

# KAYO MOTO

www.kayomoto.ro

eA70

## Service Manual



**[www.kayomoto.com](http://www.kayomoto.com)**



Version Code: 20230511

Version Name: eA70 Maintenance Manual

[www.kayomoto.com](http://www.kayomoto.com)

---

Zhejiang Kayo Motor Co., Ltd.

May 2023

## Preparation instructions

This maintenance manual provides a detailed introduction to the maintenance and adjustment procedures, disassembly and assembly essentials, inspection and maintenance points, troubleshooting methods, and maintenance technical data of the eA70 four-wheel electric motorcycle (ATV), and is accompanied by detailed graphical materials to guide the operation.

Please read this manual carefully and carry out maintenance according to standard operating procedures, which can effectively extend the service life of various components and the reliability of the entire vehicle.

The first chapter mainly introduces general work items, tools used, basic techniques, and maintenance parameters.

The second chapter introduces the assembly and disassembly techniques of the vehicle cover panel

The third chapter introduces the regular inspection and adjustment of the entire vehicle

The fourth chapter introduces the methods and precautions for disassembling, inspecting, repairing, and assembling the components of the three electrical systems

The fifth chapter introduces information related to vehicle chassis

The sixth chapter introduces the information about signal and lighting system

Appendix: Electrical schematic diagram

**If the content involved in this manual is changed due to vehicle improvement and other reasons, no**

**prior notice will be given. Performing maintenance should be based on the actual condition of the vehicle.**

Zhejiang Kayo Motor Co., Ltd.  
Research and development department

May 2023

## Contents

|                                           |          |
|-------------------------------------------|----------|
| Maintenance information                   | 1        |
| Covering parts of the body of the vehicle | 2        |
| Regular inspection and adjustment         | 3        |
| Three electrical systems                  | 4        |
| Signal and lighting system                | 5        |
| Vehicle chassis                           | 6        |
| Electrical schematic diagram              | Appendix |

## The unit conversion table in this book

| Item     | Unit conversion                                                    |
|----------|--------------------------------------------------------------------|
| Pressure | $1\text{kgf/cm}^2=98.0665\text{kPa}$ ; $1\text{kPa}=1000\text{Pa}$ |
|          | $1\text{mmHg}=133.322\text{Pa}=0.133322\text{kPa}$                 |
| Torque   | $1\text{kgf}\cdot\text{m}=9.80665\text{N}\cdot\text{m}$            |
| Volume   | $1\text{mL}=1\text{cm}^3=1\text{cc}$                               |
|          | $1\text{L}=1000\text{cm}^3$                                        |
| Force    | $1\text{kgf}=9.80665\text{N}$                                      |
| Length   | $1\text{in}=25.4\text{mm}$                                         |

## Danger/Warning/Caution

Please read the following explanations carefully, which emphasizes the special meanings of the words "Danger", "Warning" and "Caution", when repairing the three electrical systems, special attention should be paid to their prominent meanings.

**Danger:** means to be vigilant to high danger

**Warning:** means to be vigilant to moderate danger

**Caution:** means to pay attention to minor danger

However, Attention please the "Danger" and "Warning" contained in this maintenance manual cannot cover all potential dangers during engine use and maintenance. Therefore, in addition to the relevant provisions of "Danger" and "Warning", maintenance personnel must also have basic knowledge of mechanical safety. If you are not sure about completing the entire maintenance operation process, please consult a more experienced senior technician.



# 1 Maintenance information

|                                                        |     |
|--------------------------------------------------------|-----|
| 1.1 Precautions for operation.....                     | 1-1 |
| 1.2 Vehicle identification number.....                 | 1-3 |
| 1.3 Main parameter table.....                          | 1-4 |
| 1.4 Maintenance parameter table.....                   | 1-5 |
| 1.5 Tightening torque.....                             | 1-6 |
| 1.6 Lubricants, sealants.....                          | 1-7 |
| 1.7 Wiring diagrams for cables, hoses, and cables..... | 1-8 |

## 1.1 Precautions for operation

### Safety precautions

1. Work clothes (one-piece work clothes, etc.), hats, safety boots suitable for the operation must be worn, and if necessary, dust-proof glasses, dust-proof mask, gloves and other safety protection articles should be worn to protect your body.
2. When charging a battery, flammable and explosive hydrogen gas is generated, and there is a risk of explosion once there is an ignition source or electric spark approaching. Therefore, please charge in a well ventilated area.
3. During maintenance, be careful not to let rotating and movable parts such as the rear wheel and accelerator grip hands and clothes.
4. When two or more people are working, they must constantly greet each other to confirm safety.

### Precautions for disassembly and assembly

1. Parts, lubricating oil and grease must use products recommended by Kayo brand.
2. The parts of each system should be sorted and kept separately, so that each part can be reinstalled in their original position.
3. Please clean the soil and dust on the vehicle before maintenance.
4. Gaskets, O-rings, piston pin retaining rings, cotter pins, etc. must be replaced with new ones after disassembly.
5. If the opening of the elastic retaining ring is too large during disassembly, it will be deformed, and it will easily fall off after reassembly. Please do not use the elastic retaining ring that has loosened its strength and lost its elasticity.
6. After the parts are disassembled and inspected, they should be cleaned before measurement and the cleaning agent should be blown off with compressed air. Lubricating oil should be applied to the moving surface before assembly.
7. When disassembling, necessary places should be inspected and relevant data should be measured so that it can be restored to the state before disassembly during assembly.
8. Fasteners such as bolts, nuts, and screws should be pre-tightened first, and then tightened

according to the specified tightening torque on the diagonal according to the principle of from large to small, from inside to outside.

9. When the rubber parts are disassembled, check whether they are aging, and replace them in advance if necessary. In addition, as rubber parts are not resistant to corrosion from gasoline, kerosene, etc., try not to let volatile oils and greases attach to them.

10. According to the requirements of the maintenance manual, apply or inject the recommended grease on the designated parts.

11. Correct special tools should be used for disassembly and assembly operations.

12. Ball bearings can be rotated with fingers to confirm whether the rotation is flexible and smooth. If force is applied to the ball during disassembly, the disassembled bearing should not be used again:

- If the axial and radial clearance of the bearing is too large, replace it.
- Bearings that feel stuck when rotating should be cleaned, and those that still feel stuck after cleaning should be replaced, and those that cannot be cleaned should be replaced directly.
- It was originally a tight fit with the body or the shaft diameter, but if the fit is not tight after disassembly, the bearing should be replaced.

13. Bearings should be coated with engine oil or grease before assembly. Pay attention to the installation direction when assembling single-sided dust-proof bearings. When assembling open-type or double-sided dust-proof bearings, install the side engraved with the manufacturer's logo and size facing outward during assembly.

14. When installing the rectangular retaining ring, the chamfered side should face the direction of the force. Do not use the retaining ring that has been loosened and lost its elasticity. After assembly, turn the rectangular retaining ring to confirm that it has been firmly installed in the groove.

15. After assembly, it is necessary to check whether all fastening parts are tightened and whether the work is normal.

16. Brake fluid and coolant can damage the coating surface, plastic parts, rubber parts, etc. Do not let them adhere to these parts. In box of adhesion, rinse them with water immediately.

17. The oil seal should be installed with the side marked by the manufacturer facing outward (in the direction without oil):

- When assembling, pay attention not to curl the lip of the oil seal or scratch the lip of the oil seal with burrs.
- Apply lubricating grease to the oil seal lip before assembly.

18. When installing rubber hose parts, insert the rubber hose to the root of the joint. If there is a pipe clip, install the pipe clip in the dent of the pipe. Replace the rubber hose that is not tight during installation.

19. Do not get dust, mud, etc. into the interior of the engine or the hydraulic system of the brake.

20. Do not twist or bend the cables excessively. A deformed or damaged cable may cause poor movement or damage.

21. When assembling protective cap parts, if there is a groove, the protective cap must be inserted into the groove.

## 1.2 Vehicle identification number

- ①Frame number
- ②Vehicle nameplate
- ③Motor number

|               |           |
|---------------|-----------|
| Vehicle model | eA70      |
| Frame number  | L6JAXDLA~ |
| Motor number  | 48V500W~  |



1



2



3

### 1.3 Main parameter table

| Items                                                               |                    | Parameters                 |                     |
|---------------------------------------------------------------------|--------------------|----------------------------|---------------------|
| Vehicle model                                                       |                    | eA70                       |                     |
| Length (mm)                                                         |                    | 1250                       |                     |
| Width (mm)                                                          |                    | 780                        |                     |
| Height (mm)                                                         |                    | 820                        |                     |
| Wheelbase (mm)                                                      |                    | 618.5                      |                     |
| Battery capacity (V/AH)                                             |                    | 48V20AH                    |                     |
| Vehicle curb weight (kg)                                            |                    | 93                         |                     |
| Number of passengers                                                |                    | 1 person                   |                     |
| Rated loading mass (kg)                                             |                    | 40                         |                     |
| Tire specifications                                                 | Front wheel        | AT16*8-7                   |                     |
|                                                                     | Rear wheel         | AT16*8-7                   |                     |
| Minimum ground clearance                                            |                    | 175mm                      |                     |
| Turning circle radius (minimum turning radius at the closest point) |                    | 3200mm                     |                     |
| Dynamical system                                                    | Starting method    | Electric starting          |                     |
|                                                                     | Motor type         | DC brushless motor         |                     |
|                                                                     | Power (w)          | 500                        |                     |
|                                                                     | Rated speed (rpm)  | 3100                       |                     |
|                                                                     | Rated torque (N.m) | /                          |                     |
| Drive system                                                        | Shifting type      | Forward/reverse gear       |                     |
|                                                                     | Transmission mode  | Chain drive                |                     |
| Steering device                                                     | Steering angle     | Left                       | <35°                |
|                                                                     |                    | Right                      |                     |
| Brake device type                                                   |                    | Front                      | Hydraulic disc type |
|                                                                     |                    | Rear                       | Hydraulic disc type |
| Buffering method                                                    | Suspension method  | Non independent suspension |                     |
| Frame type                                                          |                    | Steel pipe frame           |                     |

## 1.4 Maintenance parameter table

### Wheels (same front and rear wheels)

| Items      |                 | Standards                        | Usage limit |
|------------|-----------------|----------------------------------|-------------|
| Rim runout | Longitudinal    | 0.8mm                            | 2.0mm       |
|            | Lateral         | 0.8mm                            | 2.0mm       |
| Tire       | Residual groove | —                                | 3mm         |
|            | Air pressure    | 35kPa (0.35kgf/cm <sup>2</sup> ) | —           |

### Braking system

| Items       |                      | Standards | Usage limit |
|-------------|----------------------|-----------|-------------|
| Front brake | Brake disc thickness | 3mm       | —           |
| Rear brake  | Brake pedal travel   | 2 ~ 6mm   | —           |
|             | Brake disc thickness | 3mm       | —           |

## 1.5 Tightening torque

### Attention:

Before installing the thread, apply anti-rust grease on the threaded part and joint surface

### Tightening torques at designated parts - whole vehicle parts

| Serial number | Items                                                      | Fastener code      | Quantity | Tightening torque (N · m) |
|---------------|------------------------------------------------------------|--------------------|----------|---------------------------|
| 1             | Lower rocker arm bolt                                      | GB5789 M10×1.25×70 | 4        | 55-66                     |
| 2             | Front and rear shock absorption bolts                      | GB5787 M10×1.25×40 | 6        | 55-66                     |
| 3             | Front wheel hub installation slotted nut                   | GB9457 M14×1.5×H18 | 2        | 49-59                     |
| 4             | Steering rod ball pin slotted nut                          | GB9457 M10×1.25    | 4        | 15-20                     |
| 5             | Direction handle cover screw                               | 兰白锌 M8*50          | 4        | 25-30                     |
| 6             | Rear brake caliper body bolts                              | GB5789 M8×25       | 2        | 25-30                     |
| 7             | Rear brake disc mounting screws                            | GB70-85 M8×16      | 4        | 25~30                     |
| 8             | Installation bolts of the steering handle pressure block   | GB5783 M10×1.5×30  | 2        | 45~59                     |
| 9             | Rear wheel hub installation slotted nut                    | GB9457 M16×1.5     | 2        | 49-59                     |
| 10            | Steering column installation slotted nut                   | GB9457 M10×1.25    | 1        | 15-20                     |
| 11            | Steering column clamp mounting bolts                       | GB5787 M8×55       | 2        | 25~30                     |
| 12            | Horn mounting bolt                                         | GB5787 M6×16       | 1        | 10~12                     |
| 13            | Motor mounting bolts                                       | GB5787 M8          | 1        | 25-30                     |
| 14            | Sprocket seat mounting screws                              | GB70-85 M8×16      | 4        | 25-30                     |
| 15            | Cross pan head Self-tapping screw                          | GB845-85 ST4.2     | —        | —                         |
| 16            | Cross pan head machine tooth screw                         | GB828-88 M5×16     | 2        | —                         |
| 17            | Cross large flat head machine tooth screw                  | TM6                | —        | —                         |
| 18            | Rim mounting nut                                           | GB6187-86 M8       | 8        | 49-59                     |
| 19            | Hexagon flange self-locking nuts for front and rear wheels | Army green M8      | 2        | 25-30                     |

**Tightening torque of specified parts****Tightening torque of fasteners in unspecified positions**

| Category            | Torque N·m | Category                | Torque N·m |
|---------------------|------------|-------------------------|------------|
| 5mm bolts and nuts  | 4.5~6      | 5mm screws              | 3.5~5      |
| 6mm bolts and nuts  | 8~12       | 6mm screws              | 7~11       |
| 8mm bolts and nuts  | 18~25      | 6mm raised bolts        | 10~14      |
| 10mm bolts and nuts | 30~40      | 8mm raised bolts, nuts  | 20~30      |
| 12mm bolts and nuts | 35~50      | 10mm raised bolts, nuts | 30~40      |

