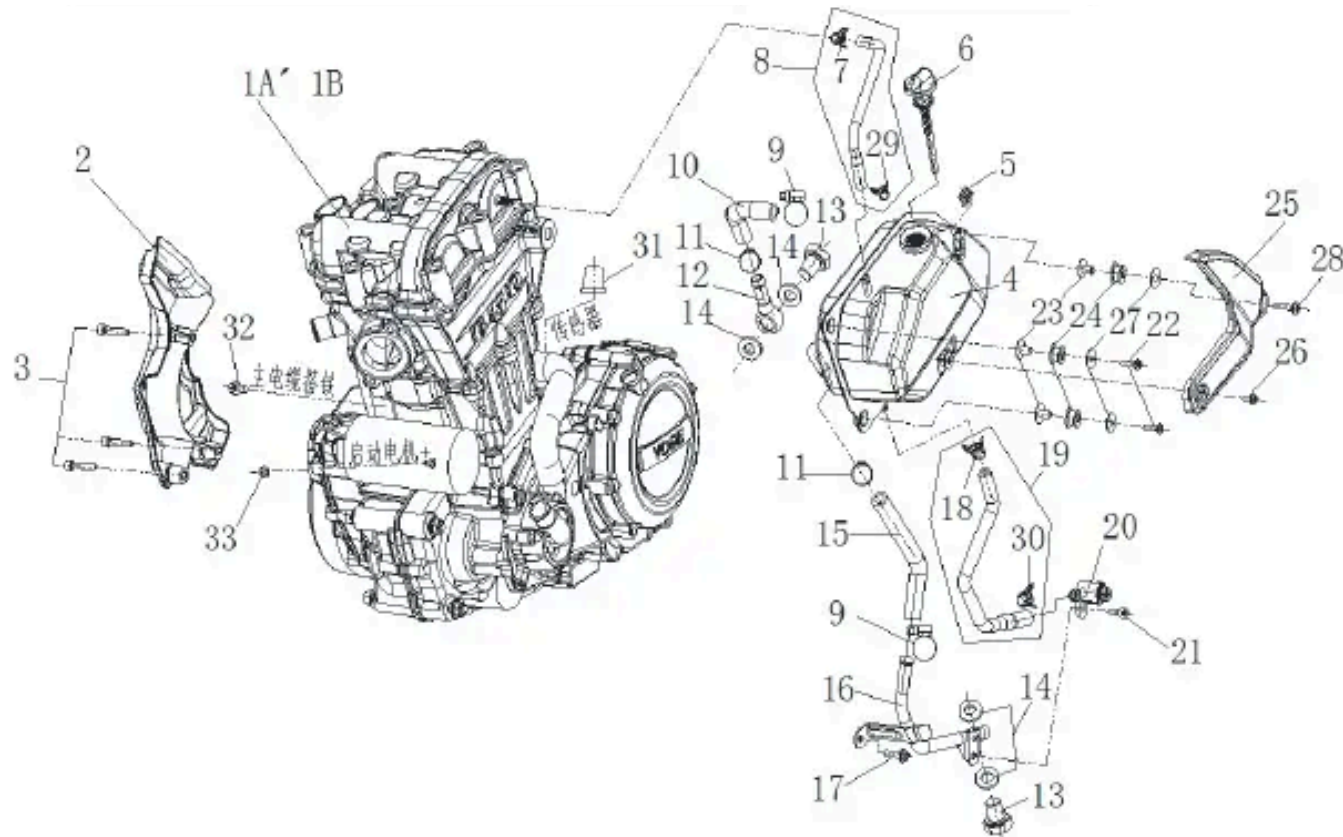


# **650 Series Service Manual (R8100)**

**2021.10**

# The disassembly, re-assembly and maintenance for engine

## Engine set and parts



|    |                       |     |   |
|----|-----------------------|-----|---|
| 1  | Engine                | PCS | 1 |
| 2  | Left rear cover       | PCS | 1 |
| 3  | Hexagon socket screw  | PCS | 3 |
| 4  | Oil case              | PCS | 1 |
| 5  | Damping rubber jacket | PCS | 1 |
| 6  | Oil gauge             | PCS | 1 |
| 7  | Clamp                 | PCS | 1 |
| 8  | Oil tube              | PCS | 1 |
| 9  | Clamp set             | PCS | 2 |
| 10 | Oil tube              | PCS | 1 |
| 11 | Clamp                 | PCS | 2 |
| 12 | Oil tube              | PCS | 1 |
| 13 | Tube joint bolt       | PCS | 2 |
| 14 | Flat washer           | PCS | 4 |
| 15 | Oil tube              | PCS | 1 |
| 16 | Oil tube              | PCS | 1 |
| 17 | Hexagon flange bolt   | PCS | 1 |
| 18 | Tube clamp            | PCS | 1 |



Disconnect the throttle cable and remove the throttle valve 7.

Disconnect all the wire joints connecting connects to engine.

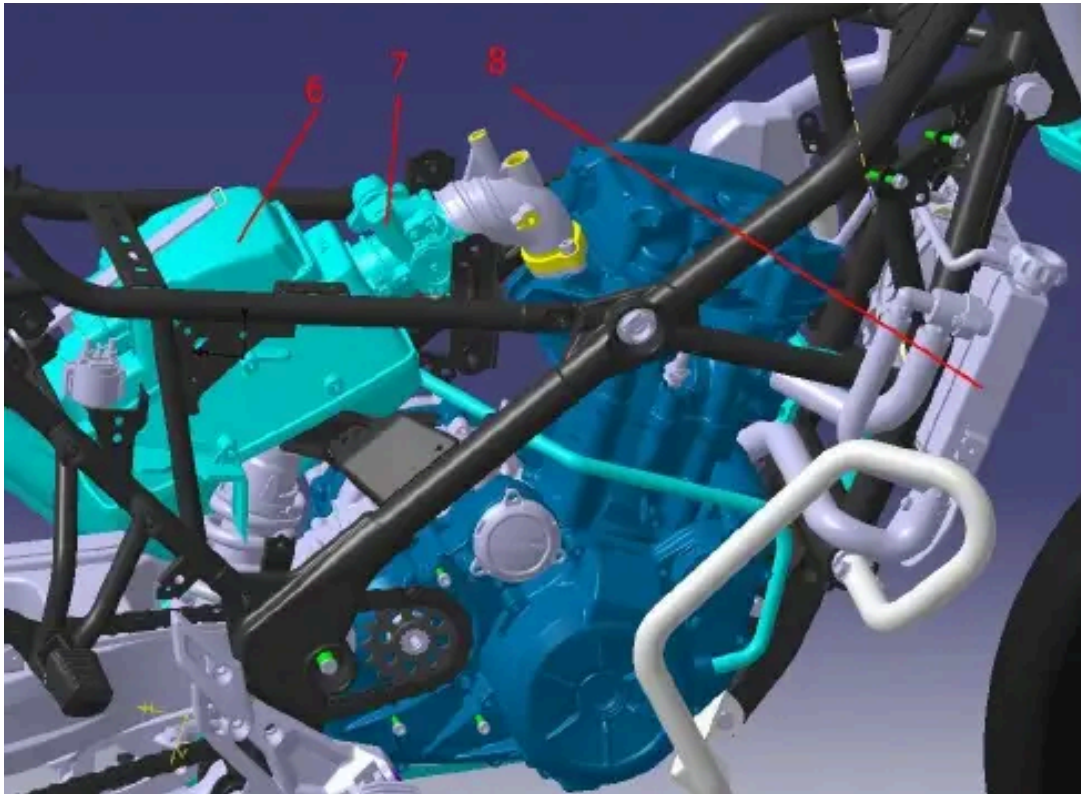
Refer to the coolant replacement and drain off the coolant in cooling system.

Disconnect all the pipeline of cooling system connects to engine.

Disconnect the clutch cable.

Remove all the connecting bolts between frame and engine one after another, finally remove the engine set.

The re-assembly is exactly opposite to disassembly.



**Caution**□

Removing the engine must adopt specialized tools to avoid injury due to heavy engine

**Important**□

Drain off the coolant in environment friendly way.

Please refer to the related chapters when refilling-up the coolant.

Recover the binding tapes for wires to the same before disassembly, take moisture-proof, interference and heat damage into consideration.

**Parameters**□

|                                      |     |     |    |
|--------------------------------------|-----|-----|----|
| Front and upper fastening bolt       | N.m | M10 | 60 |
| Front and middle fastening bolt      | N.m | M10 | 50 |
| Front and lower fastening bolt       | N.m | M10 | 50 |
| Rear and lower fastening bolt        | N.m | M10 | 50 |
| Left and upper fastening bolt        | N.m | M10 | 50 |
| Right and upper fastening bolt       | N.m | M10 | 50 |
| Fastening bolt for covering parts    | N.m | M6  | 6  |
| Fastening for engine left rear cover | N.m | M6  | 9  |

## Replace the engine oil

Replace the engine oil each maintenance period.

Drain off the oil when it is hot for complete draining.

The replacement way:

Keep the motorcycle upright by its main stand.

Lay the oil tray under oil drainage bolt □ on the bottom of engine.

Connect the oil guiding tube □ in tool box to the end □ of oil drainage switch on oil case, and put the end of oil guiding tube above oil tray.

Remove the oil gauge□ .

