m, 37 lbf.ft ). After the front wheel shaft is tightened , there is still a gap of about 2.5mm between the left bushing of the front wheel and the shock absorber ; tighten the two M8×35 bolts ( 1 ) at the front left shock absorber with a 6 # hexagon socket , torque : 20 Nm ( 2.0 kgf.m, 15 lbf.ft ).



## **DANGER**

- After the front wheel is installed , press the brake handle repeatedly until the brakes regain their braking effect.
- Contaminated disc brake discs and disc brake pads will reduce the braking effect. Please replace new disc brake pads and clean contaminated brake discs.

Exploded view of the front wheel assembly :

## **WARNING**

- Every time you replace the front wheel , you must go to a professional organization for a dynamic balance test.
- Tire self-filling fluid may block the air holes of the tire pressure monitoring sensor, causing difficulty in inflation or tire pressure monitoring failure, so it should not be used.



Serial number	name	QTY	Remark
1	Oil seal TC φ28×φ42×7	2	
2	GB276 deep groove ball bearing 6004-2RS-C3	2	φ2 0 × φ42 × 12
3	Spacer	1	
4	Tire pressure sensor	1	Pay attention to the direction when installing; the elbow should face left
5	300x5.0 brake disc	1	
6	Non-standard plum bolt M 8 × 25	5	2 5 N. m (2.5 kgf.m , 1 8 lbf.ft) . T45 hexagon socket wrench

## Front wheel assembly inspection and maintenance :

**Note:** •This inspection should be completed by a qualified maintenance unit .

- Do not press the brake handle after the front wheel is removed
- Be careful not to damage the ABS coil during disassembly .
- The vehicle must be parked on a flat and stable surface or on a lift platform.
- Do not use a high-pressure water gun to flush the oil seal at close range.

### 1. Disc brake

#### 1.1 Service life of disc brakes

Generally speaking, the brake disc replacement mileage is about 40,000 kilometers. The replacement mileage is not absolute . It needs to be determined based on factors such as the owner 's driving habits ( whether he likes to brake suddenly) , road conditions, and maintenance cycles. However, if any of the following three situations is reached, the brake disc must be replaced.

- a. Use a vernier caliper to measure the disc brake rotor thickness to less than 4.5 mm ( 0.18 in ) .
- b. Suspend the front wheel in the air and observe from the front that the disc brake disc swings when the front wheel rotates , and deformation of the disc brake disc is detected .
- c . Touch the surface of the disc brake disc with your hand to check for obvious pits , deep scratches or grooves .



#### 1.2 How to replace the disc brake

- a. Refer to " Replacing the Front Wheel" to remove the front wheel assembly .
- b. Use a T45 hexagon wrench to remove the five M8x25 bolts and remove the damaged disc brake.
- c. After reinstalling the new disc brake disc, use a T45 hexagonal wrench. Torque : 25N.m ( 2.5 kgf.m, 18 lbf.ft ).
- d. Reinstall the front wheel assembly.

## 2. Front wheel oil seal and bearing

#### 2.1 Service life of front wheel oil seal and bearing

Generally , the bearings and oil seals in the front wheel axle need to be checked every 50,000 kilometers, but the bearings and oil seals in the front wheel axle need to be checked according to the actual conditions of the vehicle , such as the driving conditions and load size. For example , after the vehicle wades through water , water will enter the oil seals and bearings , and the fine dust in the water will accelerate the wear between the bearings and the oil seals . At the same time, the water and grease will become an emulsion after friction and lose their original lubrication effect. This also shortens the service life of the oil seals and bearings . When the following situations occur , the front wheel oil seals and bearings should be checked in advance .

- a . Abnormal noise from the front wheel occurs while riding .
- b. When the handlebars shake left and right while riding .

#### 2.2 How to replace the front wheel oil seal and bearing

a. Refer to " Replacing the Front Wheel" to remove the front wheel assembly .

b. Use a flathead screwdriver to lift out the oil seals on both sides of the front wheel , check if the oil seals are damaged or deformed , and check if the outer ring of the bearing fits tightly against the rim. If there is no abnormality, turn the inner ring of the bearing by hand to check if the bearing rotates smoothly . If there is any sticking or abnormal noise, replace the front wheel bearing and oil seal.



c. Replacement of the front wheel oil seal and bearing must be performed by a professional maintenance unit.

d. If there are no problems after inspection, apply a proper amount of butter on the front wheel bearing , and then use an iron rod of appropriate size and a rubber hammer to press the oil seal to its original position.

e. Reinstall the front wheel assembly.

## 3. Front wheel rim and tire

#### 3.1 Service life of front wheel rim and tire

Generally speaking, there is no limit on the service life and mileage of rims , but the rims must be replaced if the following situations occur .

- a. The rim is deformed or warped .
- b. The rim is cracked or broken

normal circumstances , the front tire can be used for about 20,000 kilometers . Normal circumstances refer to the normal driving road conditions are not bad , there is no puncture and other phenomena. Because the tire is made of rubber, it will age. Generally, it is necessary to replace the tire after about 4 years . If you do not replace it , you need to check it frequently to check the aging of the tire and whether there are cracks in the tire . If the following situations occur , the tire must be replaced.

- a . The tire has been repaired multiple times .
- b. When the tire tread wear reaches the designed limit .
- c. The tire has multiple signs of aging and cracking.

#### 3.2 How to replace the front wheel rim and tire

a . Refer to " Replacing the Front Wheel" to remove the front wheel assembly.



b . Take the removed front wheel assembly to a professional organization and use a tire remover to remove the tire.

c. Use a lifting machine to install the new rim or new tire. And inflate the front tire to the standard value . Front tire pressure : 2 30 kPa (33.4 psi)

d. Install the assembled front wheel assembly back onto the vehicle.

#### 3.3 Dynamic balancing

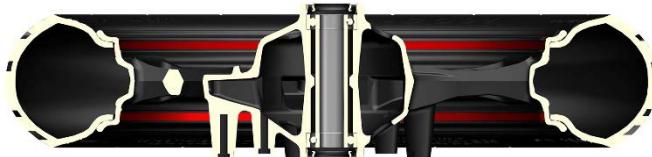
The wheel is a whole composed of a tire and a rim . Due to manufacturing reasons , the mass distribution of each part of the wheel may not be very uniform . When the wheel rotates at high speed, a dynamic imbalance state will be formed, causing the wheel to shake and the steering handle to shake while the vehicle is driving . In order to avoid this phenomenon or eliminate it, the wheel must be adjusted to balance the edge parts by adding counterweights under dynamic conditions . This correction process is what we call

dynamic balancing.

beads on the wheels can ensure that the wheels rotate more smoothly , reduce vibration and shaking, improve the stability and comfort of the vehicle, and facilitate safe driving.

a. Every time you replace the front and rear wheels, please go to a professional qualified institution to check the dynamic balance.

b. The dynamic balancing weight must be attached to the designated plane of the rim (red area).