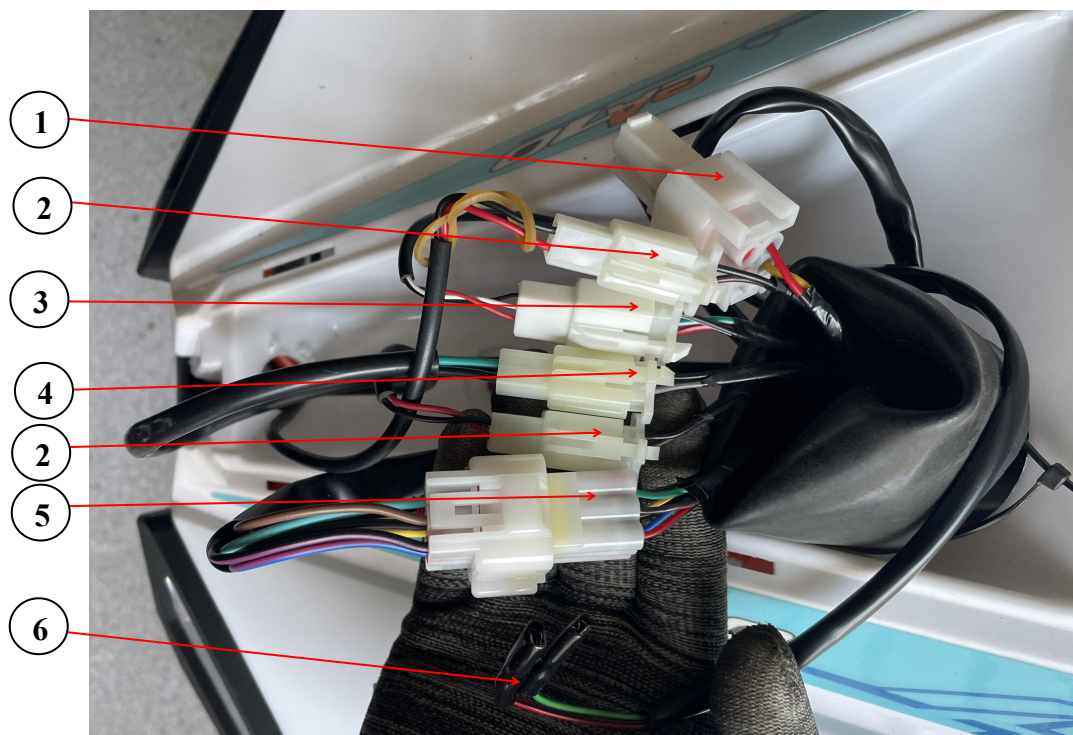
**1.6 Lubricants, sealants**

| Coating site                                   | Points for attention | Oils and fats                                     |
|------------------------------------------------|----------------------|---------------------------------------------------|
| Steering bearing                               |                      | Lightweight lithium soap based lubricating grease |
| Rocker arm moving parts                        |                      |                                                   |
| Inner peripheral surface of directional column |                      |                                                   |
| Active part of seat cushion lock               |                      |                                                   |

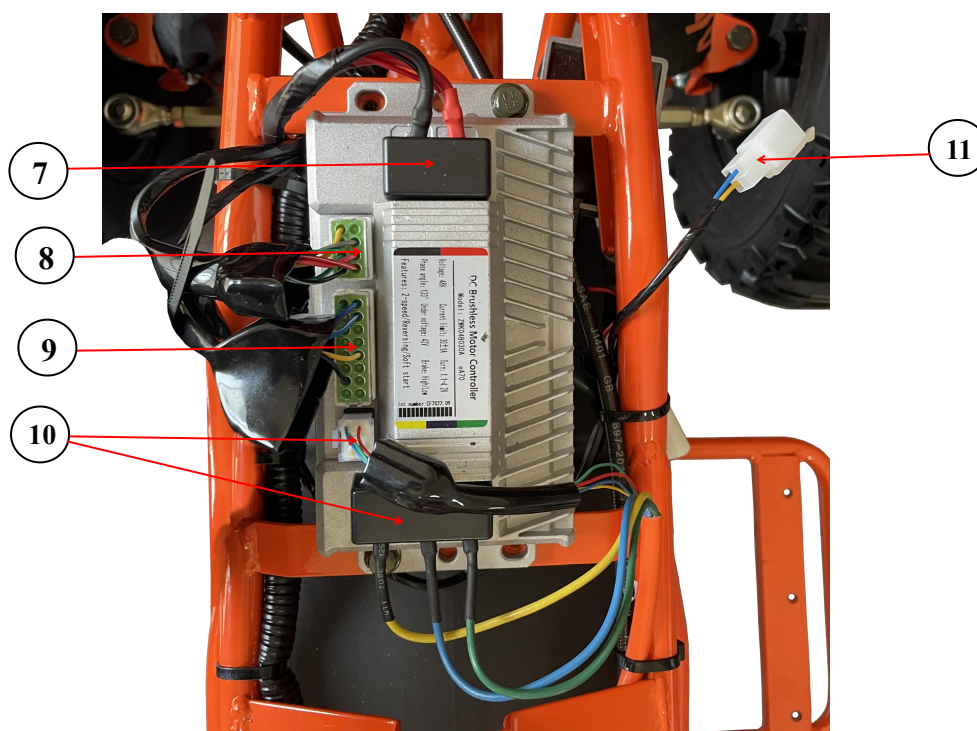
**Lubrication of control cables, bearings and rotating parts**

| Parts                                                    | Content     | Oils                                                                 |
|----------------------------------------------------------|-------------|----------------------------------------------------------------------|
| Steering shaft spherical sleeve                          | Lubrication | General lithium based lubricating grease for automobiles<br>GB/T5671 |
| Rear wheel axle mount                                    |             |                                                                      |
| Front and rear shock absorber joints                     |             |                                                                      |
| Accelerator handle shaft and cable joint                 |             |                                                                      |
| At the rotation axis of the left and right brake handles |             |                                                                      |

## 1.7 Wiring diagrams for cables, hoses, and cables

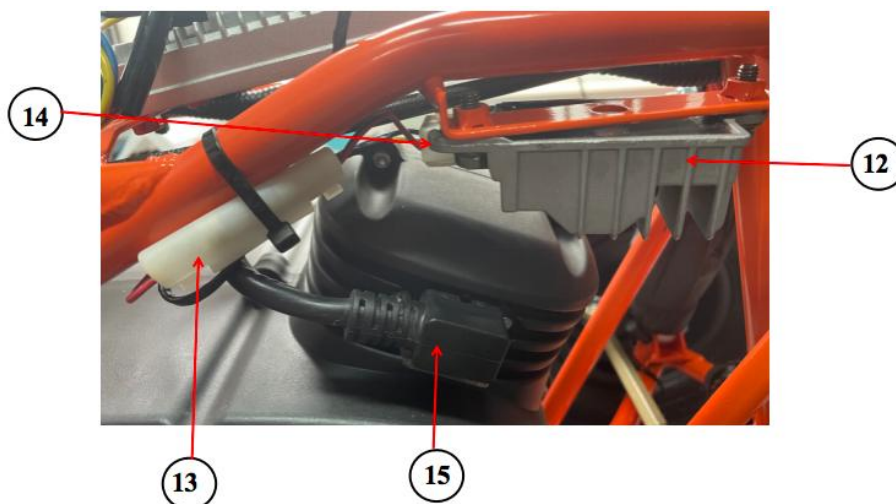


1. Switch lock plug-in 2. Front headlight plug-in 3. Speed control knob plug-in 4. Right flameout switch plug-in 5. Left switch plug-in 6. Brake switch plug-in

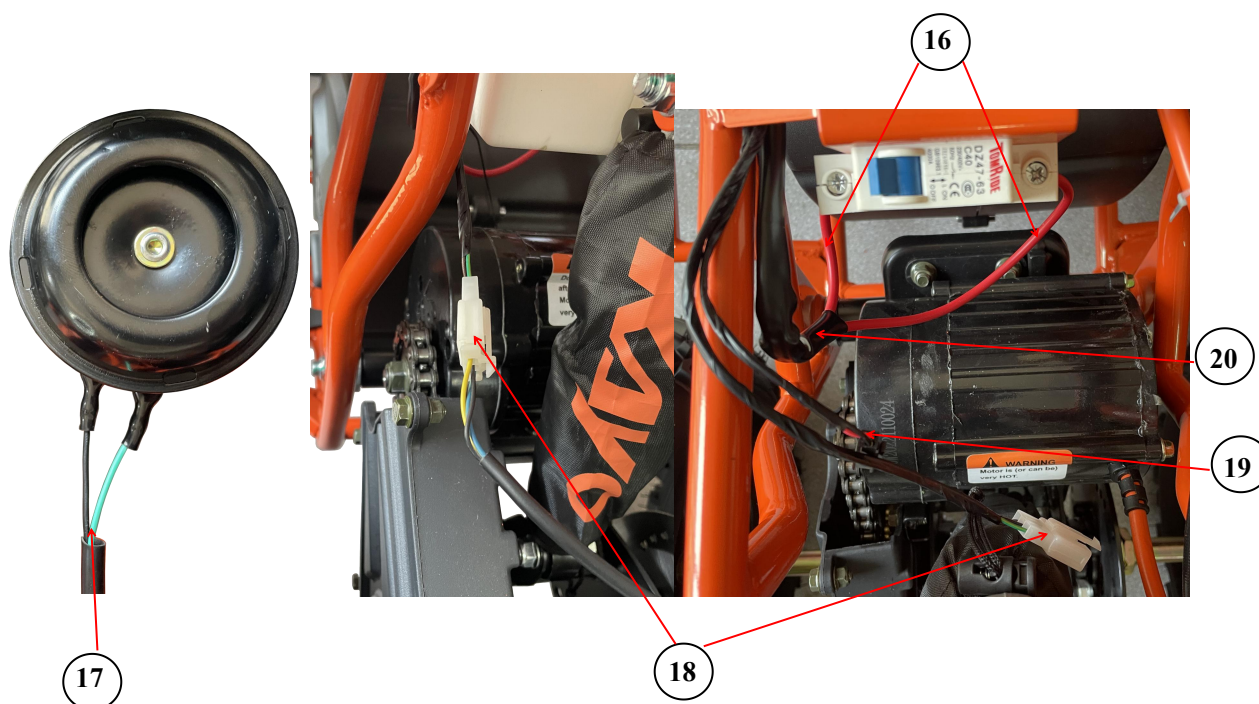


7. Controller power plug-in 8. Controller plug-in 1 9. Controller plug-in 2 10. Motor plug-in 11. Speed gauge plug-in





12. Converter 13. Fuse 14. Converter plug-in 15. Battery power cord



16. Air switch power cord 17. Horn plug-in 18. Rear tail lamp plug-in 19. Release switch plug-in 20. Air protection switch plug-in

**Attention:** Before inspecting and repairing the above components, the plastic assembly must be removed. For specific disassembly, refer to the second chapter - Covering parts of the body of the vehicle



21. Accelerator plug-in 22. Stop switch plug-in 23. Front disc brake oil pipe 24. Front brake switch assembly 25. Rear disc brake oil pipe 26. Rear brake switch plug-in 27. Combination switch plug-in

## **2 Covering parts of the body of the vehicle**

|                                                                                             |     |
|---------------------------------------------------------------------------------------------|-----|
| 2.1 Maintenance information.....                                                            | 2-2 |
| 2.2 Installation torque.....                                                                | 2-2 |
| 2.3 Disassembly and assembly of seat cushion, front protection assembly, and plastic bumper |     |
| 2.3.1 Seat cushion.....                                                                     | 2-3 |
| 2.3.2 Front protection assembly.....                                                        | 2-3 |
| 2.3.3 Plastic bumper.....                                                                   | 2-4 |
| 2.4 Disassembly and assembly of head cover and foot pedal.....                              | 2-4 |
| 2.4.1 Hood.....                                                                             | 2-3 |
| 2.4.2 Foot pedal.....                                                                       | 2-4 |
| 2.5 Disassembly and assembly of main plastic parts.....                                     | 2-5 |
| 2.6 Disassembly and assembly of chain cover.....                                            | 2-6 |

## 2.1 Maintenance information

### Precautions for operation

When replacing the covering parts with regulatory warning labels affixed or riveted on the vehicle, the corresponding labels must be correctly and completely supplemented as they are.

This chapter describes the disassembly and assembly sequence of vehicle body covers. When repairing internal components of the vehicle that require disassembly of relevant covers, it can be referred to in this chapter.

This chapter describes the disassembly and assembly operations of shelves, seat cushions and exterior parts.

Please pass the pipes and cables through the correct position according to the wiring diagram of cables, pipes and cables.

## 2.2 Installation torque

|                     |          |                   |
|---------------------|----------|-------------------|
| M10 bolts           | 45 (4.5) | Torque N·m(kgf·m) |
| M8 bolts            | 22 (2.2) | Torque N·m(kgf·m) |
| M6 bolts            | 10 (1.0) | Torque N·m(kgf·m) |
| M5 bolts            | 5 (0.5)  | Torque N·m(kgf·m) |
| Self-tapping screws | 4 (0.4)  | Torque N·m(kgf·m) |

## 2.3 Disassembly and assembly of seat cushion, front protection assembly, and plastic bumper

### 2.3.1 Seat cushion

#### Disassembly

Pull up on the seat cushion hook 1  
Lift the rear of the seat cushion and pull out seat cushion 2 towards the rear  
Remove the seat cushion

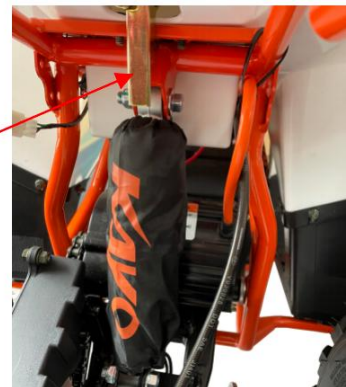
#### Installation

Installation is carried out in reverse order of removal

2



1



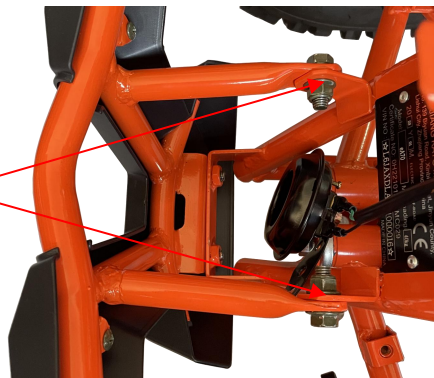
### 2.3.2 Front protection assembly

#### Disassembly of the front protection assembly

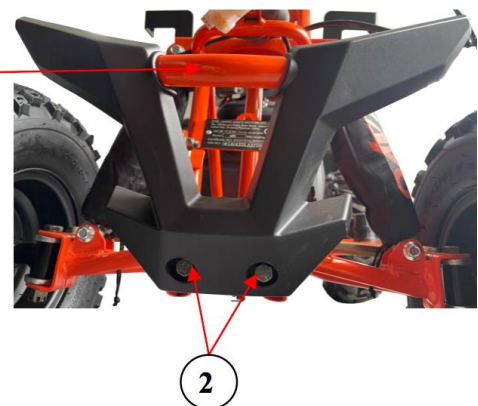
#### Disassembly

Remove the fixing bolt 1  
Remove the fixing bolt 2  
Remove the front protection assembly 3

1



3



2

#### Installation

Installation is carried out in reverse order of removal

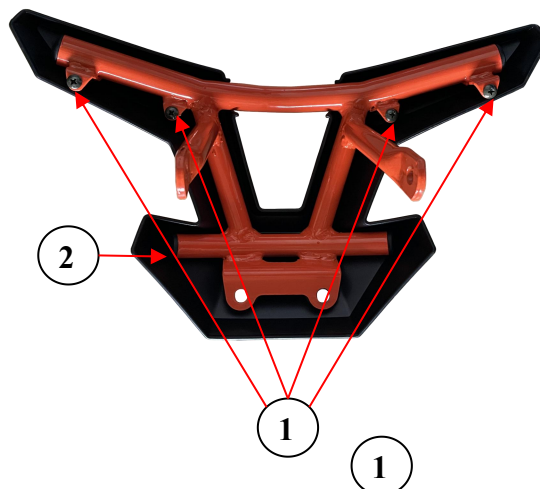
### 2.3.3 Remove the plastic bumper

#### Disassembly

Remove the front protection assembly  
Remove the screw 1 fixed to the front guard  
Remove the plastic bumper 2

#### Installation

Installation is carried out in reverse order of removal



### 2.4 Disassembly and assembly of head cover and foot pedal

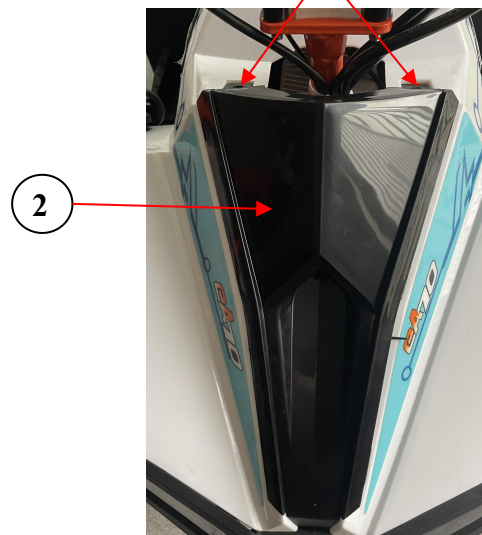
#### 2.4.1 Hood

##### Disassembly

Remove two screws 1  
Remove the hood 2

##### Attention

When disassembling the hood, after removing the screws, push the hood from bottom to top. When you hear a "click", remove the hood again. Do not forcefully pull apart parts that may be damaged.