Remove the oil drainage bolt □ by tools, then open the oil drainage switch □ , and drain the old oil off.

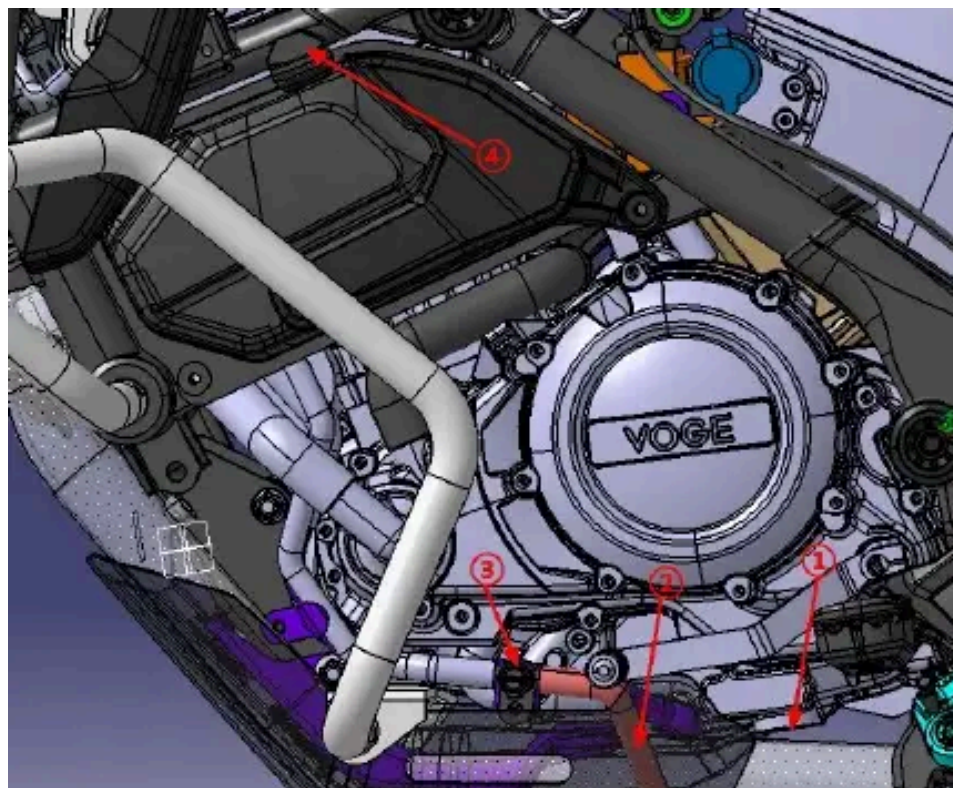
Replace the copper washer of oil drainage bolt □ matching with engine, re-assemble the drainage bolt □ by tools and then close down the drainage switch □ .

Fill up the oil by 1.8L into oil case.

Re-assemble the oil gauge □ , then operate according to chapter Air exhaust for engine oil pipeline.

Remove the oil gauge □ , fill oil again by 0.3L.

Re-assemble the oil gauge □ .



### Caution□

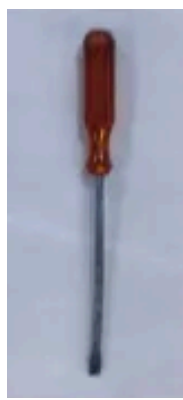
When the engine is hot, you can totally drain the oil off, but the hot oil and muffler may get you injury, so do this work when the drainage bolt and muffler basically cooled down.

### Air exhaust for oil pipeline of engine

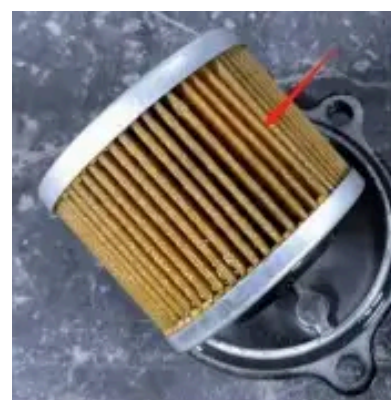
After new oil filled up, because it hasn't entered the engine pipeline, so it is easy to lead engine damage, under this case, please don't start engine immediately! We must make air exhaust in oil pipeline first, then it could be normally started.

This work needs the tools below□

The T-socket wrench of 8mm, screwdriver, the disassembly tools for spark plug only, and the torque wrench above 30N.m



Remove the oil filter, make normal maintenance and disassembly or re-assembly for engine, after re-filled up the oil, remove the oil filter

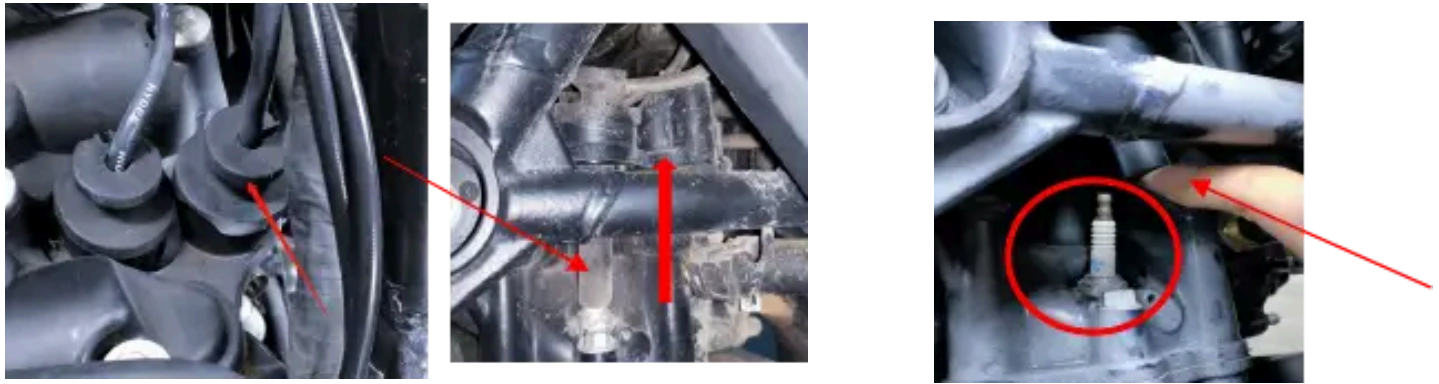


Remove the one-way valve of oil pipeline, loosen the one-way valve (As arrow show) by screwdriver and torque wrench, then remove the valve and lay it aside wait for using;

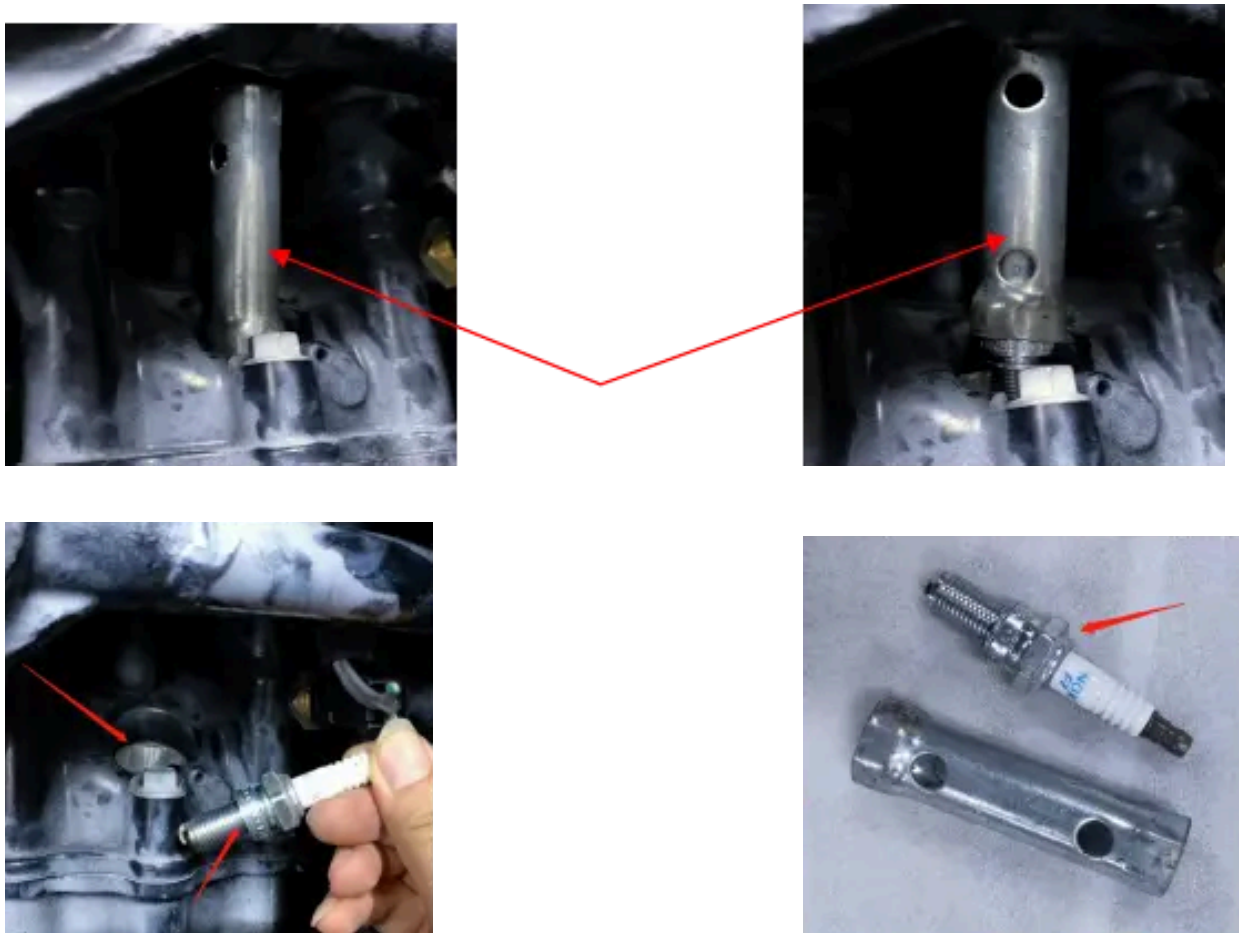


Remove the ignition coil, slightly lift up the outside ignition coil (At the arrow place, at the right

and outside of motorcycle, after the ignition coil removed, lay it as picture □ shows to let spark plug could be seen;