## Replace the front shock absorber

### Notice:

wheel is removed, do not press the brake handle .

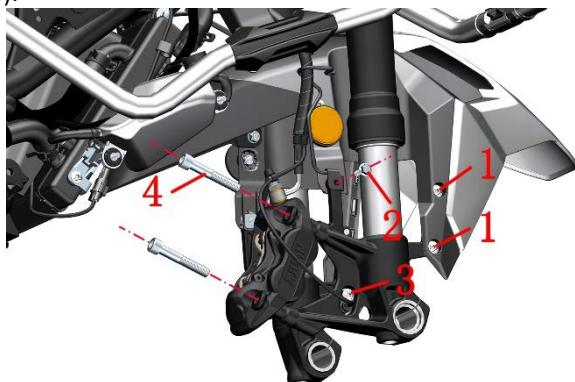
- Be careful not to damage the ABS coil during disassembly .
- When removing or installing the front fender , be careful not to scratch the shock absorber or the front fender .
- When removing the shock absorber, first remove the two bolts that fix the same shock absorber , then remove one side of the shock absorber and then remove the other side.

### 1. Remove the front wheel and front fender assembly

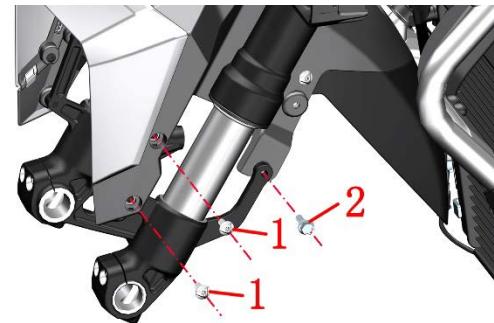


a . Refer to "Replacing the Front Wheel " to remove the front wheel .

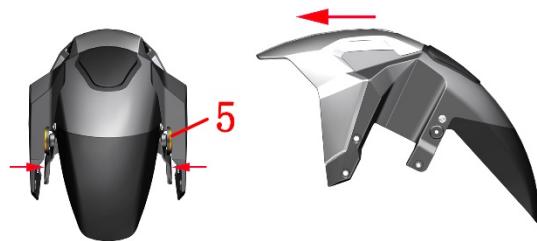
b . Use a 10 # socket to remove an M6× 20 bolt (2) and take out the pipe clamp. Use a T45 hexagonal wrench to remove two M6× 14 shoulder bolts . Use an 8# hexagonal wrench to remove two M10×1.5×60 bolts (4) and remove the front brake caliper from the front shock absorber bottom tube . Use a T45 hexagonal wrench to remove an M6× 16 bolt ( 3).



c. Use a T45 hexagon wrench to remove the two M6× 14 shoulder bolts . Use a 10 # socket to remove the M6× 20 bolt (2) .



d. Remove the two side reversers (5), press the two sides of the front mud plate according to the small arrows, press the protrusions at the arrows of the front mud plate inwards, move the front mud plate upwards to the appropriate position and pull it out in the direction of the large arrow.



### 2. Remove the left and right front shock absorbers

a. Turn the handlebar to the far left and use a 6# hexagon socket to remove the M8×30 bolt (6) . Use the same method to turn the handlebar to the far right and remove the bolt (6). Use a flathead screwdriver to pry open the gap on the upper connecting plate .



b . Use a 6# hexagon socket to remove the four M8 ×30 bolts (6), use a flathead screwdriver to pry open the gap on the lower connecting plate , and remove the left front shock absorber and the right front shock absorber.

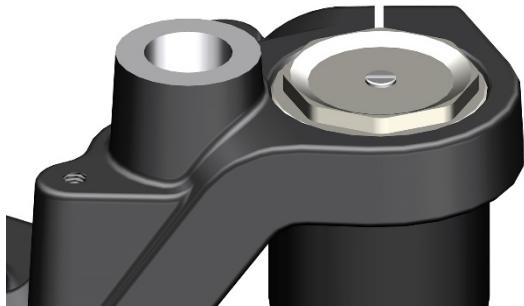


### 3. Reinstall the shock absorber, front fender, front wheel and other components

a . Use a flat-blade screwdriver to pry open a gap on the lower connecting plate and insert the corresponding shock

absorber .

b. Use a flat-blade screwdriver to pry open a gap on the upper connecting plate , insert the corresponding shock absorber, and make sure that the upper end of the shock absorber is flush with the upper end of the upper connecting plate. After the shock absorber is installed in place, remove the flat-blade screwdriver . Screw in the M8×30 bolt and tighten it with a 6# hexagon socket . Torque: 25N.m ( 2.6 kgf.m , 18 lbf.ft ).



c. Install the two M8×30 bolts on the lower connecting plate , and use the same method to install the other shock absorber.

d. After installing the bushing on the front wheel , align it with the mounting hole between the two shock absorbers, insert the front wheel axle, and tighten the front wheel axle with a 17 # hexagon socket . Torque : 50N.m ( 5.1 kgf.m, 37 lbf.ft ). If one of the shock absorbers is not installed in place , the front wheel axle will not be tightened or cannot be inserted into the right shock absorber . The shock absorber that is not installed in place needs to be removed and then installed in place .

e . After installing the front wheel, use a 6 # hexagon socket to tighten the two M8×30 bolts on the lower part of the left front shock absorber . Torque : 20 Nm ( 2.0 kgf.m, 15 lbf.ft ) .

f. Use a flat screwdriver to separate the two brake pads inside the brake caliper . If the resistance is too great and the two brake pads cannot be separated , refer to the method in " Adding brake fluid " to remove the upper cover of the disc brake oil cup and then separate the two brake pads . Align the gap between the two brake pads in the disc brake caliper with the brake disc on the front wheel and install them. Then use 8# hexagon socket to tighten the two M10 bolts , torque : 45 ~ 50N.m ( 4.6 ~ 5.1 kgf.m, 33 ~ 37 lbf.ft ) .

g. Press the position where you pressed when removing the front fender , and then tighten the shock absorber in the middle.

Pass through the appropriate position and install it to the corresponding position. Use a T45 hexagonal wrench to reinstall the four M6×14 shoulder bolts. Use a 10# socket to tighten the front fender with the M6×20 bolts on the left front shock absorber. For the right front shock absorber, install the front oil outlet pipe clamp and then use a 10# socket to tighten the M6×20 bolts .