#### 2.4.2 Right foot pedal

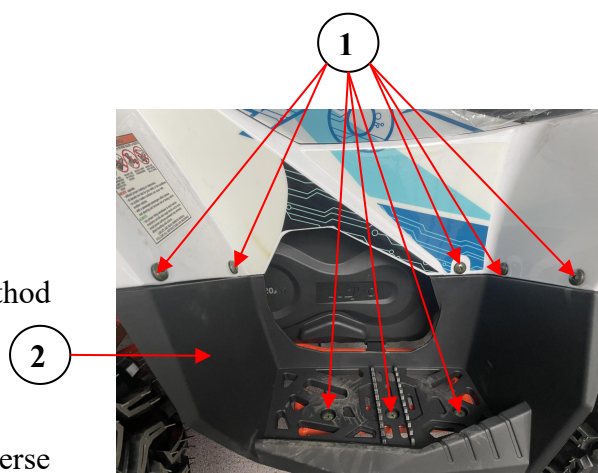
##### Disassembly

Remove the screw 1 (8 in total)  
Remove the foot pedal 2

The disassembly and installation method of the left foot pedal is the same as that of the right foot pedal

##### Installation

Installation is carried out in reverse order of removal





## 2.5 Main plastic parts

### Disassembly

Remove the seat cushion (→ 2.3)

Remove the hood and foot pedal (→ 2.4)

Release the combination switch plug-in 1

Release the brake lever 2

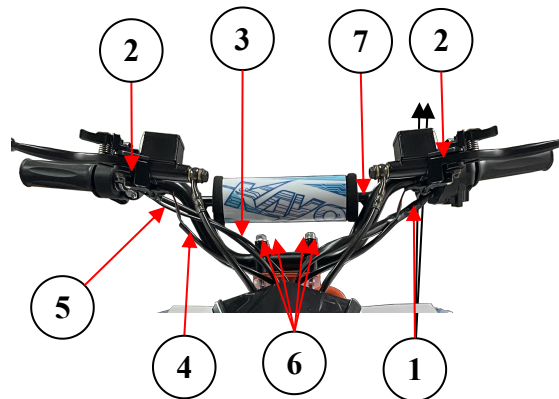
Release the flameout switch plug-in 3

Release the front brake switch plug-in 4

Release the finger accelerator plug-in 5

Remove the fixing bolts 6 (4 in total) and the pressure block

Remove the steering handle 7



Remove the fixing screws 8 under the seat cushion

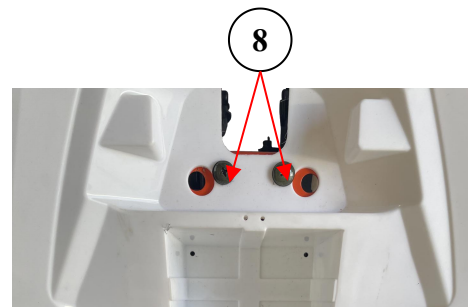
Release the rear tail light connector

Release the front headlight insert

Release the instrument plug-in

Release the switch lock insert

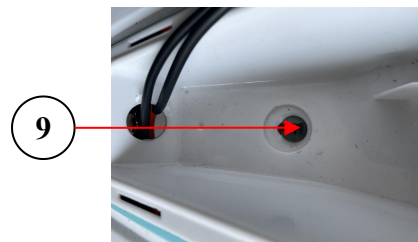
Release the speed limit release plug-in



### Attention

Remove the main plastic parts, first remove the steering handle (→ 6.6 Steering system)

Before inspecting and repairing the above components, it is necessary to compare them (1.7 Wiring diagram of cables and hose cables)



Remove the fixing screws 9 under the hood position

Remove the fixing screws 10 (one on the left and one on the right)

10



Remove the main plastic part 11

### Installation

Installation is carried out in reverse order of removal



## 2.6 Chain cover

### Disassembly

Remove the left rear wheel

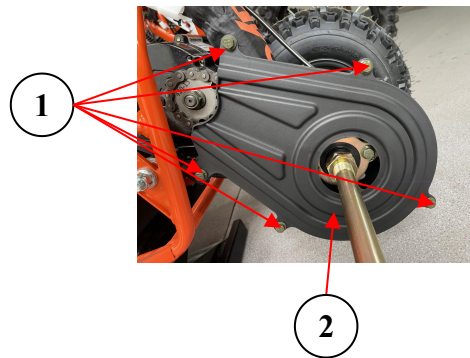
Remove the fixing screw 1

Remove the sprocket protection box 2

Remove the fixing screw 3

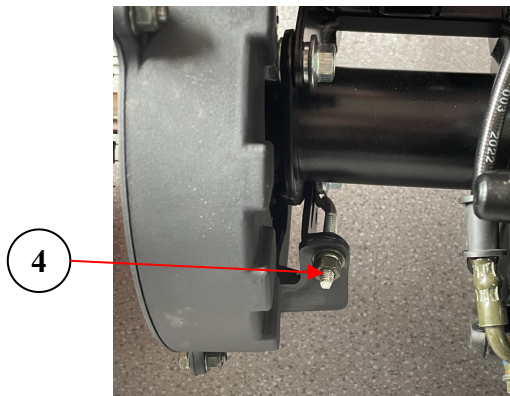
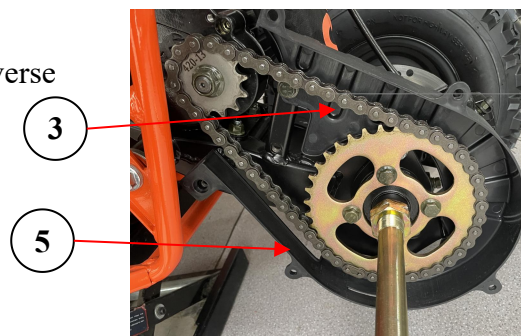
Remove the first screw 4 on the chain regulator

Remove the sprocket protective cover 5



### Installation

Installation is carried out in reverse order of removal





## 3 Regular inspection and adjustment

|                                             |      |
|---------------------------------------------|------|
| Maintenance information.....                | 3-1  |
| 3.1 Inspection and maintenance methods..... | 3-2  |
| 3.2 Steering column, brake system.....      | 3-4  |
| 3.3 Wheel.....                              | 3-7  |
| 3.4 Suspension system.....                  | 3-9  |
| 3.5 Battery and throttle check.....         | 3-10 |
| 3.6 Combination switch and horn.....        | 3-11 |
| 3.7 Lighting device.....                    | 3-12 |

### Maintenance information

#### Operation precautions

##### Attention

- Avoid battery short circuit: When replacing the battery, it is necessary to pay attention to whether the positive and negative poles of the battery are connected correctly. If the connection is reversed, it is easy to have a short circuit, causing serious consequences.
- During the maintenance process of the vehicle, it is necessary to follow the safety operating procedures for electrical circuits. Avoid electric shock, which can cause serious consequences.

##### Attention

Do not let rotating components such as the drive system catch hands and clothes

##### Attention

The vehicle must be placed on a flat and stable surface

### 3.1 Inspection and maintenance methods

| Inspection and maintenance items |                                   |                                            | Maintenance period |                        |                   | Judgment criteria                                                                                                                                                                  |
|----------------------------------|-----------------------------------|--------------------------------------------|--------------------|------------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inspection parts                 | Inspection items                  |                                            | Daily inspection   | Semi-annual inspection | Annual inspection |                                                                                                                                                                                    |
| Steering device                  | Steering wheel                    | Operational flexibility                    | ○                  |                        |                   |                                                                                                                                                                                    |
|                                  | Steering system                   | Damage                                     | ○                  |                        |                   |                                                                                                                                                                                    |
|                                  |                                   | Installation status of the steering system | ○                  |                        |                   |                                                                                                                                                                                    |
|                                  |                                   | Wag of the ball pin                        | ○                  |                        |                   |                                                                                                                                                                                    |
| Braking device                   | Brake pedals                      | Handle stroke                              | ○                  | ○                      |                   |                                                                                                                                                                                    |
|                                  |                                   | Braking effect                             | ○                  | ○                      |                   |                                                                                                                                                                                    |
|                                  | Connecting rods and oil pipes     | Relaxation, looseness, and damage          | ○                  |                        | ○                 |                                                                                                                                                                                    |
|                                  | Hydraulic braking and brake discs | Front and rear brake fluid volume          | ○                  | ○                      |                   | The brake fluid is almost bottoming out                                                                                                                                            |
|                                  |                                   | Wear and damage of brake discs             | ○                  | ○                      |                   | When the working disc thickness of the current brake disc is less than 3mm, and the working disc thickness of the rear brake disc is less than 3mm, it should be replaced in time. |
|                                  | Brake pads                        | Wear and damage of brake pads              | ○                  | ○                      |                   | Minimum brake pad (friction pad) thickness $\geq$ 1mm; Please replace it when it is less than 1mm                                                                                  |
| Running gear                     | Wheels                            | Tire pressure                              | ○                  | ○                      |                   | Front wheel: 35kPa (0.35kgf/cm <sup>2</sup> ) (5PSI)<br>Rear wheel: 35kPa (0.35kgf/cm <sup>2</sup> ) (5PSI)                                                                        |
|                                  |                                   | Tire cracking and damage                   | ○                  |                        | ○                 |                                                                                                                                                                                    |
|                                  |                                   | Tire groove depth and abnormal wear        | ○                  |                        | ○                 | If there is no wear indication on the tire surface, the residual groove depth size should not be less than 3mm                                                                     |
|                                  |                                   | Loosening of wheel nuts and wheel axles    | ○                  | ○                      |                   |                                                                                                                                                                                    |
|                                  |                                   | Shake of front wheel bearings              | ○                  |                        | ○                 |                                                                                                                                                                                    |
|                                  |                                   | Shake of rear wheel bearings               | ○                  |                        | ○                 |                                                                                                                                                                                    |
|                                  | Suspension arm                    | Shake of the connecting part and           | ○                  |                        | ○                 |                                                                                                                                                                                    |

### 3 Regular inspection and adjustment

|                     |                |                              |   |  |   |  |
|---------------------|----------------|------------------------------|---|--|---|--|
| Buffer device       |                | damage to the rocker arm     |   |  |   |  |
|                     | Shock absorber | Oil leakage and damage       | ○ |  | ○ |  |
|                     |                | Effect                       |   |  | ○ |  |
| Transmission device | Front axle     | Transmission and lubrication | ○ |  | ○ |  |
|                     | Rear axle      |                              |   |  |   |  |

### 3 Regular inspection and adjustment

| Inspection and maintenance items                  |                                   |                                                              | Maintenance period |                        |                   | Judgment criteria                 |
|---------------------------------------------------|-----------------------------------|--------------------------------------------------------------|--------------------|------------------------|-------------------|-----------------------------------|
| Inspection parts                                  |                                   | Inspection items                                             | Daily inspection   | Semi-annual inspection | Annual inspection |                                   |
| Transmission device                               | Output shaft (transmission shaft) | Loose connection part                                        | ○                  | ○                      |                   |                                   |
|                                                   |                                   | The shaking of the spline part                               |                    |                        | ○                 |                                   |
| Electrical device                                 | Battery                           | Terminal connection status                                   |                    |                        | ○                 |                                   |
|                                                   | Electrical wiring                 | Loose and damaged connections                                |                    |                        | ○                 |                                   |
|                                                   |                                   | The status of the throttle                                   |                    |                        | ○                 | Clearance of throttle knob: 2~6mm |
| Frame                                             |                                   | Looseness and damage                                         |                    |                        | ○                 |                                   |
| Other                                             |                                   | Lubricating grease status of various parts of the frame      |                    |                        | ○                 |                                   |
| Parts that can confirm anomalies during operation |                                   | Confirm if there are any abnormalities in the relevant parts | ○                  |                        |                   |                                   |

Tighten all nuts, bolts, and nuts. It must be noted that all calibrated nuts, bolts, and lock nuts should be tightened to the specified torque.

## 3.2 Steering column and braking system

Place the vehicle in a horizontal position, grip the steering handle tightly, and apply force in the direction shown in the diagram to check for any shaking.

If shaking is felt, it should be confirmed whether it is the steering column shaking or other shaking, and corresponding maintenance should be carried out.

If the steering column shakes, increase the locking force of the steering column locking nut or disassemble the steering column for maintenance

Place the vehicle in a horizontal position and slowly turn the steering wheel to the left and right to confirm if it can rotate smoothly and flexibly. If there is obstruction in some areas, check the main cable assembly and cables for interference. If the end position of the steering rod is not observed, confirm whether there is interference and whether the steering bearing is damaged.

**Attention: It is necessary to confirm that the steering is flexible, otherwise the control handle will be unable to control the direction and accidents will occur**



### Front brake handle clearance:

Operate the front brake handle, check the braking effect and the action of the handle. Check the clearance at the front brake handle



## Front brake pump combination

### <Liquid volume>

Check the amount of brake fluid

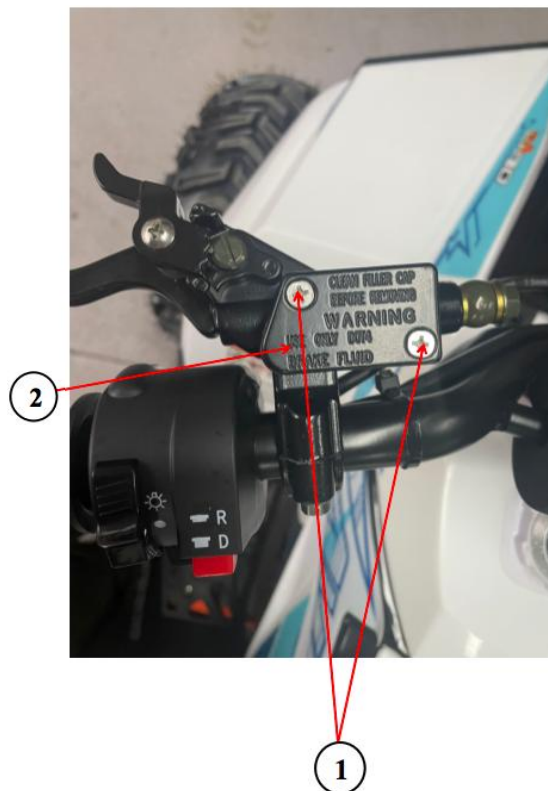
By removing two exhaust screws 1, check the amount of brake fluid. When the amount of brake fluid decreases to near the bottom, the vehicle will no longer be able to use it. It is necessary to check the leakage of the brake pump, brake pipe, and various connections. If the inspection is normal, it is necessary to check the wear of the brake disc and brake pad. If there is damage or wear below the limit of use, please replace it.