Remove the spark plug, loosen the spark plug (The arrow) by the tools for it only, then remove it and lay it aside wait for using;



Cut off the kill switch as picture □ shows



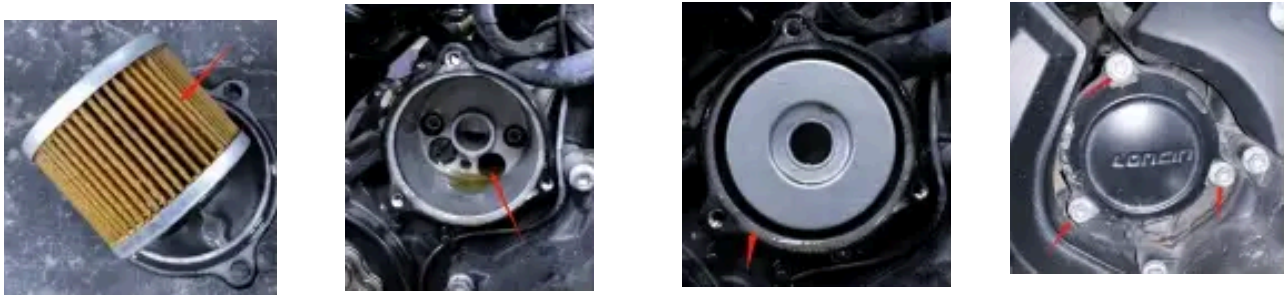
Start the engine when the kill switch is cutting off, repeatedly press the starting button till the oil flow out from one-way valve (As the arrow in picture □);



Re-assemble the one-way valve by screwdriver and fasten by torque wrench, with torque of 24N.m;



Re-assemble the oil filter, remove the filter and install to its corresponding plate in engine as picture 9-□□9-□ shows; then install 3 screws on filter cover by socket wrench of 8mm, then fasten by torque wrench with torque of 10N.m;



Start engine when the kill switch is off, repeatedly press the starting button till the oil from pipeline return to oil pot along its inner wall, then stop pressing as picture □ shows;



Starting

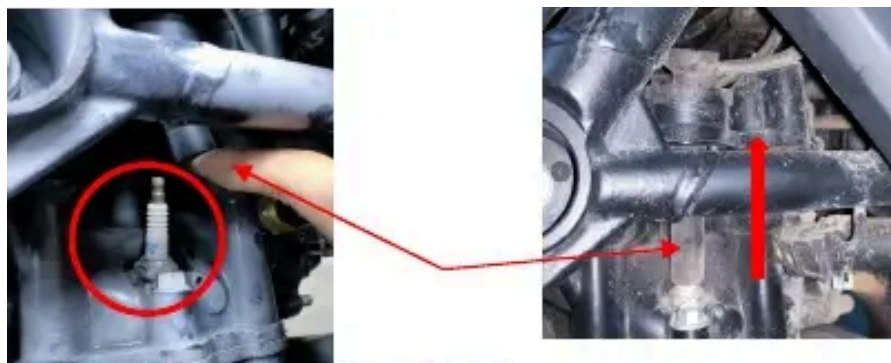
No oil on inner wall

Oil flow on inner wall

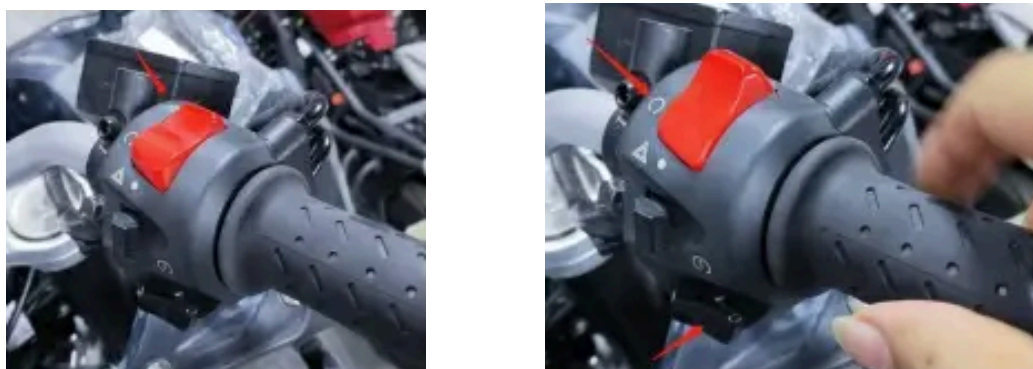
Re-assembly for spark plug, remove the spark plug and turn it into engine as picture □□□;  
Install the spark plug by tools for it only and fasten by torque wrench with torque of 17N.m;



Re-assemble the ignition coil, draw the ignition coil outside and install into engine; Press the ignition coil downwards (Make sure install it in place);



Normally start the engine and turn the ignition switch on as picture □ shows, after the engine ran for 2-3 minutes, turn it off to check the levels of oil and coolant, fill up if it is necessary.



Starting button

At the moment, the air exhaust in oil pipeline finished, the motorcycle could be normally used.

### Check the oil level□

Keep the motorcycle upright by its main stand.

Start the engine and keep idling for 30 seconds then turn off the ignition switch.

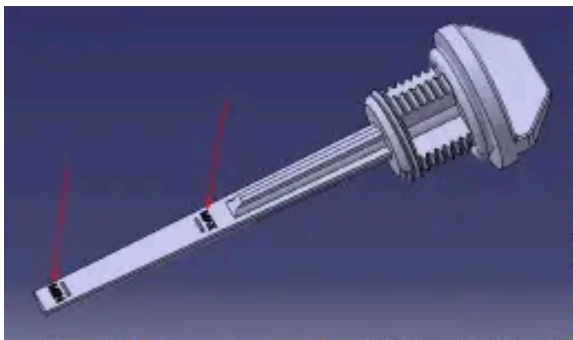
Remove the oil gauge and wipe it up by cotton cloth.

Lay it for 1 minute, re-assemble the oil gauge in place.

Remove the oil gauge to check if the oil trace is within scale line max and min.

In case there is no oil trace or under scale line min, fill up the oil and check again the level.

In case the trace is above max, outlet some oil through drainage bolt and check again the level.



**Caution**

In case the oil trace is above scale line max, absorb or extract some oil from the filling up port is another way.

**Important**

After filled up the oil, start the engine and keep idling for 30 seconds, then lay it aside for 1 minute to check again the oil level.

This work could be done only when the motorcycle is upright, otherwise the judgement for oil level won't be correct.

**Parameters**

|                     |                                                                                                                                                                  |     |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Engine oil capacity | L                                                                                                                                                                | 2.1 |
| Oil specification   | Engine oil we suggest SG15W-40<br>API quality grade SG or higher Round label of API energy saving is not allowed<br>JASO T903 Standard MA<br>Viscosity SAE15W-40 |     |

**Replace the oil filter**

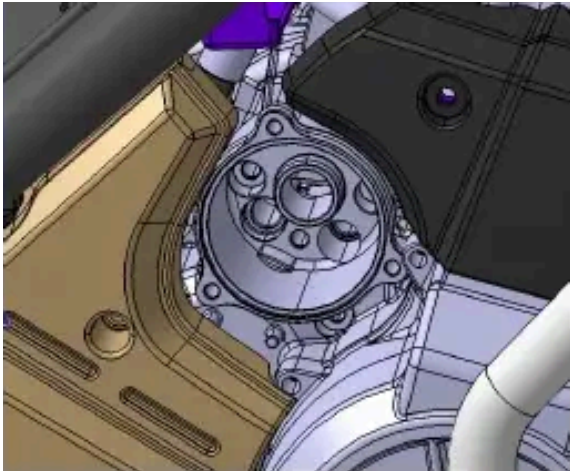
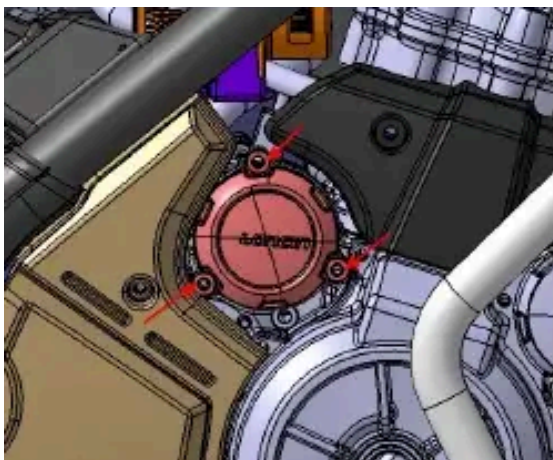
Keep the motorcycle upright by its main stand.