## Replace the lower connecting board

**Note:** After the front wheel is removed, do not press the brake handle .

• When removing the disc brake oil cup , be sure to point it vertically upwards to prevent air from entering the

brake line.

• After disassembly, make sure all parts are reinstalled correctly.

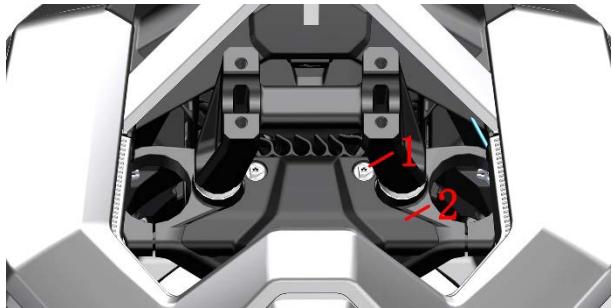
• Apply appropriate amount of grease when installing the bearing

### 1. Disassemble parts in advance

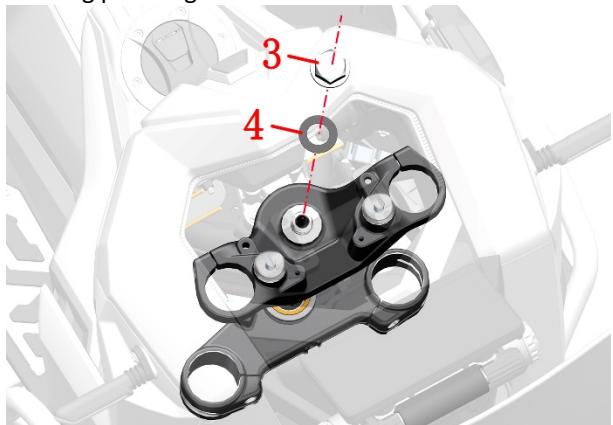
a . Refer to " Replacing the Front Wheel", " Replacing the Front Shock Absorber " and " Replacing the Handlebar " to disassemble the front wheel, front shock absorber and handlebar .

### 2. Remove the direction pad and upper connecting plate

a. Use a T45 hexagon wrench to remove the two M6×14 shoulder bolts (1) and remove the sunshade (2).



b. Use a ratchet wrench + extension rod + 30 # sleeve to remove the cap nut (8) of the upper connecting plate, and remove the gasket (9). Take out the gasket and the upper connecting plate together .



### 3. Remove the lower connecting plate assembly

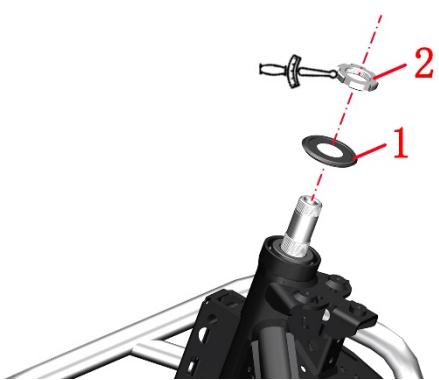
a. Use a pick to remove the anti-loosening washer of the adjusting nut, unscrew the first steering column adjusting nut, and remove the adjusting nut washer. One person holds the lower connecting plate with his hands, uses a ratchet wrench and adjusting nut tooling to remove the second steering column adjusting nut, removes the dust cover and pulls the lower connecting plate downwards. Please refer to the exploded diagram of the lower connecting plate .

#### 4. Install the lower connecting plate assembly

Apply a proper amount of lubricating oil to the new lower connecting plate assembly and install it from the bottom of the frame .



b. Put the steering column dust cover (1) and the steering column adjustment nut (2) in sequence . Then use the adjustment nut tool to tighten the torque. First tighten to 50N.m ( 5.1 kgf.m, 37 lbf.ft ) , then loosen 1/4 turn , and then tighten to 15 N.m ( 1.2 kgf.m, 11 lbf.ft ).



c . Ensure that the lower connecting plate rotates without getting stuck or loose, and then put in the adjusting nut washer (3), the steering column adjusting nut (2), and the adjusting nut anti-loosening washer (4) in sequence. This

nut only needs to be tightened and aligned with the first nut.



d . Put the upper connecting plate (7) in , then put the gasket (6), and pre-tighten the upper connecting plate decorative nut (5). Note: Tighten the upper connecting plate decorative nut after installing the shock absorber. Torque: 100 Nm ( 10.2 kgf.m, 74 lbf.ft ) .



#### 5. Install other disassembled components

- Refer to "Replacing the Front Shock Absorber " to reinstall the front shock absorber.
- Refer to "Replacing the Front Wheel " to reinstall the front wheel assembly.
- Refer to "Replacing the Handlebar " to reinstall the handlebar assembly .

##### DANGER

- The vehicle must be parked on a flat, stable ground or a lift.
- After each removal or installation of the front wheel, the brake handle must be pressed repeatedly until the vehicle's braking effect is restored .