It is also necessary to inspect these items before each use of the vehicle

Remove two exhaust screws 1

Remove the oil cup cover 2

Replenish the brake fluid recommended by Kayo until it reaches the upper limit line



### Attention

- When replenishing brake fluid, dust and water should not be mixed in
- To prevent chemical changes, please use the specified brand of brake fluid
- Because brake fluid can damage the plastic and rubber surfaces, please do not splash it onto these components

Turn the steering lever slightly to the left and right, and remove the oil cup cover after the brake pump assembly is in a horizontal state

### Brake disc, brake pad wear <Wear of brake pads>

Check the wear of the brake pads

If the wear has reached the wear limit, replace the brake pads

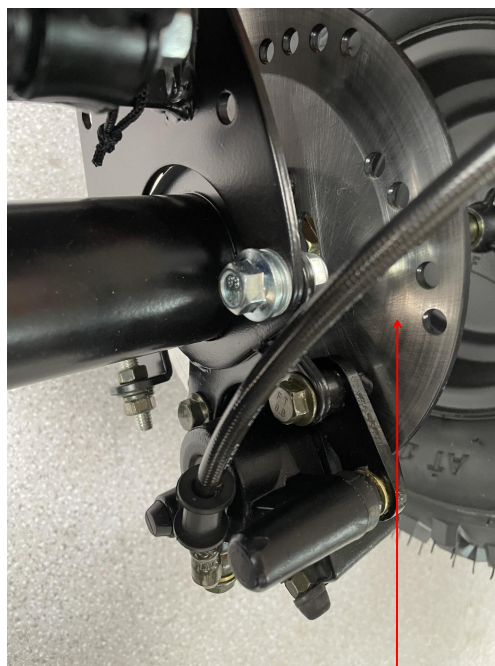
#### Attention

**The brake pads need to be replaced as a complete set**

Inspection and replacement of brake discs

Check the sliding surface of brake disc 1 for wear or damage. If the current brake disc thickness is  $\leq 3.0\text{mm}$ , replace the brake disc

Front brake disc service limit thickness: 2.5mm



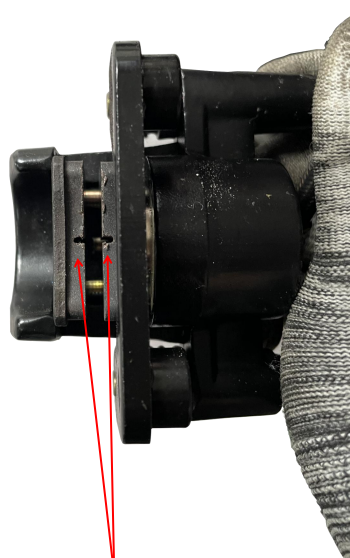
1

Check the minimum thickness of brake friction plate 2

Minimum friction plate thickness  $\geq 1\text{ mm}$

If it is less than the minimum friction plate thickness, please replace it with a new brake friction plate

Check if the brake friction plate is damaged or cracked. If there is any damage or crack, please replace with a new brake friction plate



2

### 3.3 Wheels

Jack up the front wheels in a horizontal position with a tool to ensure that there is no force on the vehicle body. Shake the front wheels left and right to check if they are securely connected and if there is any shaking

If there is shaking, check and tighten the rocker arm, axle, rim bolts, and nuts.

If there is still shaking, check and replace: bearings, rocker arm buffer sleeves, ball pins



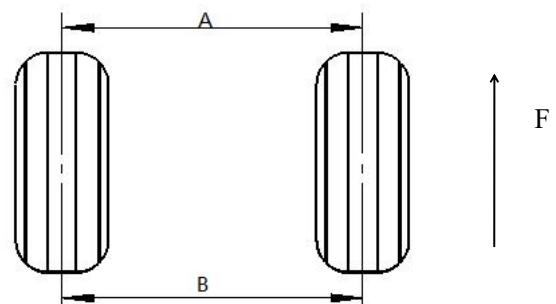
#### Front wheel size

Place the vehicle body in a horizontal position and measure the toe in dimensions of the wheels; The front wheel is relative to the direction of forward travel of the vehicle.

The front wheel is A, and the rear wheel is B

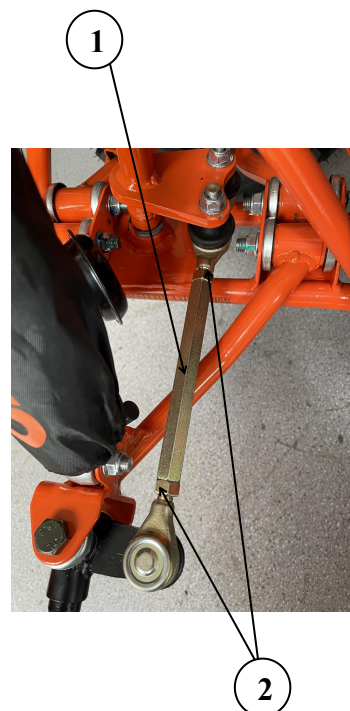
Toe in size:  $A - B = 1.5 \sim 2.5 \text{ mm}$

F is the forward direction



If not within this range, adjust the lock nut 2 of the steering rod 1

**Attention:** After adjusting the toe in size, drive the entire vehicle slowly to ensure that the handlebars can correctly constrain the direction of the vehicle body



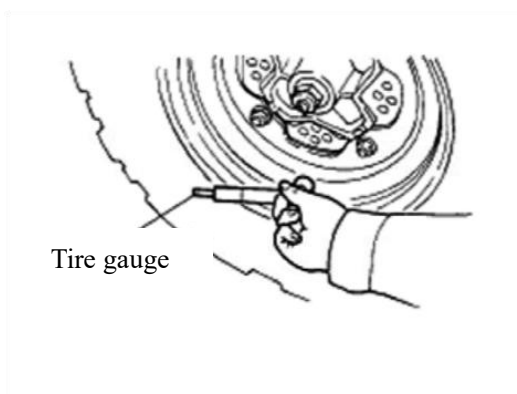


### Tire pressure

Use a pressure gauge to check the tire pressure.

### Attention

The inspection of tire pressure should be carried out while the tire is cool. If used in a state where the tire pressure is not appropriate, it will lead to poor operation and riding comfort, and cause adverse effects such as tire bias wear.



### Designated air pressure/tire

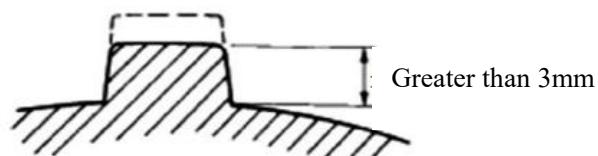
|              | Front wheel                      | Rear wheel                       |
|--------------|----------------------------------|----------------------------------|
| Air pressure | 35kPa (0.35kgf/cm <sup>2</sup> ) | 35kPa (0.35kgf/cm <sup>2</sup> ) |
| Tire size    | See the first chapter            | See the first chapter            |

### Tire pattern

Check the tire pattern, and once the height of the pattern is less than 3mm, replace it with a new tire

### Attention

When the tire pattern is less than 3mm, it must be replaced immediately



#### Wheel nuts and wheel axles

Check the looseness of the front wheel axle, rear wheel axle nut 1, and bolt

Tighten according to the specified torque when there is looseness

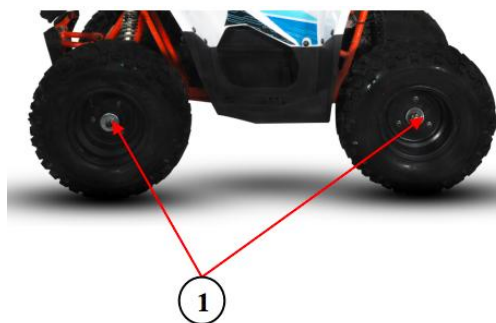
Torque:

Front wheel hub torque:  $49\text{N} \cdot \text{mm} \sim 59\text{N} \cdot \text{mm}$

( $5.0\text{kgf} \cdot \text{mm} \sim 6.0\text{kgf} \cdot \text{mm}$ )

Rear wheel hub torque:  $55\text{N} \cdot \text{mm} \sim 66\text{N} \cdot \text{mm}$

( $5.5\text{kgf} \cdot \text{mm} \sim 6.6\text{kgf} \cdot \text{mm}$ )



#### The shaking of the wheel hub

Use a tool to lift the front wheels, and when there is no force on the front wheels, shake the wheels axially to check for any shaking. Remove the front wheel and inspect the wheel hub when there is shaking



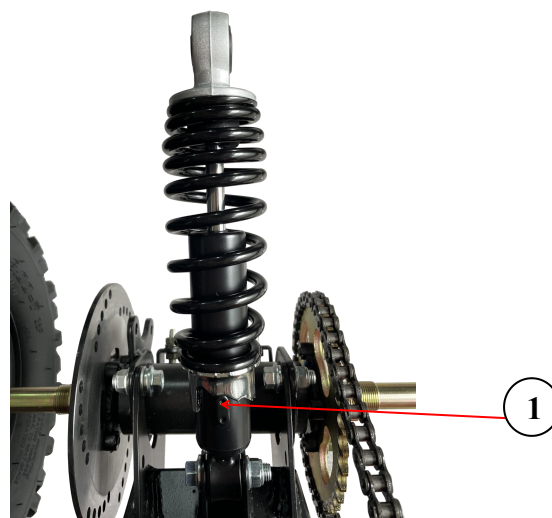
### 3.4 Suspension system

Place the vehicle body in a horizontal position and compress it up and down several times according to the diagram. If there is shaking or abnormal noise, check the shock absorber for oil leakage, and check the fastening parts for damage, looseness, etc



## Adjustment of shock absorbers

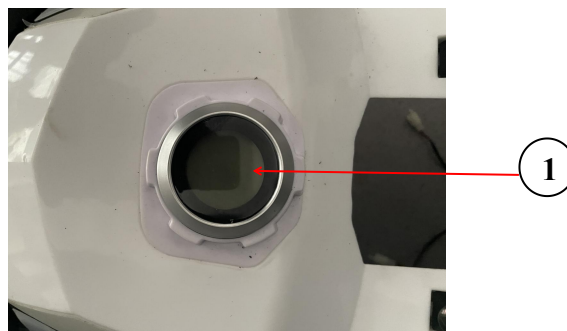
Use a special tool to adjust the adjustment point 1 of the shock absorber according to the load  
Clockwise rotation is adjustable from high to low, and counterclockwise rotation is adjustable from low to high in both directions, which can be adjusted according to customer needs for riding comfort.



## 3.5 Battery and throttle check

### Battery display

When turning on the power, observe the battery level on the monitor, especially when used after long-term use.



When turning the throttle as shown in the figure, check whether the throttle is flexible and whether it can rotate back and forth. If turning the accelerator will move, place the right finger on accelerator 4 and tighten the 1 bolt.

- 1: Speed instrument
- 2: Flameout switch
- 3: Finger accelerator





## 3.6 Combination switch and horn

### Check the combination switch

The combination switch consists of horn, headlight switch, speed control switch, reverse gear switch, etc.

If there are abnormal situations such as looseness or misalignment when using the combination switch, please loosen screw 5, adjust the combination switch to the appropriate position, and finally lock screw 5.

If there is a malfunction of the key position, please check if there are any abnormalities in the cables and plugins, which can be checked in section (1.7).

### Check the speed control switch

Push the speed control switch 2 to the right or left to check if the speed gauge and vehicle speed match. If the speed is incorrect, please check the wiring for any errors. If the wiring is correct, please replace the switch in time.

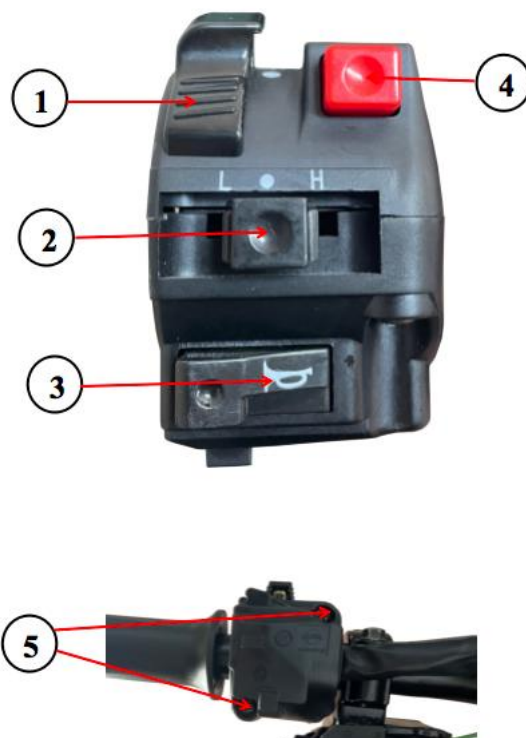
### Check the reverse gear switch

Press the reverse gear switch to check if the car has shifted to reverse gear. If there is no response or it is still in forward gear, please check the wiring for errors. If there is no error, please replace the reverse gear switch in time.

### Check the horn

Press and hold the horn switch 3 to observe the horn. If the horn does not sound or the sound is too light, please check if the wiring is incorrect. If the wiring is correct, please replace the horn in time

- ① : Headlamp switch
- ② : Speed control switch
- ③ : Horn switch
- ④ : Reverse gear switch
- ⑤ : Fixing screws





## 3.7 Lighting device

### Headlamp inspection

After ignition, turn the headlight switch to the lighting position and check if the front headlights are on.

——Illuminated: Normal

——Not illuminated:

1. Main cable broken or short circuited
2. The fuse is broken
3. The switch is damaged
4. LED light emitting diode damaged

If the light emitting diode damaged, it should be replaced as a whole.



### Rear tail lamp inspection

Due to the combination of LED light emitting diodes in the tail light bulb, the bulb cannot be replaced separately. If the bulb is damaged, the entire tail light 1 can only be replaced

After the car starts, when the headlights are turned on, the tail lights will also light up. When the brake is pressed, it will be more dazzling than when it is always on.