Lay the oil tray under the oil filter at the right side of engine.

Remove the oil filter cover by tools, remove the cover and drain off the oil.

Install the new oil filter and assemble its cover.

The re-assembly is exactly opposite to disassembly.



**Caution**□

After the work above finished, clean up the engine surface by cleanser, then dry it up by compression air.

**Important**□

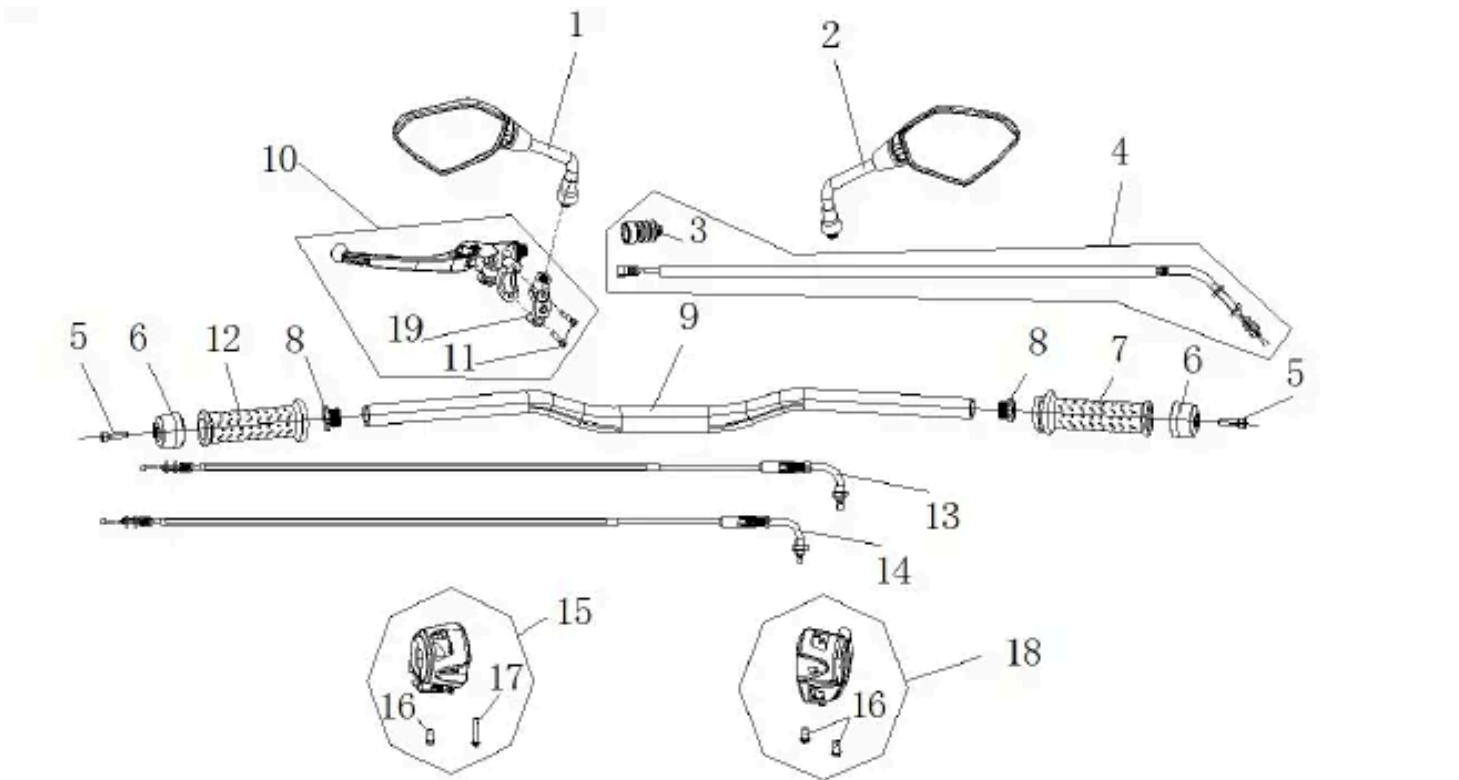
The replaced old oil and filter must be disposed in environment friendly way.

**Parameter**□

|                          |     |    |
|--------------------------|-----|----|
| Bolt of oil filter cover | N.m | 10 |
|--------------------------|-----|----|

# The disassembly, re-assembly and maintenance for handle bar set

The handle bar set and its parts



|    |                             |     |   |
|----|-----------------------------|-----|---|
| 1  | Left back-view mirror       | PCS | 1 |
| 2  | Right back-view mirror      | PCS | 1 |
| 3  | Clutch cable jacket         | PCS | 1 |
| 4  | Clutch cable                | PCS | 1 |
| 5  | Hexagon socket screw        | PCS | 2 |
| 6  | Decorative weight           | PCS | 2 |
| 7  | Accelerator                 | PCS | 1 |
| 8  | Handle bar balancing weight | PCS | 2 |
| 9  | Handle bar                  | PCS | 1 |
| 10 | Left lever set              | PCS | 1 |
| 11 | Hexagon socket screw        | PCS | 2 |
| 12 | Rubber grip                 | PCS | 1 |
| 13 | Throttle cable              | PCS | 1 |
| 14 | Throttle cable              | PCS | 1 |
| 15 | Left switch assy.           | PCS | 1 |
| 16 | Cross head screw            | PCS | 3 |
| 17 | Cross head screw            | PCS | 1 |
| 18 | Right switch assy.          | PCS | 1 |
| 19 | ABS switch                  | PCS | 1 |

## The disassembly and re-assembly for handle bar set

Keep the motorcycle upright by main stand.

Remove the clutch arm after loosened the bolt, then loosen the clutch cable.

Put aside the clutch jacket 3, remove its head, in case no need replace the clutch cable, the clutch cable 4 is no necessary to be removed.

Remove the left lever set 10.

Remove the left and right back-view mirror.

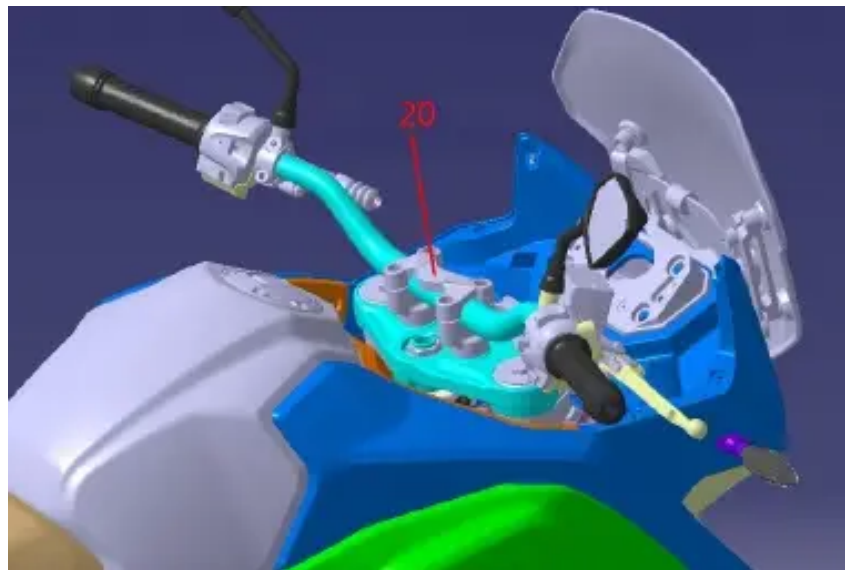
Remove the decorative weight 6 after bolt 5 removed.

Remove the balancing weight 8 of handle bar.

Remove the left switch assy. 15 and the right one of 18.

Remove the handle bar clips 20, then remove handle bar 9.

The re-assembly is exactly opposite to disassembly.



### Caution:

When re-assembling the left and right switch assy., align the positioning pin on switch assy. to the corresponding installation hole, then lock up the bolt on switch assy.

When re-assembling the right switch assy., pay attention to the correct installation of throttle cable into case of right switch ass., otherwise it may get jamming.

### Important:

Confirm the turning clearance of clutch lever and accelerator after re-assembled.

Confirm the correct angle of handle bar after re-assembled, which could be turned to left and right limit position, also check if there is interference between handle bar and surrounding parts of cables and fuel tank, make sure if it is necessary to adjust, otherwise it is dangerous.

Adjust again the angle of back-view mirrors after they re-assembled, confirm the correct and safe range of back viewing.