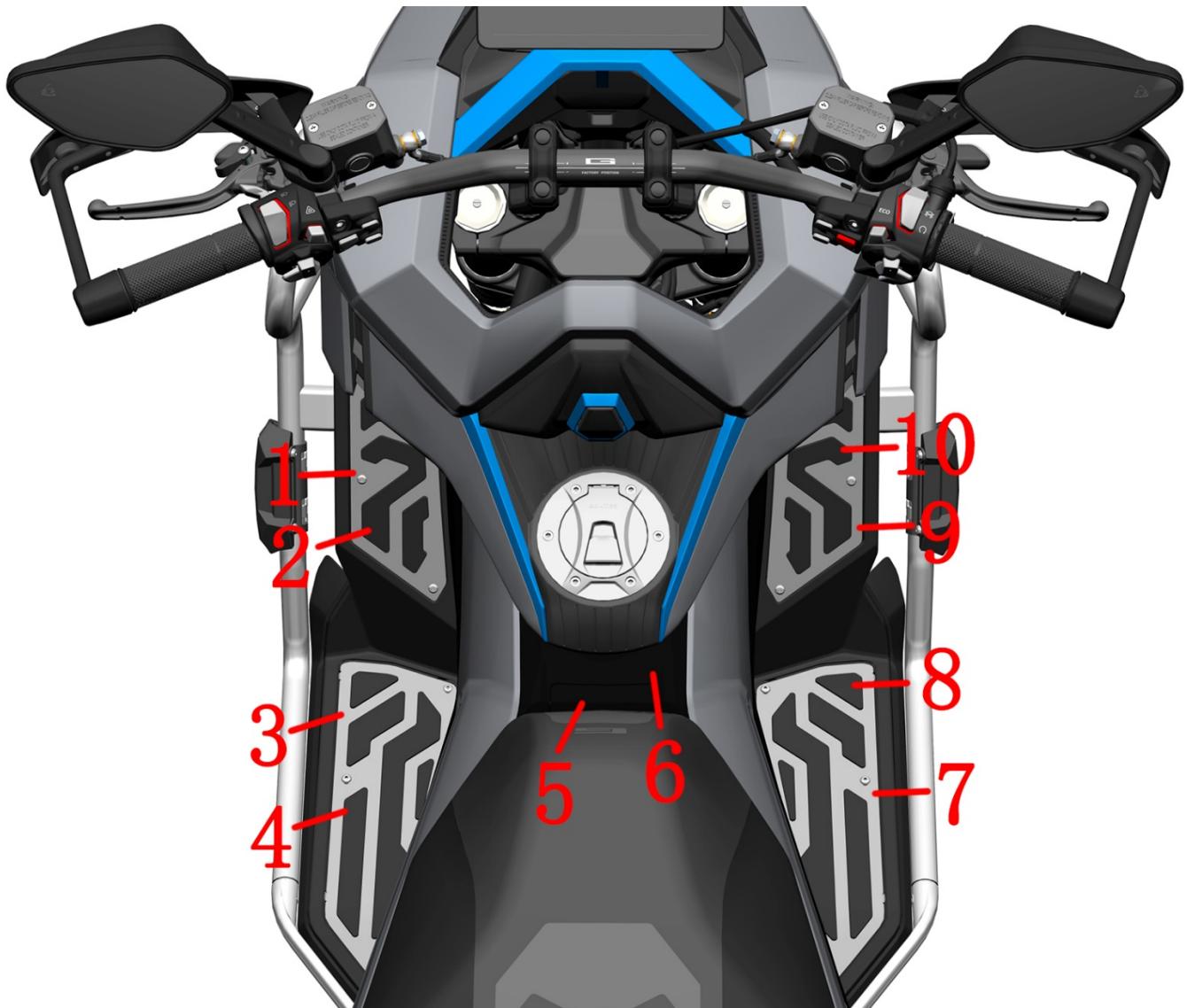
## 11. Disassembly and assembly of vehicle covering parts



1. Windshield 2. Hood 3. Headlight 4. Upper head decoration 5. Right side head panel 6. Right pedal front decoration cover 7. Right side cover 8. Right side cover lining 9. Right rear footrest decoration cover 10. Right part of lower air deflector 11. Right part of fuel tank cover 12. Right rear tail cover 13. Right part of rear tail cover low lining 14. Rear fender 15. Right rear armrest 16. Seat cushion 17. Right decoration cover of fuel tank lock 18. Right decoration strip of fuel tank lock 19. Middle part of front storage box 20. Upper rear decoration cover 21. Upper front decoration cover



1. Windshield 2. Hood 3. Headlight 4. Head upper decoration 5. Head left side panel 6. Left pedal front decoration cover 7. Left side cover 8. Left side cover lining 9. Left rear footrest decoration cover 10. Lower air deflector left part 11. Fuel tank cover left part 12. Left rear tail cover 13. Left tail cover low lining right part 14. Rear fender 15. Left rear armrest 16. Seat 17. Fuel tank lock left decoration cover 18. Fuel tank lock left decoration strip 19. Front storage box middle part 20. Upper surround rear decoration cover 21. Upper surround front decoration cover



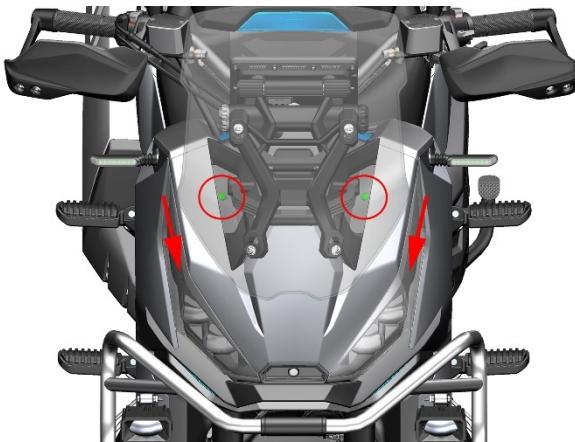
1. Front left pedal rubber pad pressure plate 2. Front left pedal rubber pad 3. Rear left pedal rubber pad pressure plate 4. Rear left pedal rubber pad 5. Fuel tank movable cover 6. Fuel tank cover middle 7. Rear right pedal rubber pad pressure plate 8. Rear right pedal rubber pad 9. Front right pedal rubber pad pressure plate 10. Front right pedal rubber pad

### **Notice:**

- Please pay attention to the amount of force when disassembling to avoid breaking the buckle.
- When removing the covers, please remove them strictly in order and do not forcefully remove the covers to avoid irreparable damage to the corresponding covers.
- When unplugging the plug, please control the force and the method of disassembly. Do not unplug the plug forcibly to prevent damage to the plug, which will lead to poor contact of the wiring harness connector and affect the function of various parts.
- When installing the wiring harness plug, please check whether the wiring harness pins in the wiring harness male plug are deformed or misplaced to prevent damage to the wiring harness pins in the wiring harness male plug during installation, thereby affecting the functions of various parts.

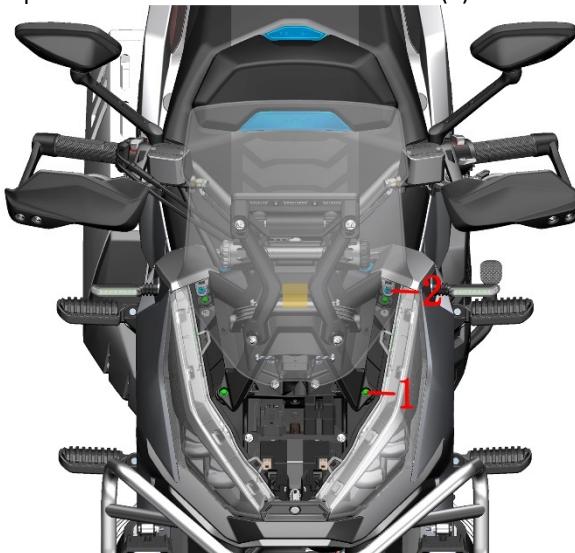
### **Removal of the hood**

- Use a pick or other suitable tool to remove the two expansion screws that secure the head cover.
- Gently tap the hood in the direction of the arrow to remove it.



### **Removal of windshield instrument assembly**

- Use an 8 # socket to remove the four bolts (1), and use a T25 plum wrench to remove the two bolts (2).



- Lift the windshield assembly and unplug the instrument connector.