## 4 Three electrical systems

|                                              |     |
|----------------------------------------------|-----|
| Maintenance information.....                 | 4-1 |
| 4.1 Battery disassembly.....                 | 4-2 |
| 4.2 Controller.....                          | 4-4 |
| 4.3 Motor.....                               | 4-5 |
| 4.4 Air protection switch and converter..... | 4-6 |

### Maintenance information

#### Operation precautions

- During operation and maintenance, please ensure that the vehicle is stationary for no less than 1 hour with the engine turned off. Confirm that the heating components have cooled before proceeding with maintenance to avoid injury to maintenance personnel
- Be careful not to damage the frame, motor body, bolts, and cables during operation
- When disassembling the motor, in order to protect the frame, the frame should be wrapped and protected

## 4.1 Battery disassembly

### Disassembly

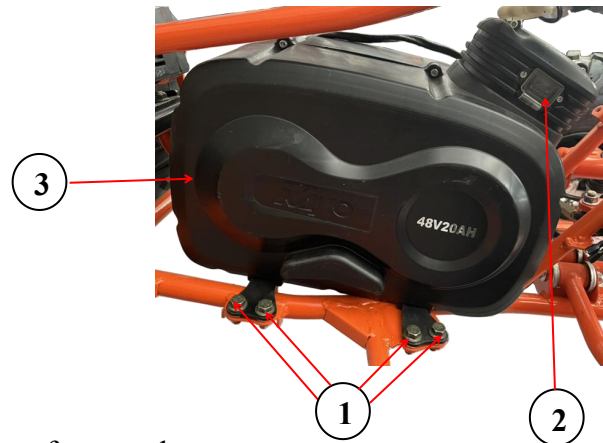
Remove the main plastic parts (2.4.1)

Unplug the battery connector (→ 1.7)

Remove eight bolts 1 (4 on each side)

Unplug the power plug 2

Take out the battery 3



### Installation

Installation is carried out in reverse order of removal

| Common faults                 | Adverse phenomena                                                                                                                                                                                                                                                                                                                                                                                                      | The cause of the malfunction                                                                                                                                                                      | Troubleshooting methods                                                                         |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Insufficient battery charging | 1. Low static voltage<br>2. Low density, unable to meet specified requirements after charging<br>3. Short working hours                                                                                                                                                                                                                                                                                                | 1. The voltage and current settings of the charger are too low<br>2. Insufficient initial charging<br>3. Charger failure                                                                          | 1. Adjust and repair the charger<br>2. Battery supplementary charging<br>3. Replace the battery |
| Battery overcharge            | 1. The liquid injection cover turns yellow and red<br>2. Shell deformation<br>3. Partition carbonization and deformation<br>4. Positive electrode corrosion and fracture<br>5. Rise, aging, and cracking of pole rubber sleeve<br>6. Regularly replenish water, and the electrolyte is turbid during charging<br>7. Active substance detachment from the electrode plate<br>8. Positive electrode plate tube explosion | 1. The voltage and current settings of the charger are too high<br>2. Charging time is too long<br>3. Frequent charging<br>4. Low discharge and high charging capacity<br>5. Inflator malfunction | 1. Adjust and repair the charger<br>2. Adjusting the charging system<br>3. Replace the battery  |
| Battery over discharge        | 1. The static voltage of the battery is low<br>2. Low electrolyte density after charging<br>3. Bending and fracture of positive and negative electrode plates                                                                                                                                                                                                                                                          | 1. The battery is not fully charged and continues to be used<br>2. Short circuit of battery pack<br>3. A small current long-term discharge                                                        | 1. Supplementary charging<br>2. Vehicle maintenance<br>3. Replace the battery                   |
| Battery                       | 1. Static voltage below 2V                                                                                                                                                                                                                                                                                                                                                                                             | 1. Plate bending deformation                                                                                                                                                                      | Replace the                                                                                     |

|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                      |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| short circuit                                   | <ul style="list-style-type: none"> <li>2. The electrolyte density is too low</li> <li>3. High temperature during charging</li> <li>4. Short working hours of forklifts</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>short circuit</li> <li>2.The partition is missing or damaged during assembly</li> <li>3.Positive electrode active material detachment and bottom short circuit</li> </ul>                                                                                                                                                                                                | battery                                                                                                                              |
| Open circuit                                    | <ul style="list-style-type: none"> <li>1. Abnormal and unstable voltage during external load path connection</li> <li>2. Current cannot be input during charging</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>1. Poor welding of poles or plates during assembly</li> <li>2. External short circuit</li> <li>3. High current discharge</li> <li>4.Poor connection or disconnection</li> <li>5. Plate corrosion</li> </ul>                                                                                                                                                              | <ul style="list-style-type: none"> <li>1.The battery needs to be repaired</li> <li>2.Replace the battery</li> </ul>                  |
| Improper addition of electrolyte to the battery | <p>When the density is high:</p> <ul style="list-style-type: none"> <li>1. Electrolyte density after charging <math>\geq 1.300\text{g/cm}</math></li> <li>2. The static voltage of the battery is high</li> <li>3. The initial capacity is good, but after using it for a period of time, the capacity decreases</li> <li>4. Electrolyte turbidity</li> </ul> <p>When the density is low:</p> <ul style="list-style-type: none"> <li>1. After charging, the electrolyte density is lower than the specified value</li> <li>2. Low battery capacity</li> </ul> <p>Impurity of liquid addition:</p> <ul style="list-style-type: none"> <li>1. Low battery capacity</li> <li>2. The electrolyte is turbid, with abnormal color and odor</li> <li>1. 3.Severe self discharge of battery</li> </ul> | <ul style="list-style-type: none"> <li>1.The initial liquid density is too high or too low</li> <li>2.The liquid level drops and there is an error in refilling. Pure water was not added as required, but other liquids were added instead</li> <li>3.The initial solution is impure (containing impurities)</li> </ul>                                                                                        | <ul style="list-style-type: none"> <li>1.Change the electrolyte of the battery</li> <li>2.Replace the battery</li> </ul>             |
| Plate sulfation                                 | <ul style="list-style-type: none"> <li>1.Capacity reduction during normal discharge</li> <li>2.Density decrease below normal value</li> <li>3. Fast voltage drop during discharge</li> <li>4. Start charging with high voltage</li> <li>5.Early generation of bubbles during charging</li> <li>6.PbSO<sub>4</sub> crystal coarseness</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"> <li>1.Insufficient initial charging</li> <li>2. Under discharge state, the storage time is too long</li> <li>3. Insufficient charging for a long time</li> <li>4. The electrolyte density is too high</li> <li>5. The liquid level is too low, and the upper part of the electrode plate is exposed outside the electrolyte</li> <li>6. The electrolyte is impure</li> </ul> | <ul style="list-style-type: none"> <li>1.Overcharging method</li> <li>2.Repeated charging method</li> <li>3. Hydrotherapy</li> </ul> |

|                                         |                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                            |                                                                                                                                   |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
|                                         |                                                                                                                                                                                                                                                 | 7. Internal short circuit                                                                                                                                                                                                                  |                                                                                                                                   |
| Excessive shedding of active substances | <ol style="list-style-type: none"> <li>1. When charging, there is a gray brown substance rising from the bottom</li> <li>2. Reduced battery capacity</li> </ol>                                                                                 | <ol style="list-style-type: none"> <li>1. Brown precipitate is caused by excessive charging current</li> <li>2. The white precipitate is due to excessive discharge</li> <li>3. The battery electrolyte is impure</li> </ol>               | <ol style="list-style-type: none"> <li>1. Clean up sediment</li> <li>2. Adjust density</li> <li>3. Replace the battery</li> </ol> |
| Battery reverse polarity                | <ol style="list-style-type: none"> <li>1. The voltage is negative</li> <li>2. After charging, the electrolyte density should be below 1.20g/cm</li> <li>3. The colors of the positive and negative poles and plates are opposite</li> </ol>     | Incorrect positive and negative connections during charging                                                                                                                                                                                | Replace the battery                                                                                                               |
| Battery leakage                         | <ol style="list-style-type: none"> <li>1. Leakage at the injection port</li> <li>2. Leakage at the sealing position of the groove and cover</li> <li>3. Infiltration</li> <li>4. There are scratches on the outside of the tank body</li> </ol> | <ol style="list-style-type: none"> <li>1. Poor heat sealing of groove and cover</li> <li>2. Problem with pole rubber ring</li> <li>3. Cracking of sealing agent</li> <li>4. Inadvertently impacted by external force during use</li> </ol> | <ol style="list-style-type: none"> <li>1. Repair the battery</li> <li>2. Replace the battery</li> </ol>                           |

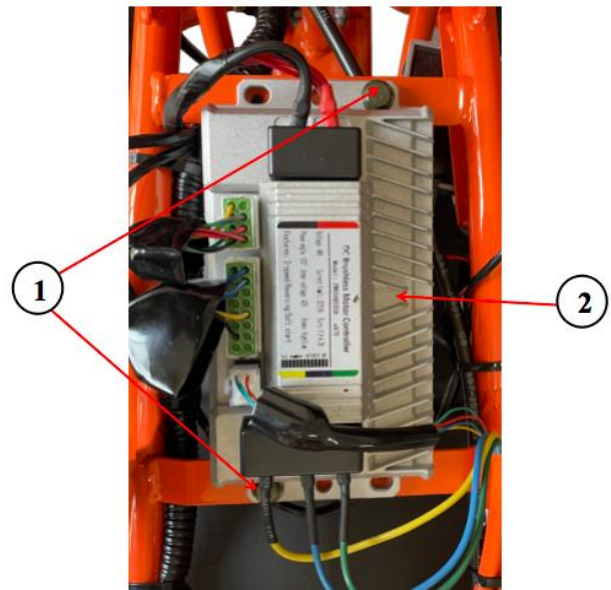
## 4.2 Disassembly of the controller

### Disassembly

Remove the main plastic part (→ 2.3.2)  
Unplug all electrical connectors (→ 1.7)  
Remove two bolts 1 (one diagonally opposite)  
Take out controller 2

### Installation

Installation is carried out in reverse order of removal



### Controller failure cause:

1. Caused by loose installation or vibration of components;  
Solution: Lock the standard parts tightly
2. Caused by motor overload;  
Solution: Replace the controller
3. The power device circuit is damaged;  
Solution: Replace the controller
4. The connecting wire is worn and the contact plug-in is poor or detached;  
Solution: Reinstall the plug-in after power outage, and if it fails, replace the controller

### 4.3 Disassembly of the motor

#### Disassembly

Remove the tire (6.2)

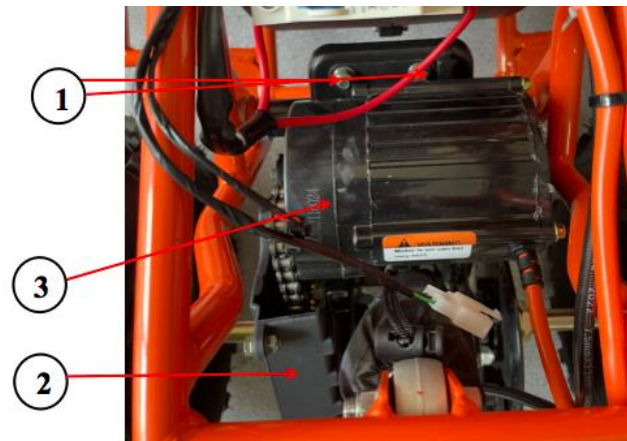
Unplug the motor plug-in (→ 1.7)

Remove the four bolts 1 that secure the rear fork of the motor

Remove the chain cover 2 (2.5.2)

Remove the chain

Take out the motor 3



#### Common faults of brushed motors:

1. Motor shaft rotation is stuck or stuck: there are foreign objects inside, and the stator and rotor are in contact;

Solution: Replace the motor

2. Abnormal noise from the motor: foreign objects inside, short circuit inside the motor, contact between the stator and rotor;

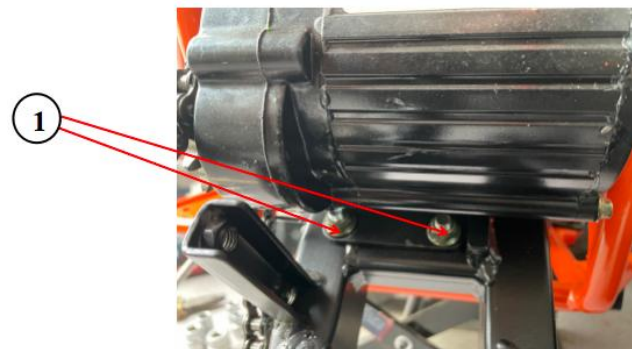
3. Solution: Replace the motor

4. Sprocket wear

Solution: Replace the sprocket

5. The motor does not rotate after being powered on: the brush has poor contact, the positive and negative pole terminals have poor contact, and the positive and negative pole wires are damaged

Solution: Replace the motor



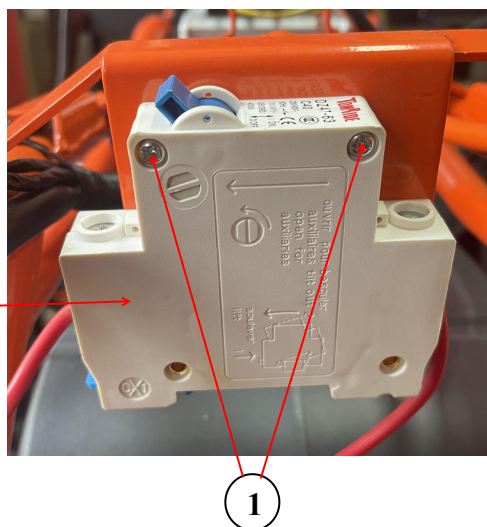
#### Installation

Installation is carried out in reverse order of removal

## 4.4 Disassembly of air protection switch and converter

### Disassembly of the air protection switch

2



#### Attention

When disassembling the air protection switch, it is necessary to first turn off the power supply (ON is on, OFF is off), and the direction indicated by the arrow is to turn off the power supply.

#### Disassembly

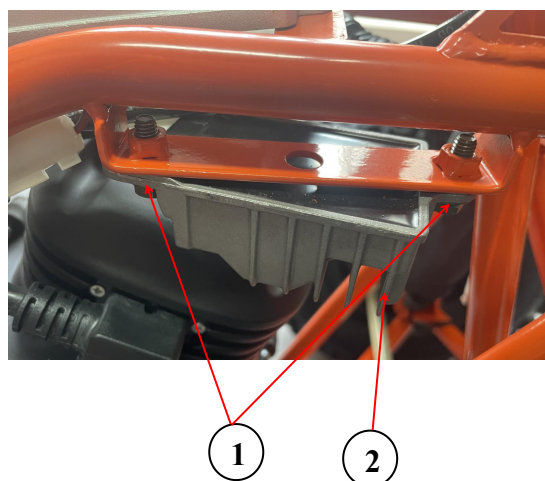
- Turn the switch to OFF
- Remove the main plastic part (→ 2.3.2)
- Unplug all electrical connectors (→ 1.7)
- Remove two bolts 1
- Take out the air protection switch 2



### Disassembly of the converter

#### Disassembly

- Remove the main plastic part (→ 2.3.2)
- Pull out the corresponding electrical plug-in (→ 1.7)
- Remove two bolts 1
- Remove the converter 2



#### Installation

Installation is carried out in reverse order of removal

## 5 Signal and lighting system

|                                                |     |
|------------------------------------------------|-----|
| Maintenance instructions.....                  | 5-1 |
| 5.1 Troubleshooting.....                       | 5-2 |
| 5.2 Removal of front headlights.....           | 5-2 |
| 5.3 Removal of rear tail light.....            | 5-3 |
| 5.4 Removal of electric door lock.....         | 5-3 |
| 5.5 Disassembly of the release key switch..... | 5-3 |
| 5.6 Removal of horn.....                       | 5-4 |
| 5.7 Disassembly of instruments.....            | 5-4 |

### Maintenance instructions

When conducting inspection operations, the entire vehicle can be powered on; When carrying out disassembly and installation operations, the entire vehicle should be powered off first and both hands should be kept dry.