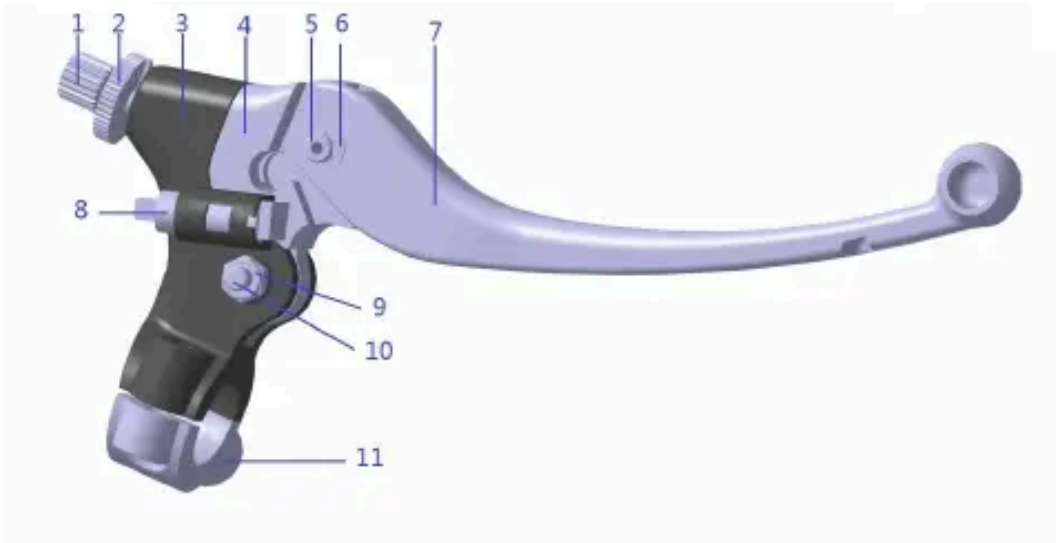
The free travel of end surface of clutch lever must be the same with figure required,

otherwise it may lead to incomplete separation of clutch even damage the engine.

Parameters:

|                                                  |    |    |     |    |
|--------------------------------------------------|----|----|-----|----|
| Fastening torque of handle bar clips             | Nm | M8 | 18  |    |
| Fastening torque of left lever set               |    | Nm | M6  | 9  |
| Fastening torque of handle bar decorative weight |    | Nm | M6  | 9  |
| Fastening torque of handle bar balancing weight  |    | Nm | M16 | 25 |
| Fastening torque of back-view mirrors            |    | Nm | M10 | 25 |
| Fastening bolt on left and right switch assy.    |    | Nm | M5  | 6  |
| Nut fastening of throttle valve and cable        |    | Nm | M5  | 6  |
| Nut fastening of throttle valve and cable        |    | Nm | M5  | 6  |

The disassembly and re-assembly for left lever set



|    |                                     |     |   |
|----|-------------------------------------|-----|---|
| 1  | Lever adjusting screw               | PCS | 1 |
| 2  | Lever adjusting nut                 | PCS | 1 |
| 3  | Lever base of left lever            | PCS | 1 |
| 4  | Adjusting base of left lever        | PCS | 1 |
| 5  | Pin axis                            | PCS | 1 |
| 6  | Circlip                             | PCS | 1 |
| 7  | Left lever rod                      | PCS | 1 |
| 8  | Clutch switch                       | PCS | 1 |
| 9  | Hexagon locking nut of non inserted | PCS | 1 |
| 10 | Connective bolt                     | PCS | 1 |
| 11 | Left lever clip                     | PCS | 1 |

Important:

When re-assembling the left lever set, coat lithium lubricant with each turning set.

After re-assembled the clutch switch, repeatedly confirm if it is installed in place,

and confirm it on motorcycle for the on and off of clutch switch.

### **The disassembly and re-assembly for throttle cable**

Refer to the chapter of disassembly and re-assembly for fuel tank, then remove the fuel tank.

Loosen the nut, turn the cable tray and remove the lower ends of 2 throttle cables.

Remove the right switch assy. on handle bar, then remove the upper ends of 2 throttle cables, then totally remove the throttle cables.

Replace for new cables with same specification.

The re-assembly is exactly opposite to disassembly.



#### **Caution:**

Pay attention to the wiring direction of cable when re-assembling the throttle cable, which keep the same with it before disassembling, otherwise there will be problems on throttle returning.

Repeatedly confirm the normal installation by turning accelerator after re-assembled, confirm if there is jamming or failed return.

### **The disassembly and re-assembly for clutch cable**

Refer to the chapter of disassembly and re-assembly for fuel tank, then remove the fuel tank.

Replace for new clutch cable with same specification.

The re-assembly is exactly opposite to disassembly.



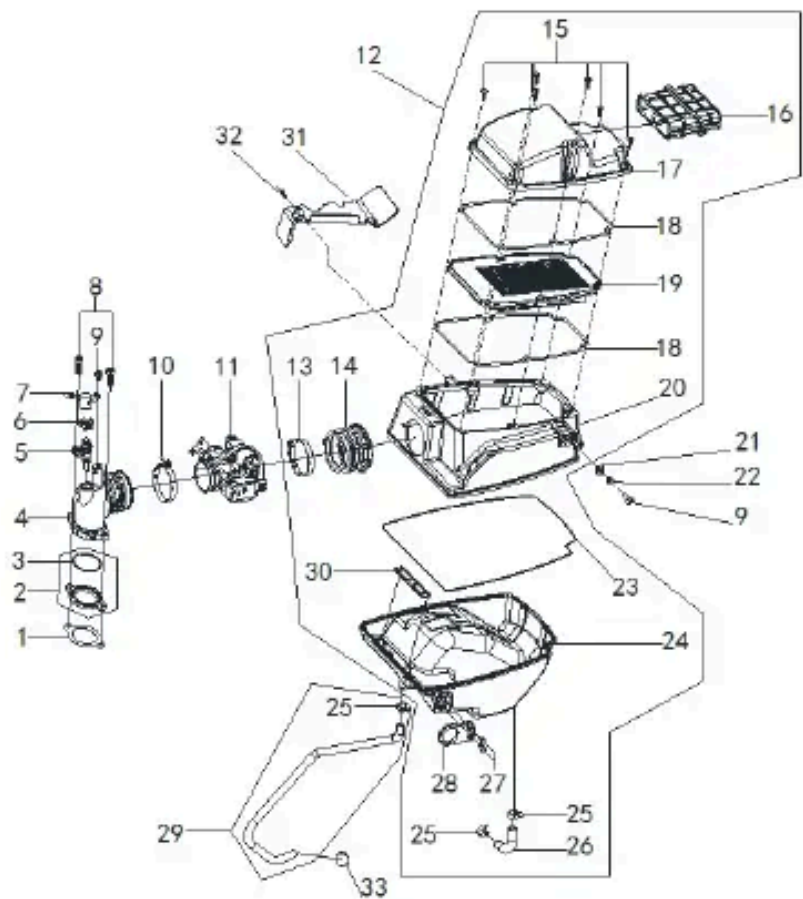
**Caution:**

Pay attention to the wiring direction of cable when re-assembling the clutch cable, which keep the same with it before disassembling, otherwise there will be problems on clutch returning.

Repeatedly confirm the normal installation by holding tight and releasing clutch lever after re-assembled, confirm if there is jamming or failed return.

# The disassembly, re-assembly and maintenance for air filter

## The air filter set and its parts



|    |                               |     |   |
|----|-------------------------------|-----|---|
| 1  | Carburetor gasket             | PCS | 1 |
| 2  | Carburetor heat proof sheet   | PCS | 1 |
| 3  | Seal ring                     | PCS | 1 |
| 4  | Air inlet tube                | PCS | 1 |
| 5  | Fuel injector                 | PCS | 1 |
| 6  | Fuel injector clamp           | PCS | 1 |
| 7  | Fuel injector cap             | PCS | 1 |
| 8  | Hexagon socket screw          | PCS | 2 |
| 9  | Hexagon flange bolt           | PCS | 2 |
| 10 | Clamp set                     | PCS | 1 |
| 11 | Throttle valve set            | PCS | 1 |
| 12 | Air filter                    | PCS | 1 |
| 13 | Clamp set                     | PCS | 1 |
| 14 | Air filter connecting tube    | PCS | 1 |
| 15 | Cross head self-tapping screw | PCS | 6 |
| 16 | Air filter inlet tube         | PCS | 1 |
| 17 | Air filter case cover         | PCS | 1 |
| 18 | Air filter seal strip         | PCS | 2 |

|    |                                     |     |   |
|----|-------------------------------------|-----|---|
| 19 | Air filter element set              | PCS | 1 |
| 20 | Air filter case 2                   | PCS | 1 |
| 21 | Clip nut                            | PCS | 1 |
| 22 | Collar                              | PCS | 1 |
| 23 | Air filter thermal lining plate     | PCS | 1 |
| 24 | Air filter case                     | PCS | 1 |
| 25 | Tube clamp                          | PCS | 4 |
| 26 | Overflow tube                       | PCS | 1 |
| 27 | Cross head self-tapping screw       | PCS | 2 |
| 28 | Air filter front installation base  | PCS | 1 |
| 29 | Breathing tube                      | PCS | 1 |
| 30 | Waste gas circulation chamber cover | PCS | 1 |
| 31 | Inlet port protective cover         | PCS | 1 |
| 32 | Cross head self-tapping screw       | PCS | 1 |
| 33 | Clamp                               | PCS | 1 |