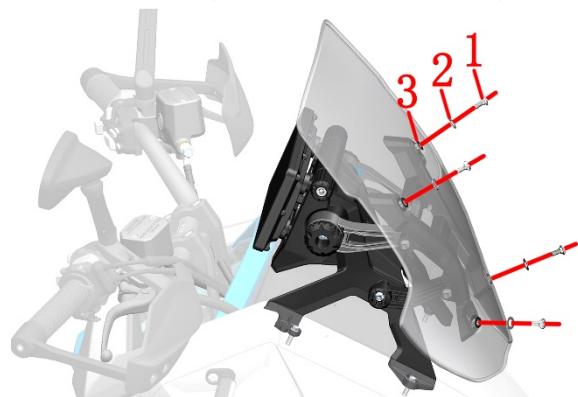


c. Remove the windshield instrument assembly

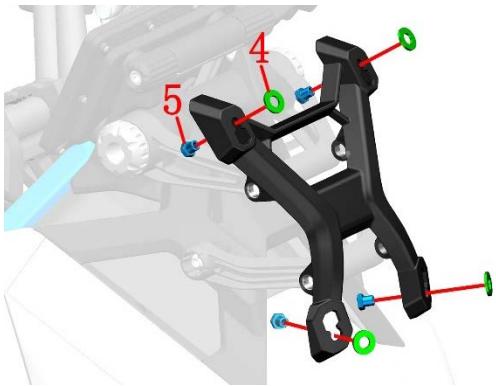


### **Disassembly of windshield instrument assembly**

- Use a T25 box end wrench to remove the four bolts (1), take off the nylon gasket (2) and the bushing (3).

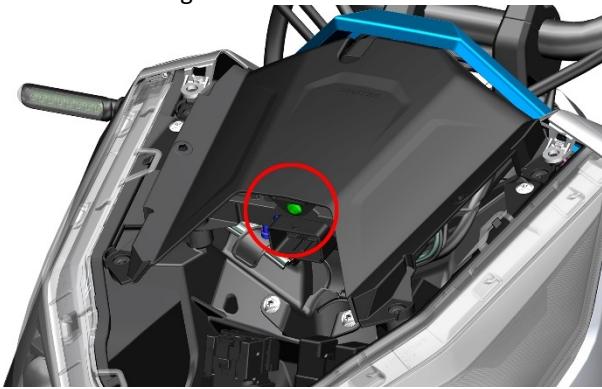


- Remove the gasket (4) and nut (5) on the windshield bracket.



### Removal of windshield lining

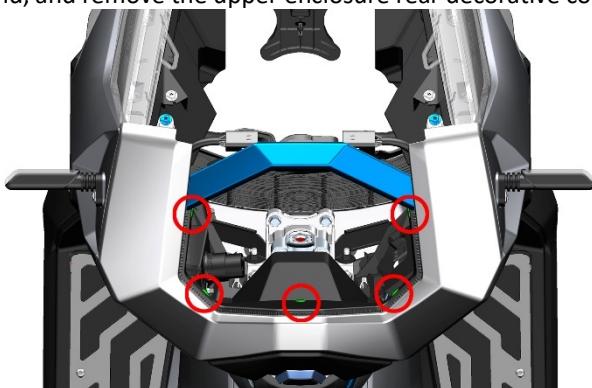
a . Use a 4 # hexagon socket or hook to press down the center cylindrical pin of the expansion screw , then remove the expansion screw , carefully open the buckle and remove the windshield lining.



### Removal of the upper rear trim cover

a . Remove the windshield and windshield lining assembly.

b . Use a 4 # hexagon socket or crochet hook to press down the center cylindrical pin of the expansion screw , then remove the 5 expansion screws , carefully open the buckle by hand, and remove the upper enclosure rear decorative cover.

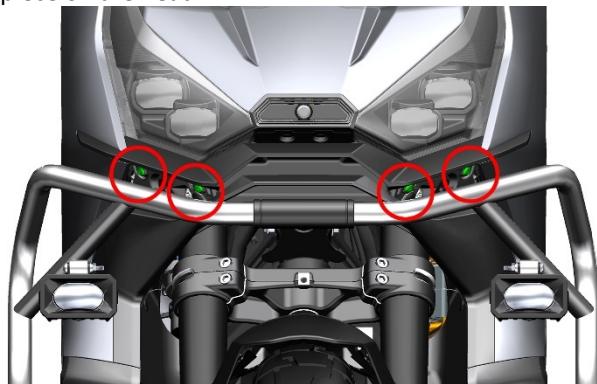


### Removal of the head decoration

a. Use a crochet hook to pry open the edge of the right decorative cover on the head and remove the right decorative cover. Use the same method to remove the left decorative cover.



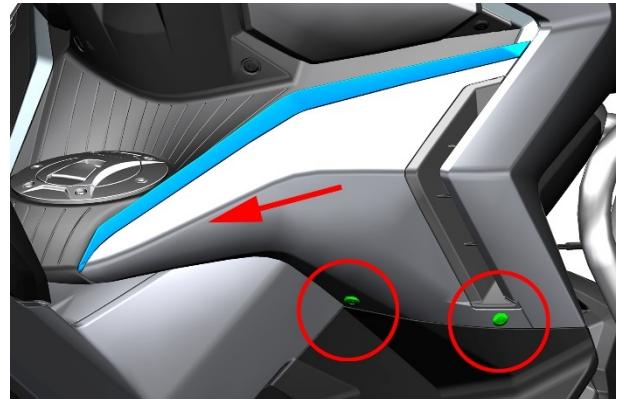
b . Use a 4 # hexagon socket or a crochet hook to remove the four expansion screws and take off the decorative piece on the head.



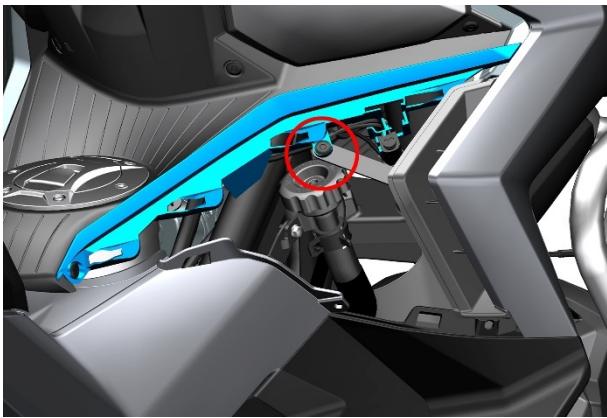
### Removal of the fuel tank lock decorative cover and head side panel assembly

a. Refer to "Removal of windshield lining" to remove the windshield lining

b . Use a 4 # hexagon socket or a hook to remove the two expansion screws , carefully tap the cover in the direction of the arrow, and remove the right fuel tank lock decorative cover.



c. Use a # 4 hexagon socket or hook to remove the expansion screw that secures the right side plate assembly of the head.



d . Find the plug of the turn signal and unplug the connector of the right turn signal.