Specifications of each component

| Name             | Specifications                                                   | Quantity | Remarks                  |
|------------------|------------------------------------------------------------------|----------|--------------------------|
| Left headlight   | LED AY70-B                                                       | 1        | Replace the entire piece |
| Right headlight  | LED AY70-B                                                       | 1        | Replace the entire piece |
| Rear taillight   | 菱型 TW03                                                          | 1        | Replace the entire piece |
| Speed instrument | 48V-60V metric and inch convertible circular LCD digital display | 1        |                          |
| Electric horn    | 12V-1.5A                                                         | 1        |                          |



## 5.1 Troubleshooting

### 1. Left headlight does not light up

- 1) Bulb damage
- 2) Poor contact of connectors
- 3) Damaged handlebar switch

### 2. Right headlight does not light up

- 1) Bulb damage
- 2) Poor contact of connectors
- 3) Damaged handlebar switch

### 3. The speed gauge does not light up

- 1) Damaged LCD screen
- 2) Poor contact of connectors

### 4. Rear tail light does not come on

- 1) Bulb damage
- 2) Poor contact of connectors
- 3) Damaged handlebar switch

### 5. The electric horn does not sound or is too light

- 1) Damaged horn
- 2) Poor contact of connectors
- 3) Damaged handlebar switch

## 5.2 Removal of front headlights

### Disassembly

Remove the main plastic part (→ 2.4)

Unplug the front headlight connector (→ 1.7)

Remove the screw 1

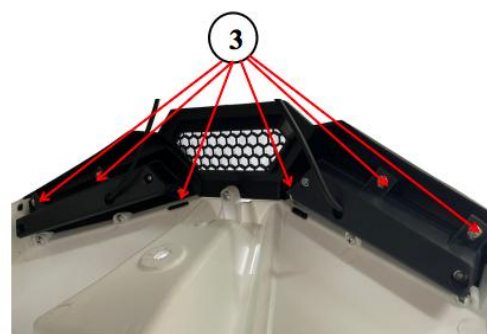
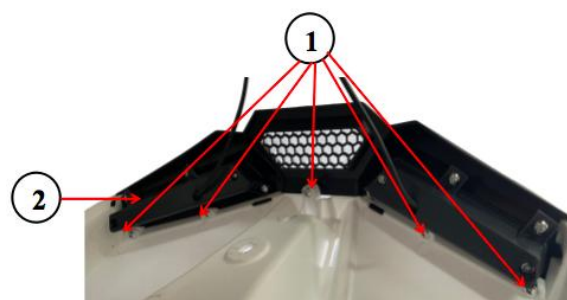
Remove the front left and right lamp holders 2

Remove the screws (3 on each side) 3

Remove the front headlights

### Installation

Proceed in the reverse order of disassembly



### 5.3 Removal of rear tail lamp

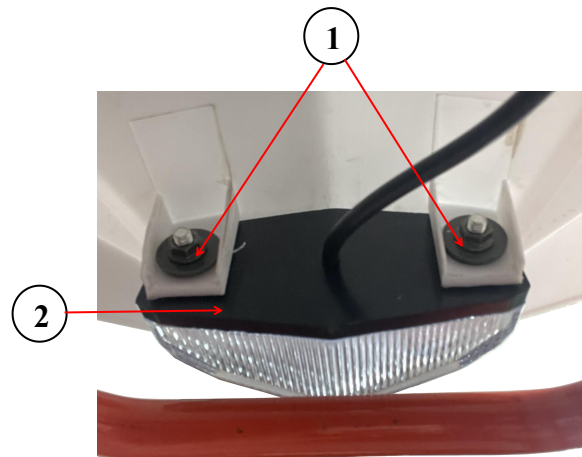
#### Disassembly

Remove the main plastic part (→ 2.4)

Remove the screw 1

Unplug the rear tail light connector (→ 1.7)

Remove the rear tail light 2



#### Installation

Proceed in the reverse order of disassembly

### 5.4 Disassembly of electric door

#### lock

#### Disassembly

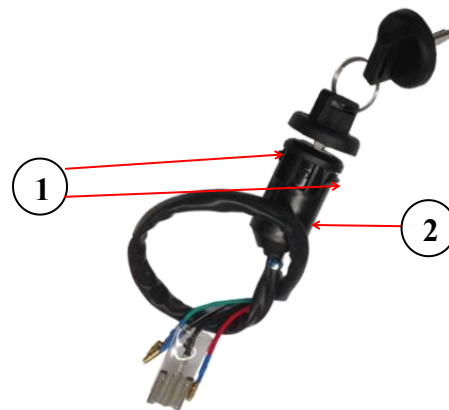
Remove the main plastic part (→ 2.4)

Remove the key

Unplug the electric door lock plug-in (→ 1.7)

Press down on both protruding parts 1

Push out the electric door lock 2 from bottom to top



#### Installation

Proceed in the reverse order of disassembly

### 5.5 Disassembly of the release key

#### switch

#### Disassembly

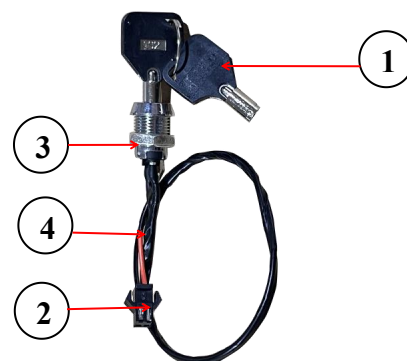
Remove the main plastic part (→ 2.4)

Pull out the release key 1

Remove the release key switch plug-in 2

Remove the nut 3

Remove the release key switch 4



#### Installation

Proceed in the reverse order of disassembly

## 5.6 Removal of horn

### Disassembly

Power off first (→ 4.4)

Remove the main plastic part (→ 2.4)

Pull out the horn plug-in 1

Remove the nut 2

Remove the horn 3

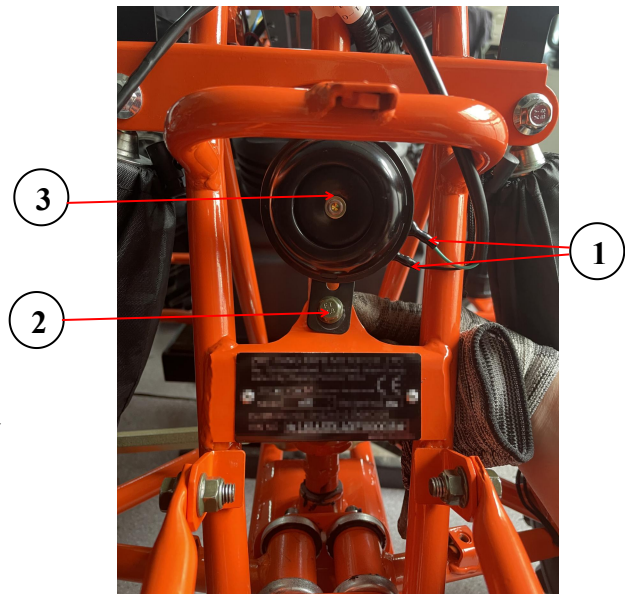
### Inspection

When connecting a safe charging 12V battery, confirm that the horn sounds.

If there are any abnormalities in the above inspection, the horn should be replaced.

### Installation

Proceed in the reverse order of disassembly



## 5.7 Instrument

### Disassembly

Remove the main plastic part (→ 2.4)

Unplug the electrical connector (→ 1.7)

Remove the two nuts 2

Remove the instrument 1

### Installation

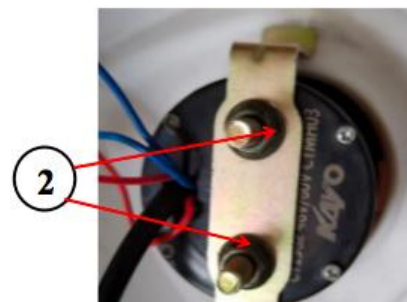
Proceed in the reverse order of disassembly

### Inspection

Start the vehicle, drive slowly, and confirm whether the instrument display is normal. If the above inspection is abnormal, check whether the cable is wrong. If the cable is correct, replace the instrument.

### Attention

The main cables and cables should be correctly assembled according to the wiring diagram of cables, pipes, and cables.





## **6 Vehicle chassis**

|                                  |      |
|----------------------------------|------|
| Maintenance information.....     | 6-2  |
| 6.1 Fault diagnosis.....         | 6-4  |
| 6.2 Front wheel.....             | 6-4  |
| 6.3 Rear wheel.....              | 6-5  |
| 6.4 Braking system.....          | 6-5  |
| 6.5 Front suspension system..... | 6-7  |
| 6.6 Steering system.....         | 6-9  |
| 6.7 Rear suspension system.....  | 6-11 |
| 6.8 Rear axle assembly.....      | 6-12 |

## Maintenance information

### Attention

- When conducting maintenance work on the front wheel and suspension system, the frame must be firmly supported before operation
- Do not exert excessive force on the wheels. Be careful not to damage the wheels
- When disassembling tires from the wheel rims, it is necessary to use specialized tires and wheel rim protectors to avoid damaging the wheels

### Maintenance benchmark

|             | Items                  | Standards                       | Service limit |
|-------------|------------------------|---------------------------------|---------------|
| Wheel rim   | Axial runout           | 0.8mm                           | 2.0mm         |
|             | Radial runout          | 0.8mm                           | 2.0mm         |
| Tires       | Residual groove        | —                               | 3mm           |
|             | Pressure               | 35kPa(0.35kgf/cm <sup>2</sup> ) | —             |
| Front brake | Brake handle clearance | 0mm                             | —             |

### Tool

|                             |                      |
|-----------------------------|----------------------|
| Inner hexagonal m6          | Assembly tool shaft  |
| Open end ratchet wrench s8  | Pneumatic wrench s12 |
| Open end wrench s10-s12     | Pneumatic wrench s14 |
| Open end ratchet wrench s14 | Socket wrench m12    |
| Open end wrench s17-s19     | Socket wrench m14    |
| Open end ratchet wrench s22 | Socket wrench m20    |
| Open end ratchet wrench s24 | Socket wrench m24    |
| Cross screwdriver           | Needle-nose pliers   |

## Tightening torque

| Name                                                       | Specifications        | Torque |
|------------------------------------------------------------|-----------------------|--------|
| Lower rocker arm bolt                                      | GB5789 M10×1.25×70    | 55-66  |
| Front and rear shock absorption bolts                      | GB5787 M10×1.25×40    | 55-66  |
| Front wheel hub installation slotted nut                   | GB9457 M14×1.5×H18    | 49-59  |
| Steering rod ball pin slotted nut                          | GB9457 M10×1.25       | 15-20  |
| Direction handle cover screw                               | White-blue zinc M8*50 | 25-30  |
| Rear brake caliper body bolts                              | GB5789 M8×25          | 25-30  |
| Rear brake disc mounting screws                            | GB70-85 M8×16         | 25~30  |
| Installation bolts of the steering handle pressure block   | GB5783 M10×1.5×30     | 45~59  |
| Rear wheel hub installation slotted nut                    | GB9457 M16×1.5        | 49-59  |
| Steering column installation slotted nut                   | GB9457 M10×1.25       | 15-20  |
| Steering column clamp mounting bolts                       | GB5787 M8×55          | 25~30  |
| Horn mounting bolts                                        | GB5787 M6×16          | 10~12  |
| Motor mounting bolts                                       | GB5787 M8             | 25-30  |
| Sprocket seat mounting screws                              | GB70-85 M8×16         | 25-30  |
| Cross pan head Self-tapping screw                          | GB845-85 ST4.2        | —      |
| Cross pan head machine tooth screw                         | GB828-88 M5×16        | —      |
| Cross large flat head machine tooth screw                  | TM6                   | —      |
| Rim mounting nuts                                          | GB6187-86 M8          | 49-59  |
| Hexagon flange self-locking nuts for front and rear wheels | Army green M8         | 25-30  |





## 6.1 Fault diagnosis

1. Steering weight
  - 1) The upper bolts of the steering column are too tight
  - 2) The steering knuckle is too tightly locked with the frame
  - 3) Direction column deformation
  - 4) Low tire pressure
  - 5) Tire wear
2. Shake the steering handle
  - 1) Damaged and poorly tightened steering bearings
  - 2) Left and right shock absorbers do not match
  - 3) Tire skewness
  - 4) Frame deformation
  - 5) Tire wear and eccentric wear
  - 6) Wheel bearing shaking
3. Front wheel runout
  - 1) Wheel deformation
  - 2) Poor wheel bearings
  - 3) Poor tires
  - 4) Improper wheel balance
  - 5) Poor fastening around the wheel axle
4. Wheel rotation is not flexible
  - 1) Poor wheel bearings
  - 2) Improper installation of front wheels
  - 3) Brake oil pipe and cable are stuck
5. Rear suspension too soft
  - 1) Reduced elasticity of rear shock absorber
  - 2) Low tire pressure
6. The rear suspension is too hard
  - 1) Damaged rear shock absorber
  - 2) Excessive tire pressure
7. Abnormal noise from rear shock absorber
  - 1) Poor rear shock absorber
  - 2) Loose fastening parts of the shock absorber
8. Poor braking effect
  - 1) Poor brake adjustment
  - 2) The surface of the brake disc is dirty
  - 3) Brake pad wear

## 6.2 Front wheels

### Disassembly

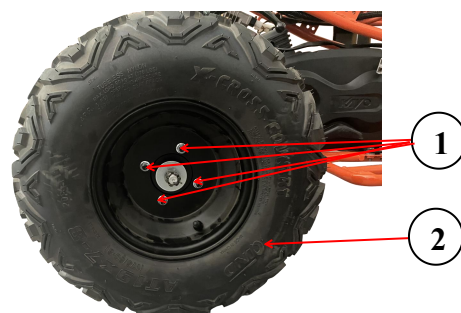
Use a tool to lift the front wheel and ensure that there is no force acting on the front wheel

Remove the nut 1 installed on the front wheel bracket

Remove the front wheel 1

### Installation

Install in reverse order of disassembly



**Inspection of wheel rims**

Check if wheel 1 is damaged, deformed, or scratched, and replace it if there are any abnormalities. Slowly rotate the wheel and measure the runout of rim 1 with a dial gauge

Usage limit: Axial: 2.0mm

Radial: 2.0mm

**Installation of wheel rims**

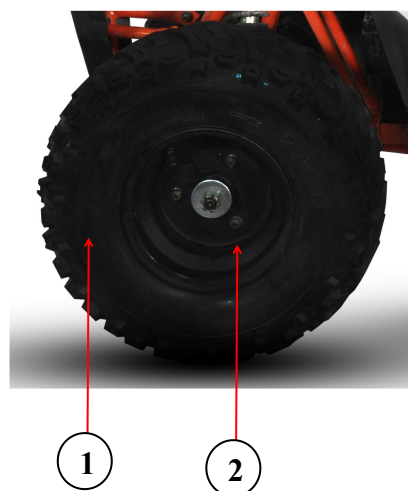
Press rim 2 into the tire on a dedicated machine