### The disassembly and re-assembly for air filter element

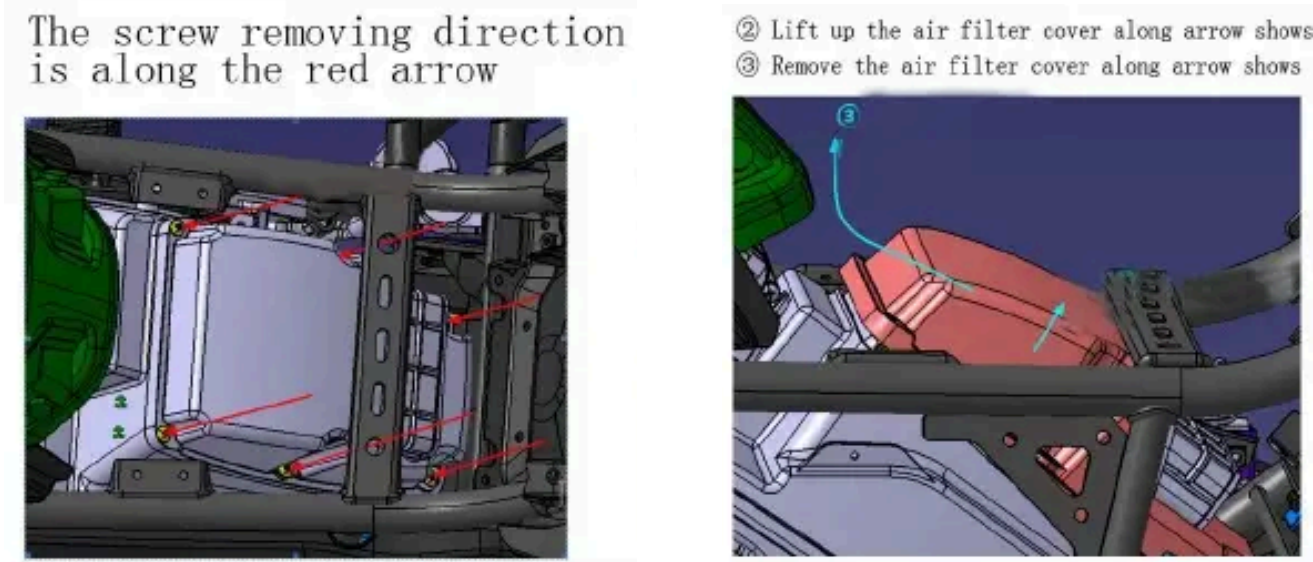
Keep the motorcycle upright by its main stand.

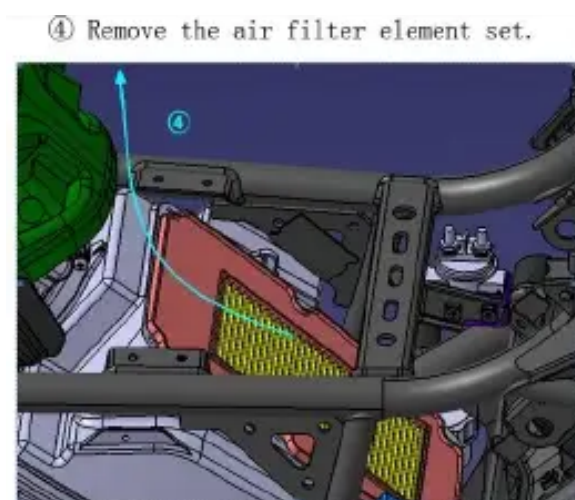
Open the seat lock by key, remove the driver and passenger seats.

Remove the battery.

Remove the 6 self-tapping screws on upper cover of air filter by longer screwdriver, remove the cover and finally remove the element set.

The re-assembly is exactly opposite to disassembly.





### Important:

Turn off the ignition switch when removing the battery.

Confirm the seal rings are assembled in place when re-assembling the element set, otherwise the sealing of element won't be tight, the dust may get in and make engine work life shorter.

The positive and negative terminals must be fastened in place when re-assembling the battery, otherwise the poor connection may lead to malfunction on motorcycle.

In case there is damage on element, please replace.

In case there is greasy dirt on element, please replace.

In case the element is wet, please replace.

Deal with the replaced old element in environment friendly way.

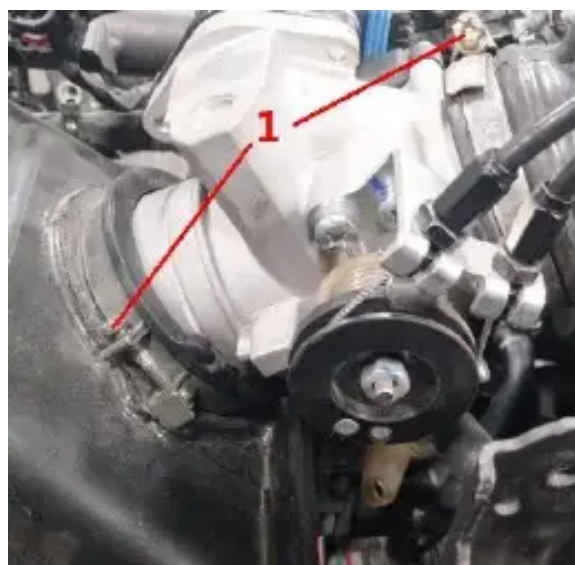
### Parameters

|                                                |       |     |   |
|------------------------------------------------|-------|-----|---|
| Bolt torque for battery terminals              | M6    | N.m | 6 |
| Fastening torque for screw on air filter cover | ST4.8 | N.m | 2 |

### The disassembly and re-assembly for throttle valve body

Remove the throttle valve body and air filter, and the bolts on throttle valve and clamp set of air inlet tube, finally remove the throttle valve body.

The re-assembly is exactly opposite to disassembly.



**Important:**

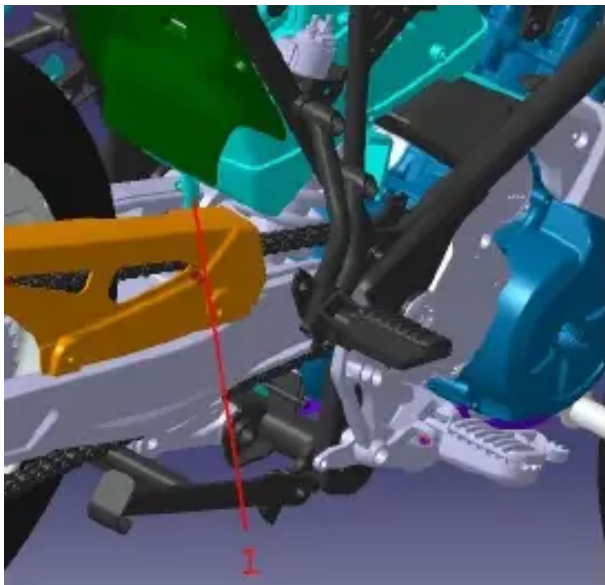
Repeatedly confirm the sealing parts between throttle valve set and air filter case are installed in place, otherwise the dust may get into engine and make damage on engine.

**Parameters**

|                                                                 |       |    |   |
|-----------------------------------------------------------------|-------|----|---|
| Fastening torque between the left and right air filter case     | ST4.8 | Nm | 2 |
| Fastening torque between air filter case and throttle valve set | M5    | Nm | 6 |

**Clean up the oil buildup in overflow tube of air filter**

Lay a oil tray under the overflow tube at rear place of engine.  
Loosen the tube clamp, remove the plug of overflow tube, drain off the mixture of oil and water gathering in air filter.  
The re-assembly is exactly opposite to disassembly.

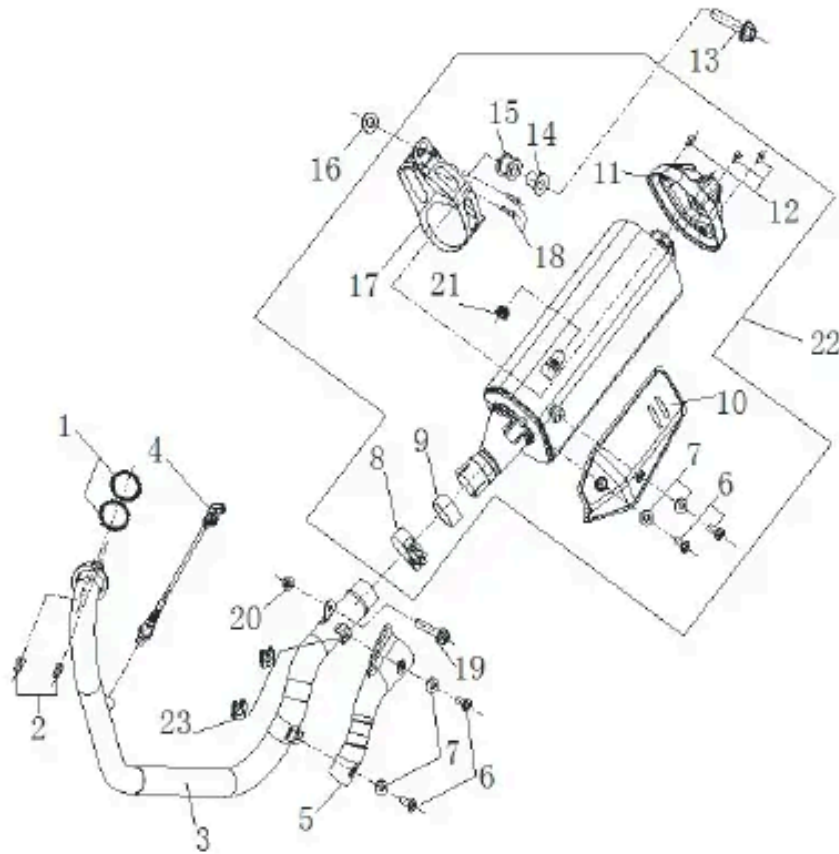


**Important:**

Too much the mixture of water and oil in air filter may damage its element, so timely drain off is necessary.  
The drained waste oil must be dealt in environment friendly way.