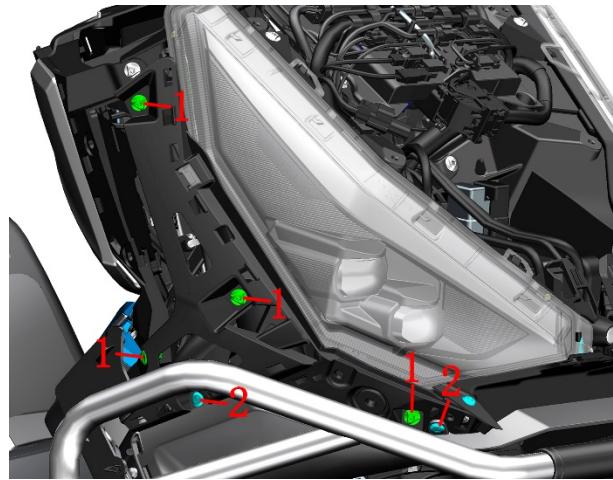
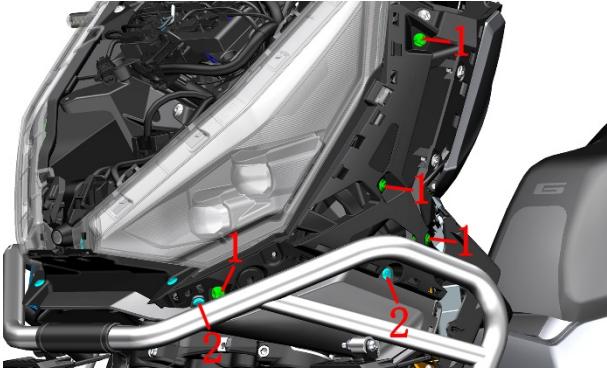


e . Remove the right side panel of the head. The removal method of the left side panel of the head refers to the removal of the right side panel.

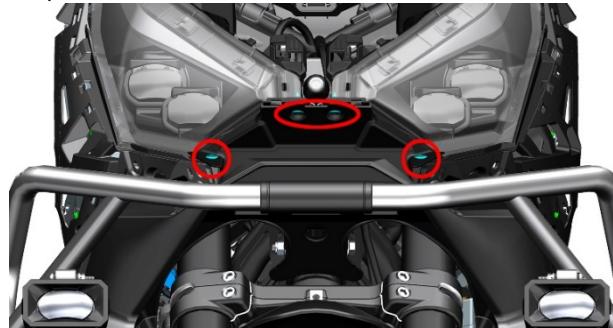


## Removal of head lining and headlights

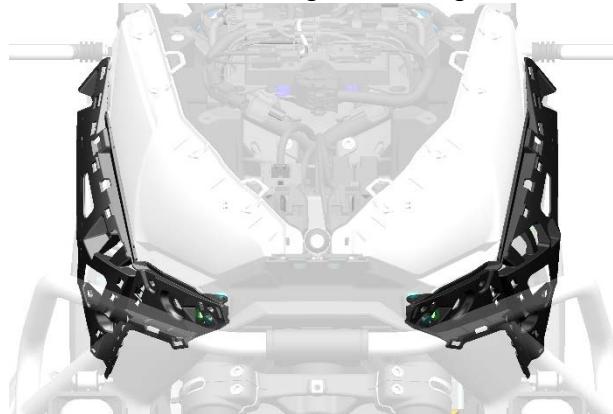
a. Use a T2 5 star wrench and a hook to remove the 8 bolts (1) and 4 expansion nails (2) on the left and right sides respectively.



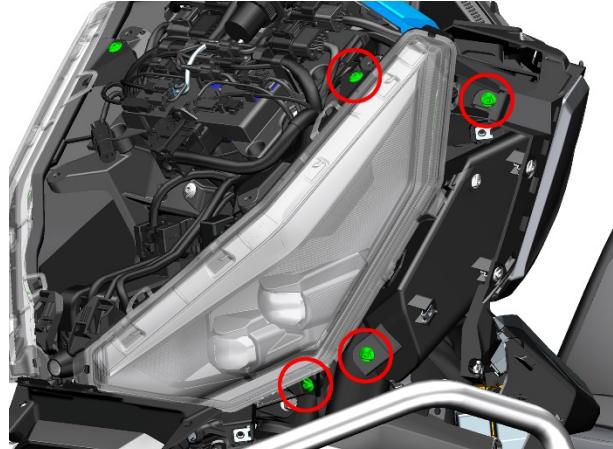
b. Use a hook to remove the 4 expansion screws shown in the picture.

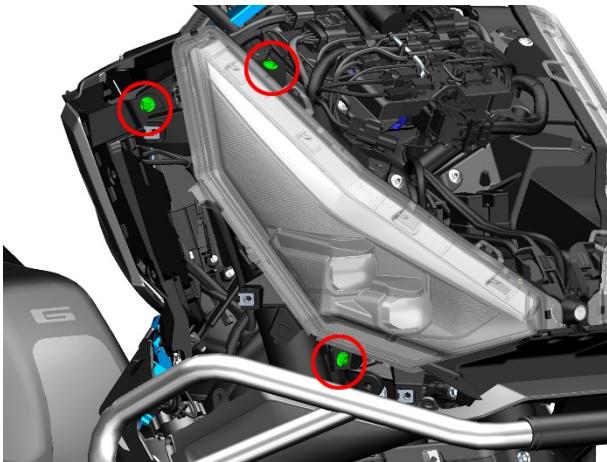


c . Remove the left and right head linings.

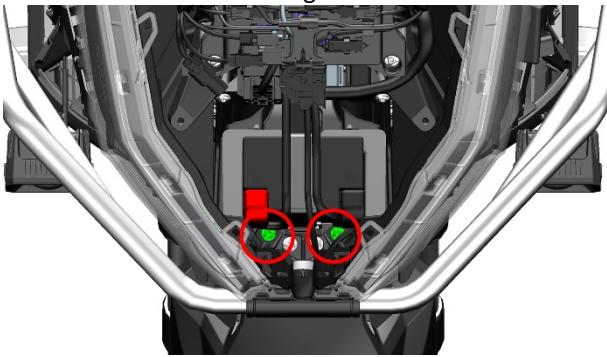


d. Use a T2 5 -opening spanner to remove the seven bolts on the left and right sides as shown in the figure.





e. Use a T2 5 -inch box end wrench to remove the two middle bolts as shown in the figure.