**Installation**

Installation is carried out in reverse order of removal

Wheel hub mounting nut torque:  $49\text{N} \cdot \text{m} \sim 59\text{N} \cdot \text{m}$

agent)

**6.3 Rear wheels****Disassembly**

Use a tool to lift the rear wheel and ensure that there is no force acting on the rear wheel

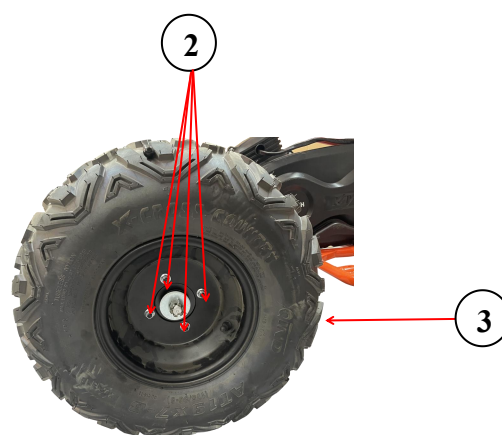
Remove the nut 2 installed on the rear axle

Remove the rear wheel 3

**Installation**

Installation is carried out in reverse order of removal

Note: The inspection and rim installation of the rear wheel are similar to those of the front wheel, please refer to the front wheel

**6.4 Braking system****Remove the front brake caliper**

Remove the front wheel

Remove the two bolts 3 installed on the brake disc

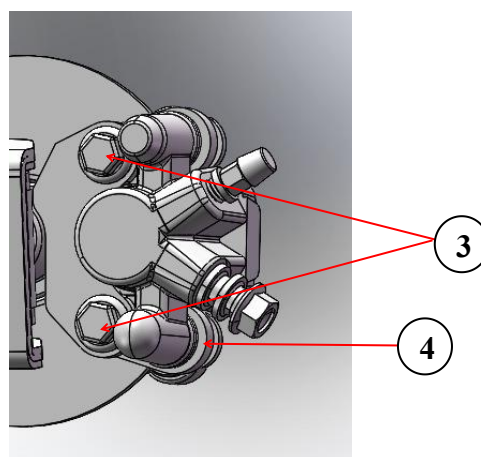
Remove the brake caliper 4

**Inspection**

Observe if there are cracks in the brake caliper and if there is oil leakage at each fastening point, replace it if there is any

**Installation**

Brake caliper fixing bolt 2 torque:  $25\text{N} \cdot \text{m} \sim 30\text{N} \cdot \text{m}$  (coated with thread fixing



### Remove the brake pads

Loosen one fastening bolt

Rotate the brake caliper 1

Remove the shoe block 2

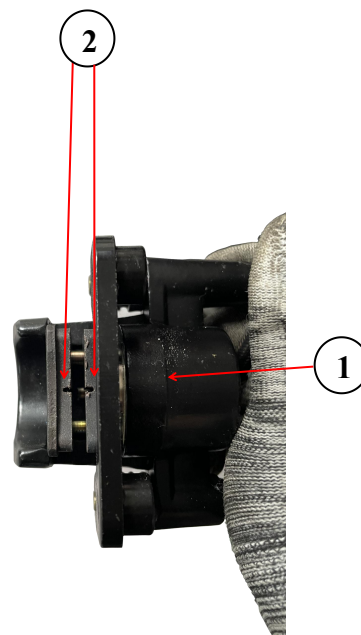
### Inspection

Measure the thickness of shoe block 2.

When the thickness of shoe block 2 is less than or equal to 1 mm, replace both brake pads with new ones at the same time

### Installation

Installation is carried out in reverse order of removal



### Remove the front brake disc

Remove the front wheel

Remove the brake caliper

Remove the front wheel mount 4

Remove the brake disc 3

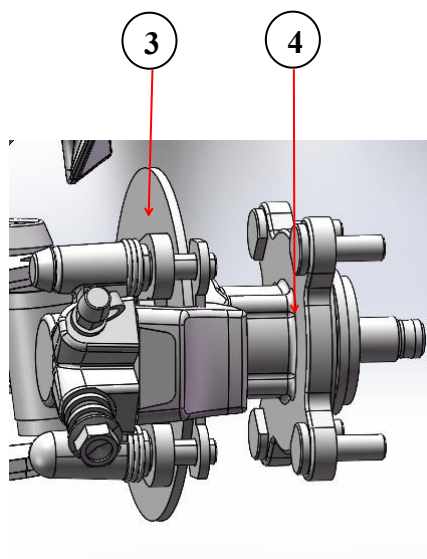
### Inspection

Front brake disc thickness: If it is less than 2.5mm, replace it with a new brake disc

### Installation

Install the brake disc

Brake disc fixing bolt torque:  $25\text{N} \cdot \text{m} \sim 30\text{N} \cdot \text{m}$



### Attention:

The direction of the oil pipe on the vehicle body must be arranged according to the cables and wires in the first chapter, ensuring the smooth flow of the brake oil circuit. When the brake system assembly is installed, the braking force must be checked.

### Remove the rear brake disc

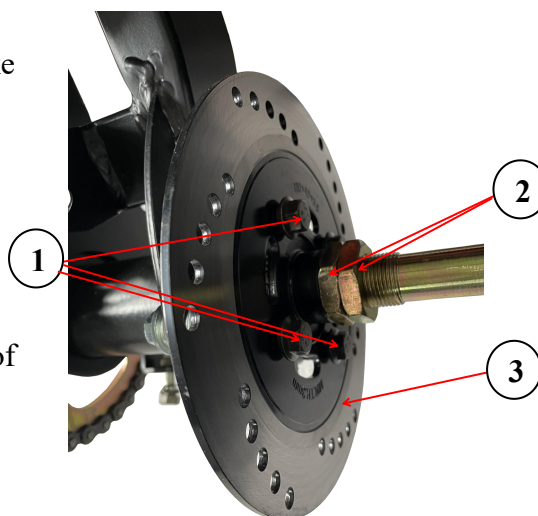
Remove the rear wheel

Remove the brake caliper

Remove two hex nuts 2

Remove the fixing bolt 1 of the disc brake disc

Remove the rear brake disc 3



### Installation

Installation is carried out in reverse order of removal

## 6.5 Front suspension system

### Remove the front shock absorber

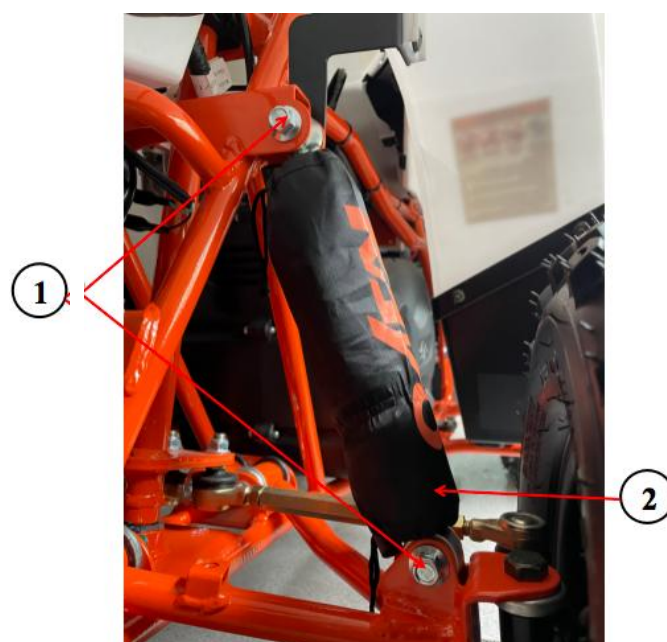
**Attention :** Park the vehicle on a level surface and use a jack to support the front of the vehicle firmly

When repairing the suspension system, the left and right suspension systems cannot be removed simultaneously, otherwise the vehicle body will fall down due to lack of support

Remove the main plastic part (→ 2.5)

Remove the bolt 1 that installs the shock absorber on the vehicle body and rocker arm

Remove the shock absorber 2



### Installation

Installation is carried out in reverse order of removal

The removal and installation method of the left front shock absorber assembly is the same as that of the right front shock absorber assembly

### Remove the left front suspension assembly

**Attention :** When repairing the suspension system, the left and right suspension systems cannot be removed simultaneously, otherwise the vehicle body will fall down due to lack of support. Park the vehicle on a level surface and use a jack to support the front of the vehicle firmly

Remove the main plastic part

Remove the front wheel

Remove the brake caliper

Remove the front wheel hub bracket

Remove the bolt 1 that installs the left front shock absorber on the vehicle body and the right front lower rocker arm

Remove the front shock absorber 2

Remove the bolts and nuts 3 that secure the left front rocker arm to the frame

Remove the left front rocker arm 4

Remove the split pin and lock nut 5 from the steering rod ball pin

### Installation

Installation is carried out in reverse order of removal

The disassembly, installation, and inspection methods for the right front suspension assembly are the same as those for the left front suspension assembly

### Disassembly of the left rocker arm assembly

Remove the left shock absorber

Remove the left steering rod

Remove the bolt that installs the left rocker arm on the frame and the nut 1 that fastens the bolt

Remove the bolt installed on the left rocker arm on the steering knuckle and the nut 2 fastening the bolt

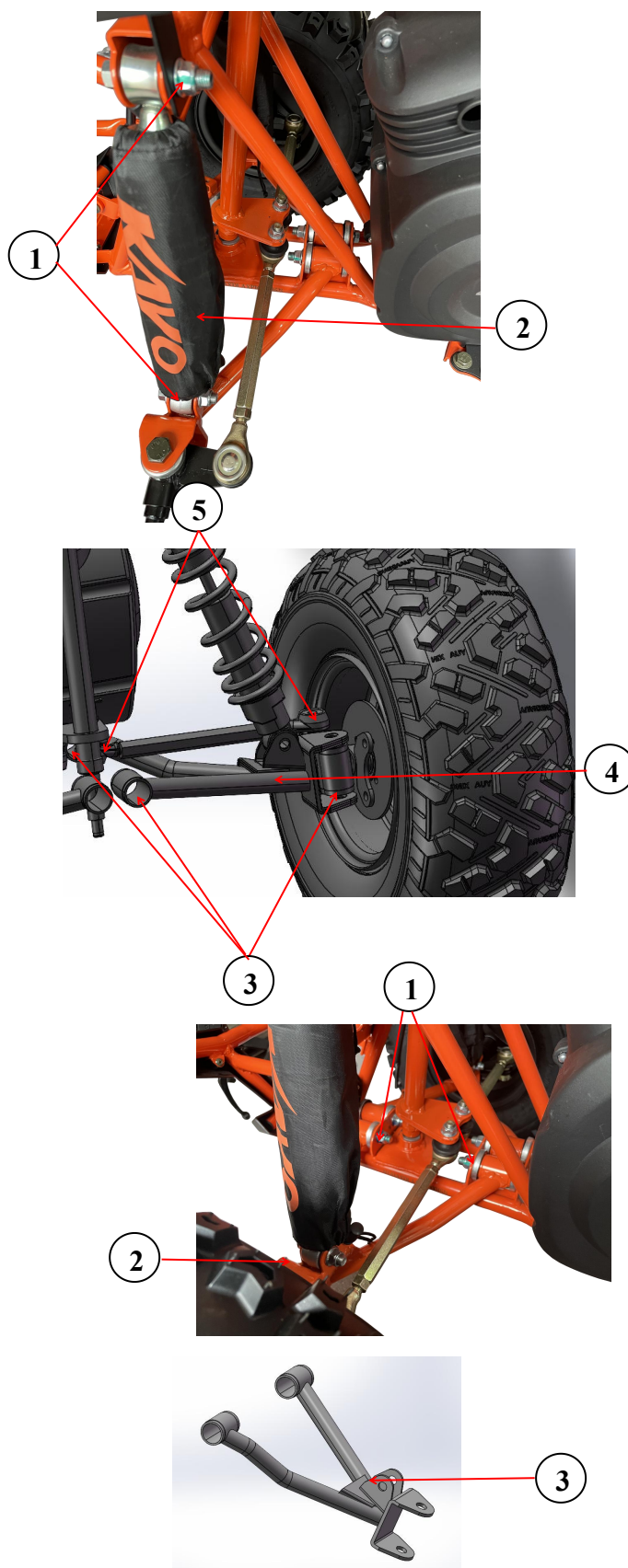
Remove the left rocker arm 3

### Attention

Before removing the shock absorber, the wheels, brake calipers, and rim brackets must be removed first

### Installation

Installation is carried out in reverse order of removal





## 6.6 Steering system

### Directional handle

#### Left handlebar disassembly

Loosen the bolt 1

Release the disc brake pump (→ 6.4)

Remove the rear disc brake assembly 2

Loosen the screw 3

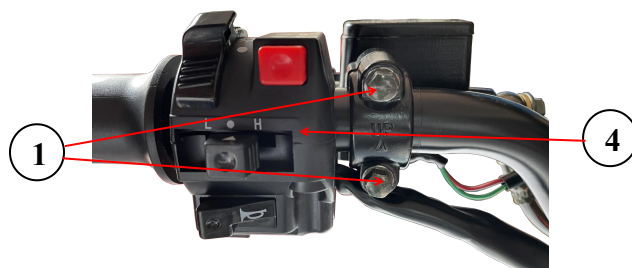
Remove the combination switch 4

Unplug the combination switch plug-in (→ 1.7)

Pull out the handle sleeve 5

#### Installation

Installation is carried out in reverse order of removal



(Front)



(Back)

#### Right hand handle disassembly

Loosen the bolt 6

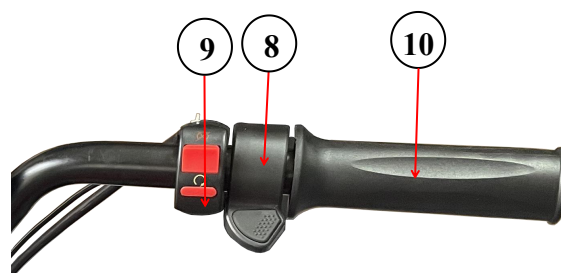
Loosen the screw 7

Unplug the plug-in for the finger accelerator and ignition switch (→ 1.7)

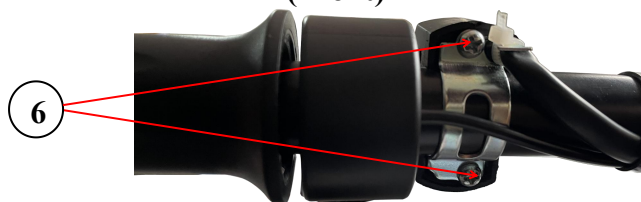
Remove the finger accelerator 8

Remove the flameout switch 9

Pull out the handle sleeve 10



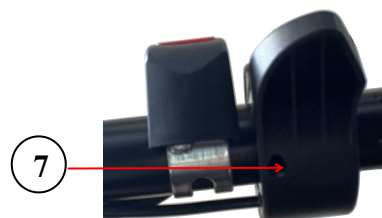
(Front)



(Back)