# The disassembly, re-assembly and maintenance for air exhaust set

## The air exhaust set and its parts



|    |                           |     |   |
|----|---------------------------|-----|---|
| 1  | Exhaust port gasket       | PCS | 2 |
| 2  | Cap-shaped nut            | PCS | 2 |
| 3  | Exhaust pipe welding set  | PCS | 1 |
| 4  | Oxygen sensor             | PCS | 1 |
| 5  | Exhaust pipe shield       | PCS | 1 |
| 6  | Hexagon socket screw      | PCS | 4 |
| 7  | Flat washer               | PCS | 4 |
| 8  | Muffler connective jacket | PCS | 1 |
| 9  | Graphite ring             | PCS | 1 |
| 10 | Muffler shield cover      | PCS | 1 |
| 11 | Muffler rear end cover    | PCS | 1 |
| 12 | Hexagon socket screw      | PCS | 3 |
| 13 | Hexagon flange bolt       | PCS | 1 |
| 14 | Flange washer             | PCS | 1 |
| 15 | I-ring                    | PCS | 1 |
| 16 | Flat washer               | PCS | 1 |
| 17 | Muffler connective jacket | PCS | 1 |

|     |                            |     |   |
|-----|----------------------------|-----|---|
| 18  | Hexagon socket screw       | PCS | 2 |
| 19  | Hexagon flange bolt        | PCS | 1 |
| 20  | Hexagon flange bolt        | PCS | 1 |
| 21  | Hexagon flange bolt        | PCS | 1 |
| 22A | Muffler rear part (Common) | PCS | 1 |
| 22B | Muffler rear part (Euro V) | PCS | 1 |
| 23  | Clip nut                   | PCS | 2 |

## Disassembly and re-assembly for muffler

Keep the motorcycle upright by its main stand.

Remove the bolt 1 and 4 by tools, then loosen the bolt 3 or connective jacket, then remove the rear part 2 of muffler.

Remove the graphite ring on the rear part of muffler by tools, and check if the ring damaged, otherwise it is unnecessary to remove.

Remove the bolt 6 by tools, then remove the exhaust pipe shield cover 7.

Remove the engine protective plate 9, then the fuel tank protective plate 12.

Remove the wire joint of oxygen sensor.

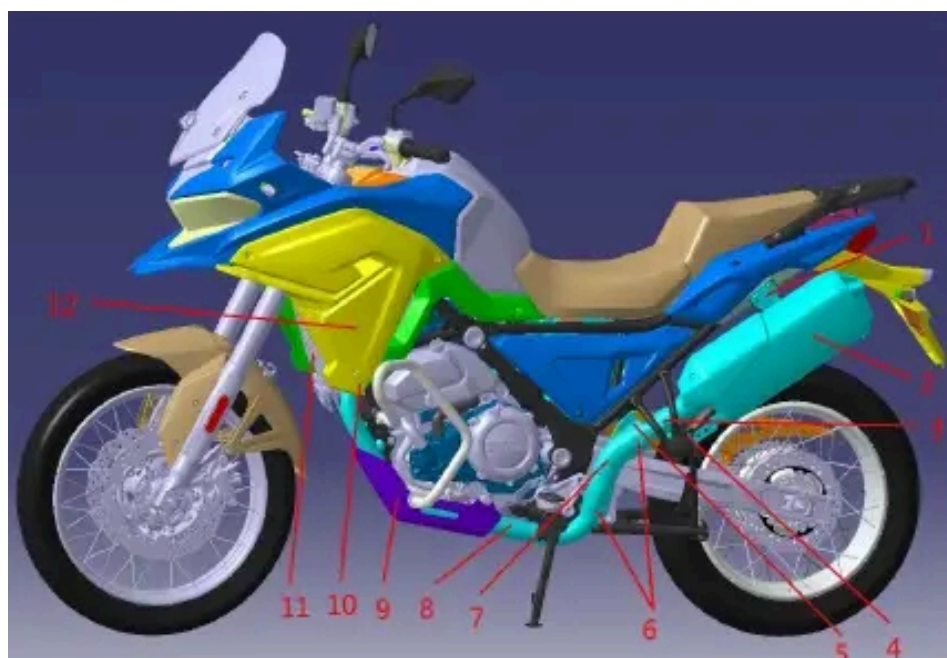
Remove the heat radiator 11.

Remove bolt 5 and exhaust port 10, then remove the muffler front part 8.

Remove the oxygen sensor.

Remove the exhaust port gasket.

The re-assembly is exactly opposite to disassembly.



### Caution:

In case it is unnecessary, please don't remove the graphite ring at connecting position for sealing the front and rear part of muffler, because remove the graphite ring may damage it.

### Important:

Pay attention to the damage on graphite ring when re-assembling, in case it is bad for sealing

and please replace.

Replace the exhaust port gasket when re-assembling muffler front part, otherwise the used gasket is poor in sealing.

Fasten the nut at exhaust port first, then the installation bolt at rear when re-assembling the muffler front part.

Remove the muffler when it cooled down to avoid scald.

There is steel wire in graphite ring, please avoid injury when replacing.

Start the motorcycle after re-assembled to check the air leakage at sealing position.

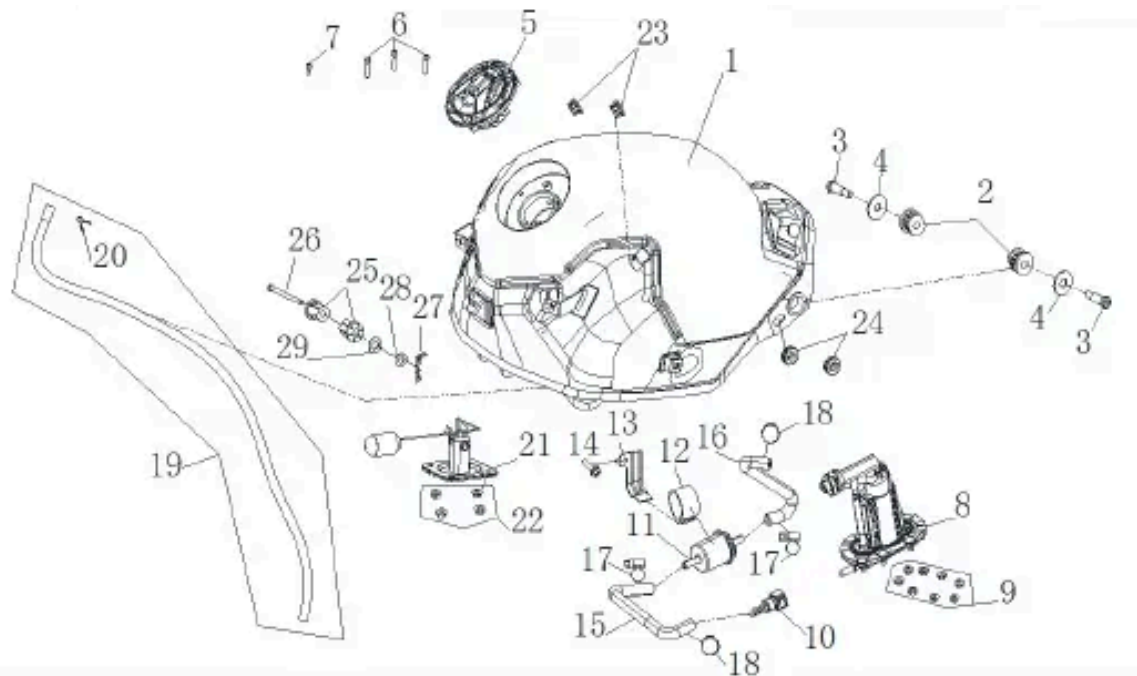
Please dispose the replaced old graphite ring in environment friendly way.