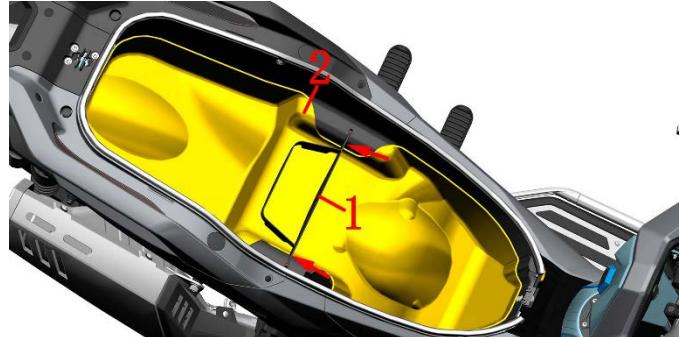
f. Unplug the left and right headlight plugs and remove the headlights.



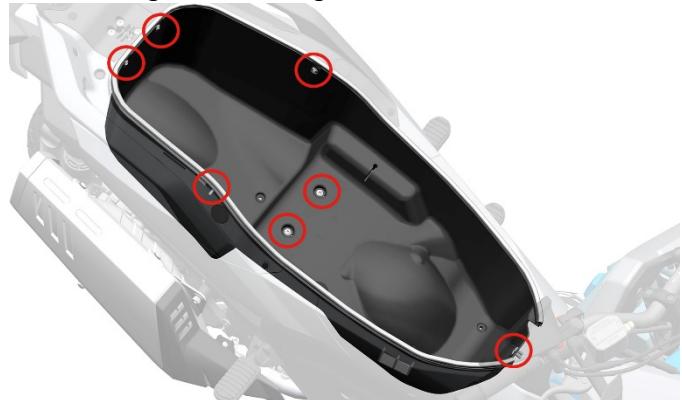
## Removal of storage box

a. Hold the two sides of the storage box partition (1) with your hands, remove the partition, and then gradually pull the anti-wear pad (2) from the edge gap of the storage box. Note : The seat cushion does not need to be removed

when removing the storage box alone.



b . Use a T25 hexagonal wrench to remove the eight M6 bolts securing the rear storage box .



c . Lift the back of the storage box slightly until the wiring harness connector on the left side of the storage box is exposed. Find the ambient light plug and USB cable on the left side of the storage box , unplug the plug and take out the storage box completely .



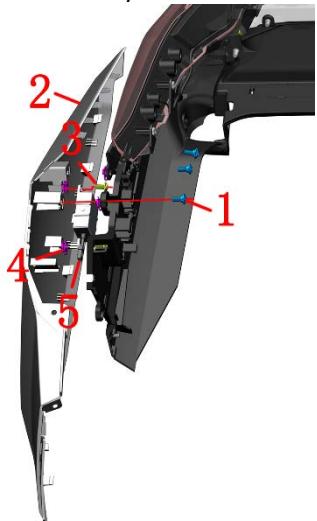
## Removal of left and right rear armrests

a. Use appropriate tools to remove the two rear armrest front plugs and two M8 external hexagon bolt decorative buckles at (1) . Use a 10 # sleeve to remove the four M8 bolts at (1) ,and then use a T25 wrench to remove the four bolts and gaskets at (2), use a pick to remove the two expansion nails at (3), and then remove the left and right rear armrests.

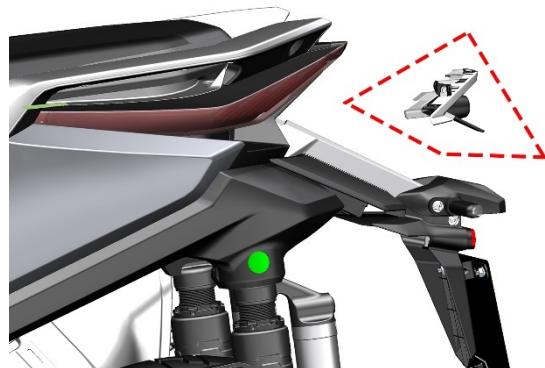


## Rear cover assembly removal

a . Use a T25 hexagon wrench to remove the three M6 bolts (1), then unplug the tire pressure main unit connector (5), remove the right rear cover (2), pay attention to the buckle of the rear cover when removing, then remove the two M6 bolts (3) and three clamps (4) fixed on the tire pressure main unit . Disassemble and assemble the left rear cover assembly in the same way.

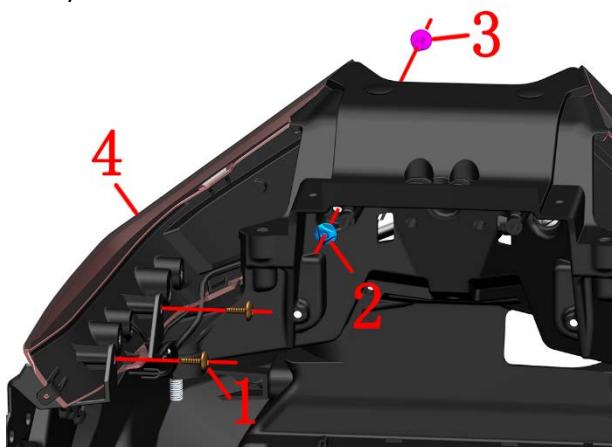


B. Remove the camera assembly from the rear of the vehicle.



## Removal of tail light assembly

a . Use a 3# hexagon socket wrench to remove the two hexagon socket screws (1), and then use a T 25 hexagon socket wrench to remove the two M 6 bolts (2) and (3), and then remove the right taillight assembly (4). Pay attention to the taillight wiring harness when removing the right taillight (4). For detailed disassembly, please watch the video of the disassembly and assembly of the rear cover. Use the same method to disassemble and assemble the left rear taillight assembly.



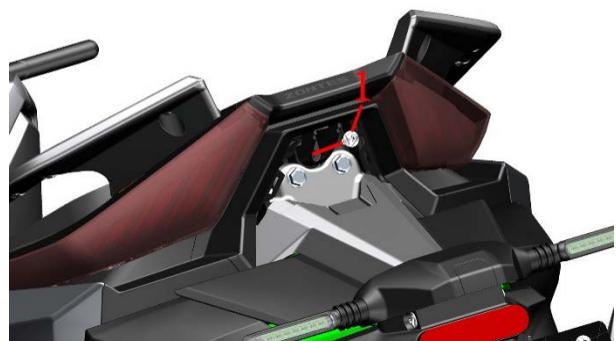
## Rear camera assembly removal

a. Refer to "Removal of the Storage Box" to remove the seat cushion and storage box.

b. Use a flathead screwdriver to open the clip of the rear camera trim in the gap of the rear bracket.