#### Installation

Installation is carried out in reverse order of removal



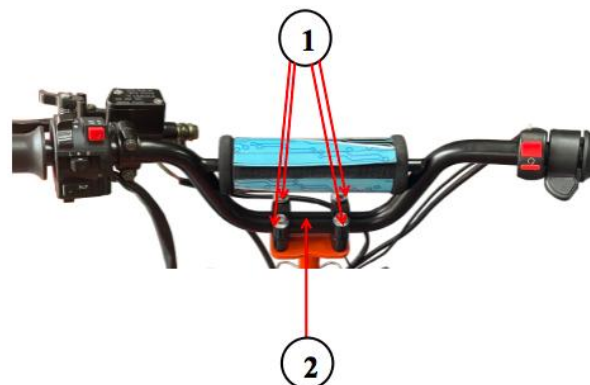
### Disassembly of the steering handle tube

Remove the left-hand handle

Remove the rear handle

Remove the bolt 1

Remove the steering handle tube 2



### Installation

Installation is carried out in reverse order of removal

### Disassembly and assembly of steering system

Remove the steering handle

Remove the electrical plug-in(→ 1.7)

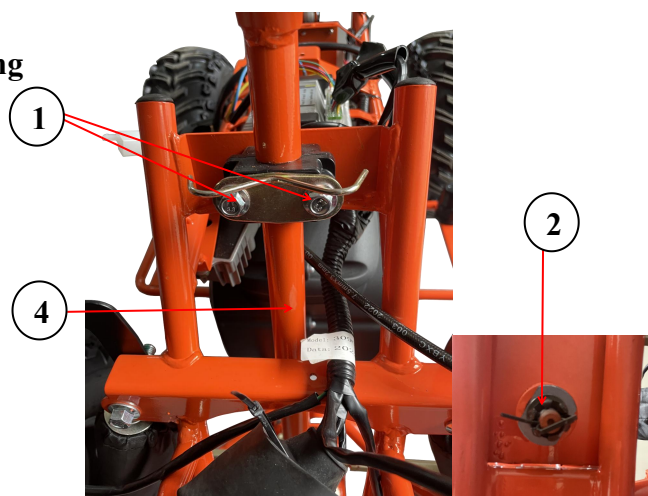
Remove the main plastic part (→ 2.4.1)

Remove the two nuts 1

Remove the slotted nut 2 under the steering column

Remove the two nuts 3

Remove the steering column 4



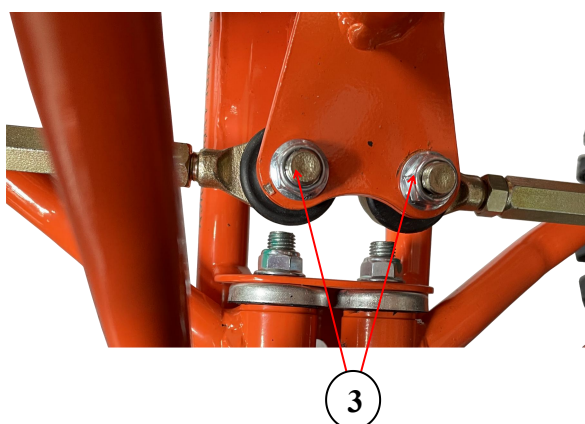
### Installation

Installation is carried out in reverse order of removal

### Installation

Installation is carried out in reverse order of removal

**Attention :** When installing the split pin, replace it with a new one; After installation, it is necessary to check whether the steering flexibility and left and right steering angles are the same



## 6.7 Rear suspension system

### Remove the rear shock absorber

#### Disassembly

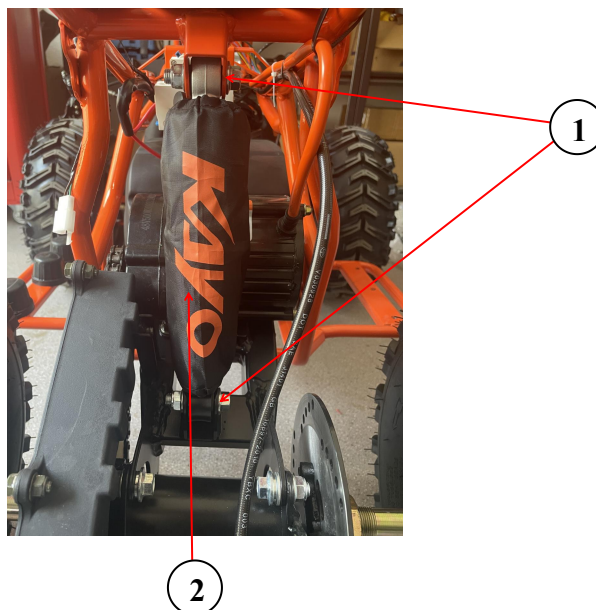
When repairing the suspension system, the vehicle body should be suspended first and the suspension system should be removed, otherwise the vehicle body will fall down due to lack of support

Park the vehicle on a level surface and use a jack to firmly support the rear of the vehicle

Remove the rear wheel (→ 6.3)

Remove the screw 1

Remove the rear shock absorber 2



#### Installation

Installation is carried out in reverse order of removal

### Removal of rear flat fork assembly

#### Disassembly

Remove the motor plug-in (→ 1.7)

Remove the rear shock absorber (→ 6.7)

Remove the motor (→ 4.3)

Remove the rear wheel (→ 6.3)

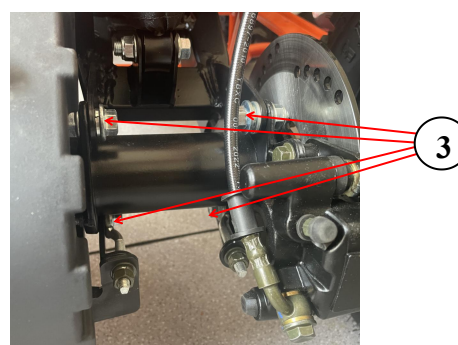
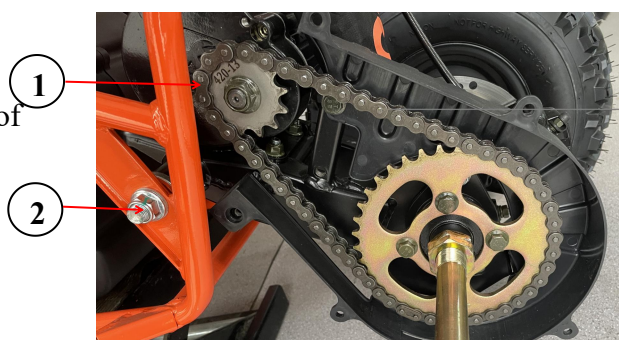
Remove the chain cover (→ 2.5.2)

Remove the chain 1

Remove the nut 2

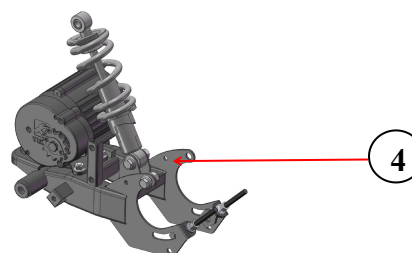
Remove the bolt 3

Remove the rear flat fork assembly 4



#### Installation

Installation is carried out in reverse order of removal





## 6.8 Disassembly and assembly of

### rear axle assembly

#### Disassembly

Before removing the rear transmission shaft, the vehicle body should be suspended in the air, otherwise the vehicle body will fall down due to lack of support at the rear of the vehicle

Park the vehicle on a level surface and use a jack to firmly support the rear of the vehicle before starting work

Remove the rear wheel (→ 6.3)

Remove the chain cover (→ 2.5.2)

Remove the shock absorber (→ 6.7)

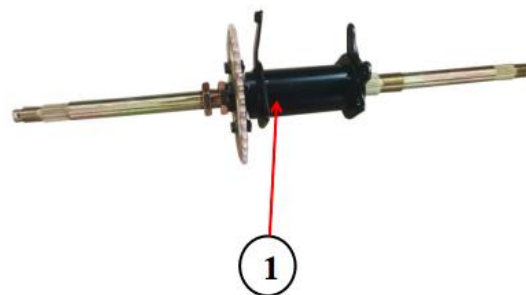
Remove the motor (→ 4.3)

Remove the transmission chain

Remove the brake caliper (→ 6.4)

Remove the connecting bolts between the flat fork assembly and the frame (→ 6.7)

Remove the rear transmission shaft assembly 1

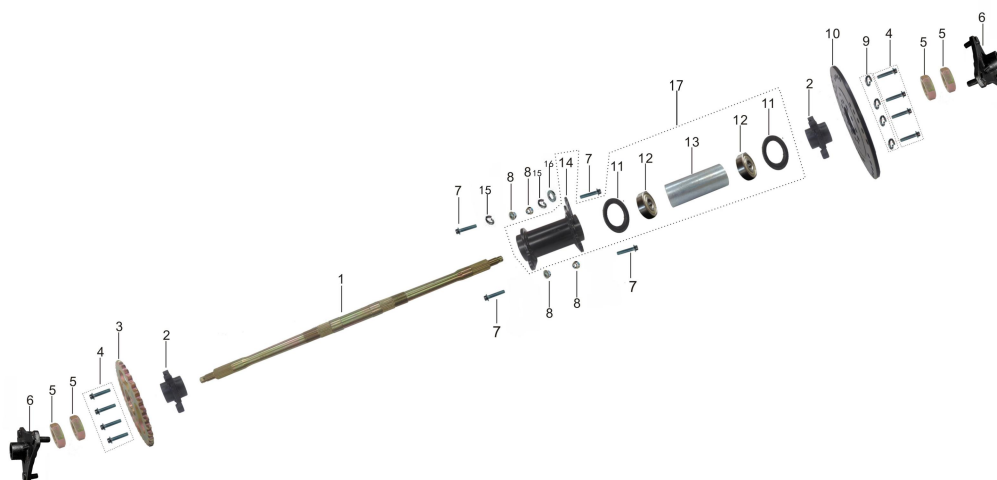


#### Installation

Installation is carried out in reverse order of removal

## Inspection

The exploded diagram of the rear transmission shaft assembly is as follows



| Number | Name                                   | Quantity | Number | Name                  | Quantity |
|--------|----------------------------------------|----------|--------|-----------------------|----------|
| 1      | Rear wheel axle                        | 1        | 10     | Rear disc brake disc  | 1        |
| 2      | Disc brake disc holder                 | 2        | 11     | Oil seal              | 2        |
| 3      | Steel rear sprocket                    | 1        | 12     | Bearing               | 2        |
| 4      | Outer hexagonal large head flange bolt | 8        | 13     | Rear axle inner liner | 1        |
| 5      | Thin nut                               | 4        | 14     | Rear axle assembly    | 1        |
| 6      | Rear hub flange                        | 2        | 15     | Spring pad GB93-87    | 2        |
| 7      | Outer hexagonal small head flange bolt | 4        | 16     | Flat gasket GB97.1-85 | 1        |
| 8      | Hexagon flange self-locking nut        | 4        | 17     | Rear axle assembly    | 1        |
| 9      | Spring pad GB93-87                     | 4        |        |                       |          |

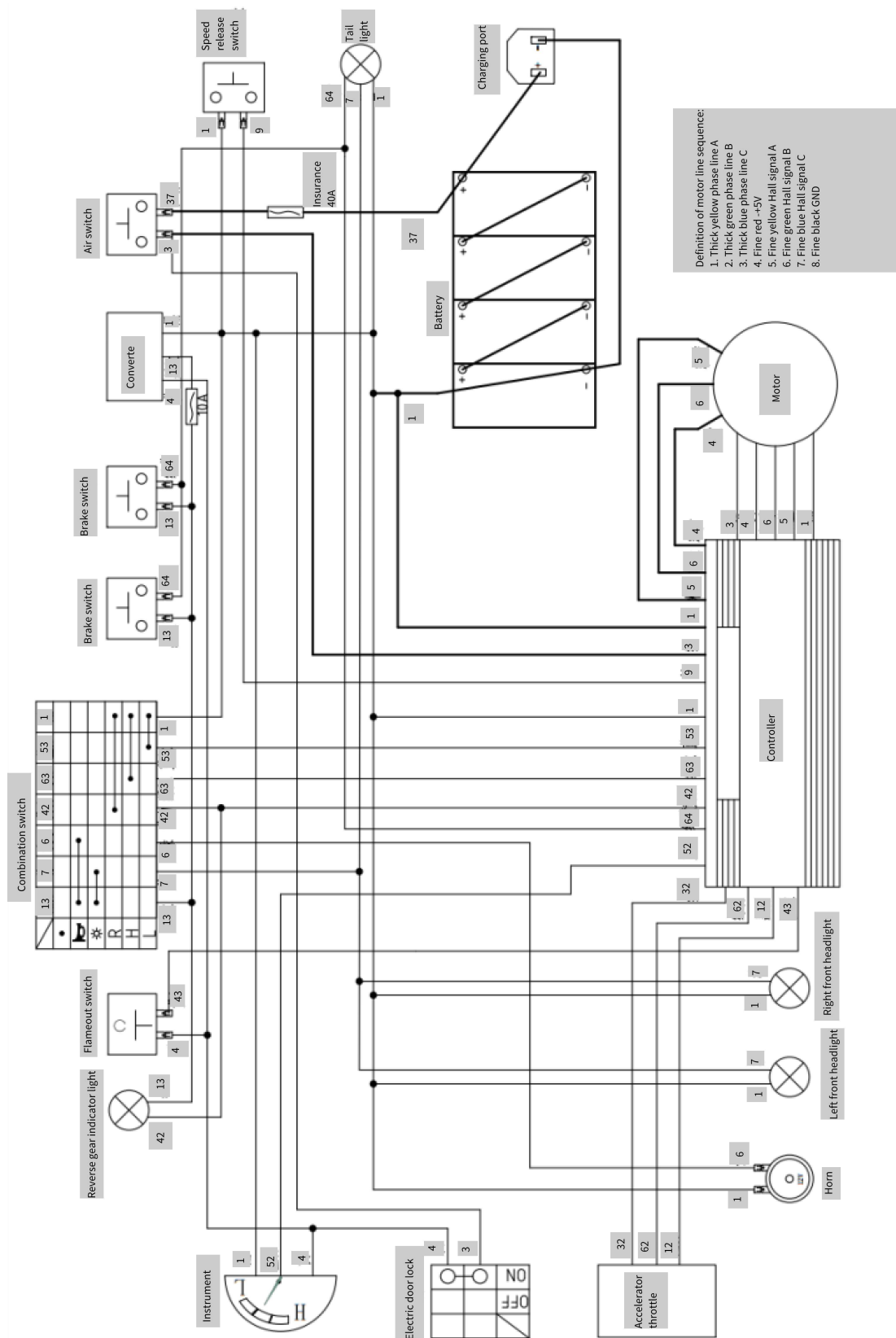
Inspection after disassembly of the rear transmission shaft

- Check if the rear wheel hub is damaged. If it is damaged, replace it with a new one
- Check the thickness of the disc brake disc. If the disc brake disc thickness is  $\leq 2.5\text{mm}$ , it should be replaced with a new disc brake disc
- Check if the rear transmission shaft is bent or damaged, and if so, replace it with a new transmission shaft
- Check if the other parts are damaged, and if there is any damage, replace them with new ones

## Installation

Proceed in the reverse order of disassembling the rear drive shaft

# Appendix



1 black, 2 white, 3 red, 4 yellow, 5 blue, 6 green, 7 brown, 8 orange, 9 pink, 10 gray, 11, purple