## Removal of the tail cover trim

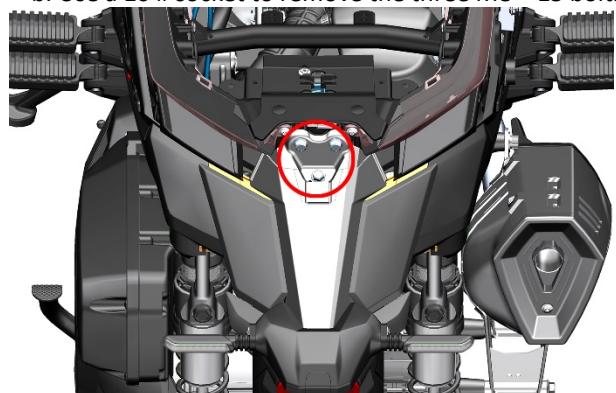
a . After removing the camera assembly by referring to "Removal of the rear camera assembly", use a T20 plum wrench to remove an M6 × 14 shoulder bolt (1) .



## Removal of rear fender assembly

a. Refer to "Removal of the Tail Cover Center Trim" to remove the tail cluster center trim and rear camera.

b. Use a 10 # socket to remove the three M8 × 15 bolts .

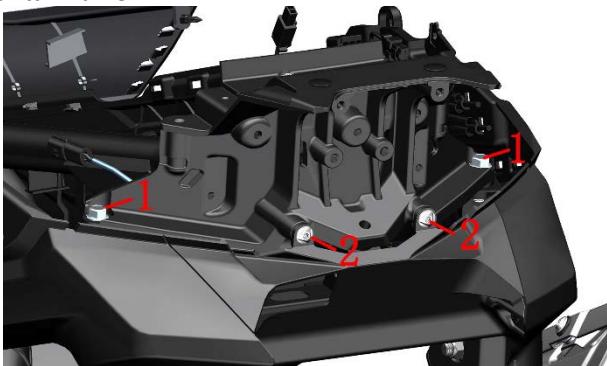


c. Unplug the connectors of the rear license plate light, left and right rear turn signals and rectifier, and remove the rear fender assembly.

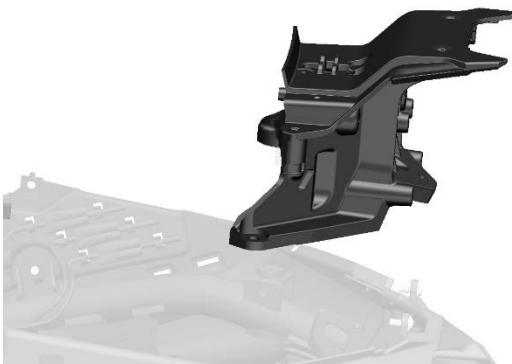


## Removal of rear fender assembly

- Refer to "Removal of Tail Light Assembly" to remove the tail light.
- Use a 10# socket to remove the two M8×25 bolts (1) that secure the rear tail frame, and use a T25 box end wrench to remove the two M6×14 shoulder bolts (2) on the rear tail frame.

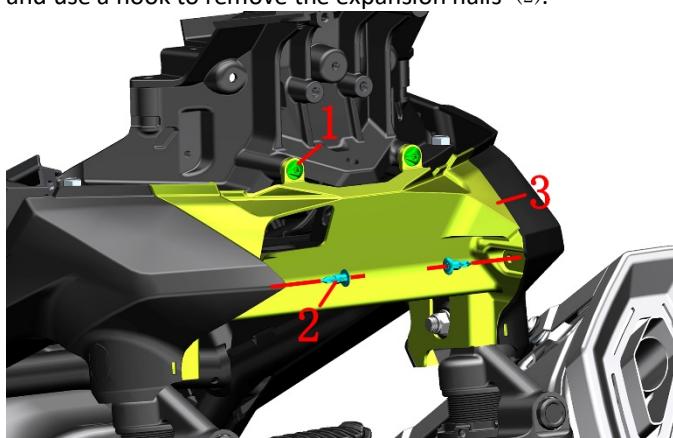


- Unplug the seat lock plug and remove the rear tail rack.



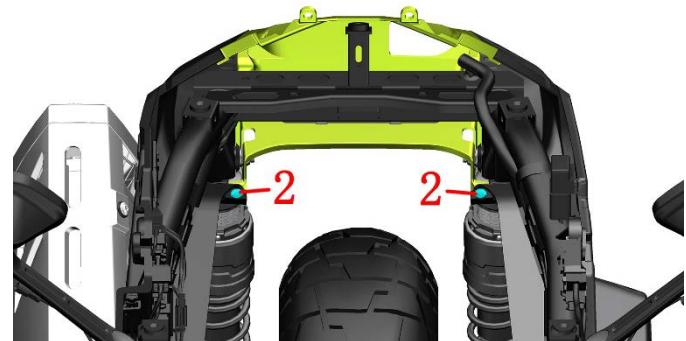
## Removal of rear cover lining

- Use a T25 plum wrench to remove the two bolts (1), and use a hook to remove the expansion nails (2).

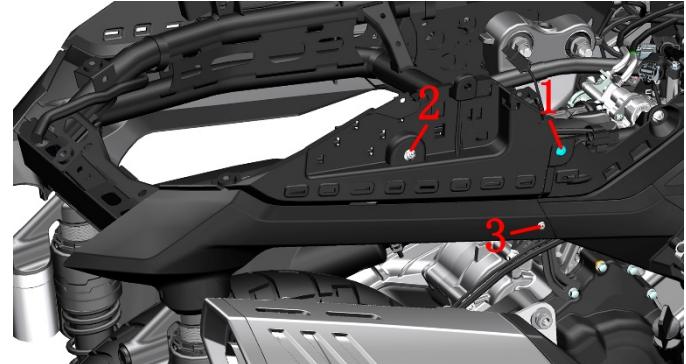


- Use a hook to remove the two expansion nails near

the shock absorber (2). Remove the lower part of the tail cover lining (3).



- Use a hook to remove an expansion nail (1), use a T25 plum wrench to remove an M6×14 shoulder bolt (2), and use a 3# hexagon socket to remove an M4×12 bolt (3), then you can remove the right part of the rear cover bottom lining.



- Use a hook to remove an expansion nail (1), use a T25 plum wrench to remove an M6×14 shoulder bolt (2), and use a 3# hexagon socket to remove an M4×12 bolt (3), then you can remove the left part of the rear cover bottom lining.