**Parameters**

|                                        |     |     |    |
|----------------------------------------|-----|-----|----|
| Connective bolt 1 at muffler rear part | M10 | N.m | 35 |
| Connective bolt 4 at muffler rear part | M8  | N.m | 9  |
| Bolt on muffler connective jacket      | M8  | N.m | 22 |
| Connective bolt on muffler front part  | M8  | N.m | 22 |
| Exhaust port nut on muffler front part | M8  | N.m | 22 |
| Oxygen sensor fastening                |     | N.m | 40 |
| Engine shield cover connective bolt    | M6  | N.m | 6  |
| Heat radiator connective bolt          | M6  | N.m | 9  |
| Covering parts connective bolts        | M6  | N.m | 6  |

# The disassembly, re-assembly and maintenance for fuel tank set

## Fuel tank set and its parts



|    |                                  |     |   |
|----|----------------------------------|-----|---|
| 1  | Fuel tank                        | PCS | 1 |
| 2  | Fuel tank damping sheet          | PCS | 2 |
| 3  | Hexagon shoulder bolt            | PCS | 2 |
| 4  | Flat washer                      | PCS | 2 |
| 5  | Fuel tank lock                   | PCS | 1 |
| 6  | Hexagon socket screw             | PCS | 3 |
| 7  | Hexagon socket screw             | PCS | 1 |
| 8  | Electrical fuel pump bracket set | Set | 1 |
| 9  | Hexagon flange nut               | PCS | 8 |
| 10 | Quick change connector           | PCS | 1 |
| 11 | Fuel filter                      | PCS | 1 |
| 12 | Fuel filter rubber jacket        | PCS | 1 |
| 13 | Fuel filter bracket              | PCS | 1 |
| 14 | Hexagon flange bolt              | PCS | 1 |
| 15 | Fuel tube                        | PCS | 1 |
| 16 | Fuel tube                        | PCS | 1 |
| 17 | Clamp set                        | PCS | 2 |
| 18 | Tube clamp                       | PCS | 2 |
| 19 | Breathing tube                   | PCS | 1 |
| 20 | Tube clamp                       | PCS | 1 |
| 21 | Fuel sensor                      | PCS | 1 |
| 22 | Hexagon flange nut               | PCS | 4 |

|    |                       |     |   |
|----|-----------------------|-----|---|
| 23 | Damping rubber jacket | PCS | 2 |
| 24 | I-ring                | PCS | 2 |
| 25 | T-shaped ring         | PCS | 2 |
| 26 | Pin axis              | PCS | 1 |
| 27 | □□□ Split pin         | PCS | 1 |
| 28 | Flat washer           | PCS | 1 |
| 29 | Rubber flat washer    | PCS | 1 |

## Disassembly for fuel tank

Keep the motorcycle upright by its main stand.

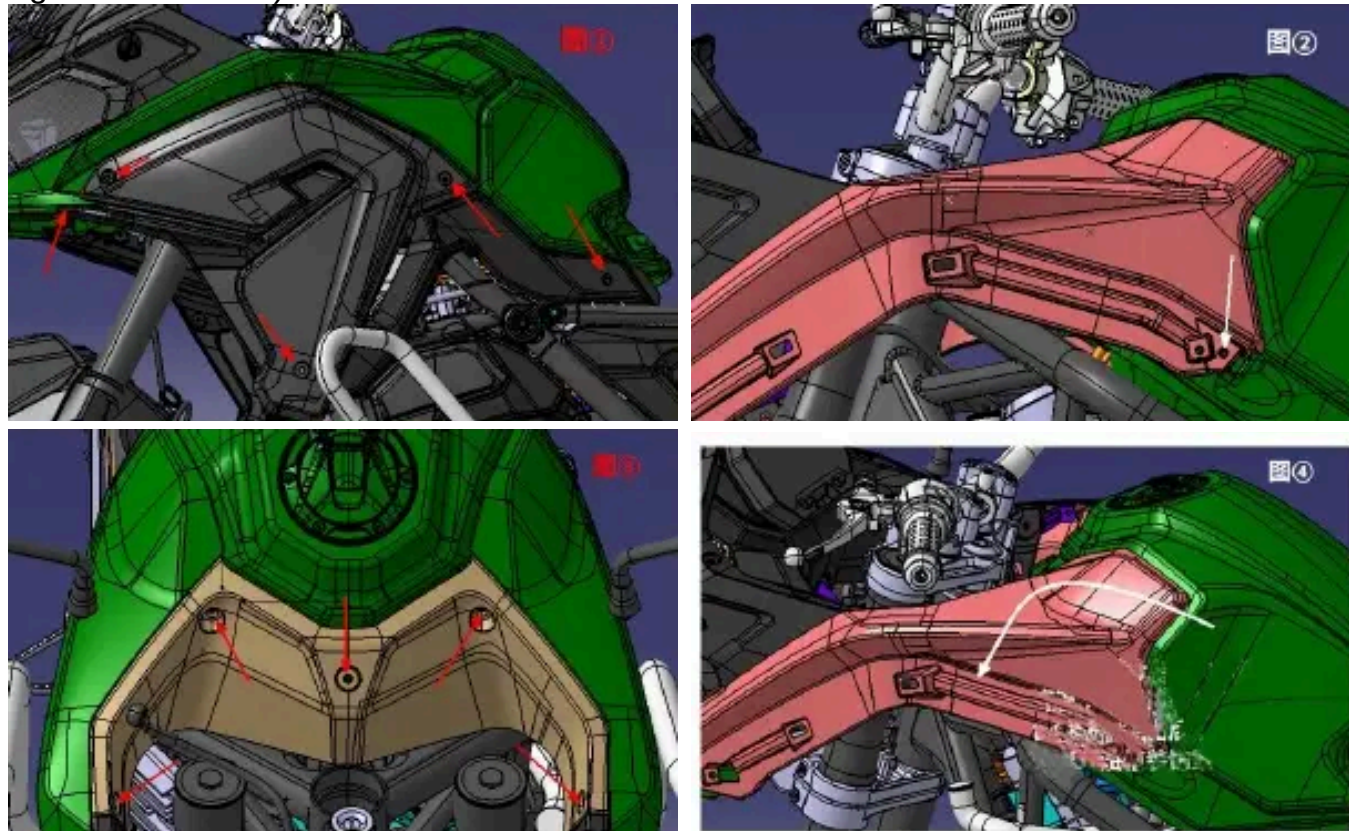
Remove the driver and passenger seats by key.

Remove the 10 installation screws (Figure □) on left and right protective plate of fuel tank by tools, then remove the plates both sides.

Remove the 2 installation screws (Figure □) on left and right decorative covers.

Remove the 5 installation screws (Figure □) on front fuel tank decorative cover.

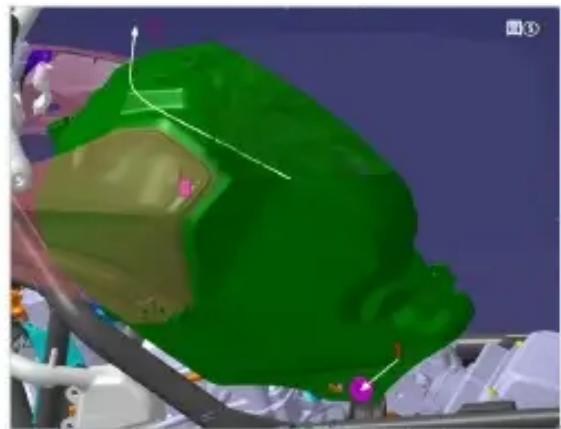
Push the decorative cover forward first, when the inserting pin between decorative cover and fuel tank get quit, slightly move aside the fuel tank decorative cover outwards (Figure □, the left and right are the same)



□ Push the decorative cover forward first, when the inserting pin between decorative cover and fuel tank get quit, slightly move aside the fuel tank decorative cover outwards□

Remove the 2 installation screws at rear of fuel tank by tools.

Remove the fuel tank, then remove the wire of fuel sensor, injector quick connector, fuel pump control wire, and bearing tube of fuel evaporation system (Figure 10 , **this step needs two person cooperation**)



10.2. Operator A, hold the fuel tank by both hands, push forward by 10mm and then remove the fuel tank back and upwards and keep, at this moment, [Operator B] Remove the related and connecting pipeline for fuel tank: The wire for fuel sensor at rear of fuel tank, injector tube swift connector, and fuel pump control wire; The fuel evaporation breathing tube at front part of fuel tank.

The re-assembly is exactly opposite to disassembly.

**Caution:**

Because there is too many connectors at the lower part of fuel tank, please pay attention to install each parts in place, and also avoid too much bending and pressing on pipeline.

**Important:**

When re-assembling, the opposite installation for overflow and fuel evaporation rubber tube is now allowed, or it may damage the fuel evaporation system.

**Parameter**

|                                       |    |     |    |
|---------------------------------------|----|-----|----|
| Installation bolts for covering parts | M6 | N.m | 6  |
| Fuel tank rear installation bolt      | M8 | N.m | 18 |

**The disassembly for fuel tank lock**

Remove the 3 installation bolts on fuel tank lock.

Open the fuel tank lock by key.

Remove the fastening bolt at the lower position of fuel tank lock, finally remove the fuel tank lock.

The re-assembly is exactly opposite to disassembly.

**Caution:**

After the fuel tank lock re-assembled, repeatedly confirm if it can be opened.

**Parameters**□

|                                   |    |     |   |
|-----------------------------------|----|-----|---|
| Fastening bolt for fuel tank lock | M5 | N.m | 6 |
|-----------------------------------|----|-----|---|

**Disassembly for fuel pump**

- Drain off the residual fuel in its tank.
- Remove the fuel tank set and lay it oppositely.
- Remove the 8 installation bolts for fuel pump.
- Remove the fuel pump.
- The re-assembly is exactly opposite to disassembly.

**Caution:**

Pay attention to the cleanliness of fuel screen when removing the fuel pump, wash it up in case it is necessary, the washing shall be done in clean fuel and do it repeatedly.

**Important:**

- Replace the gasket when re-assembling the fuel pump, otherwise the fuel may leak.
- Check the sealing performance when re-assembled the fuel pump, which need the specialized pressure gauge.
- Dispose the replaced gasket for fuel pump in environment friendly way.

**Parameters**□

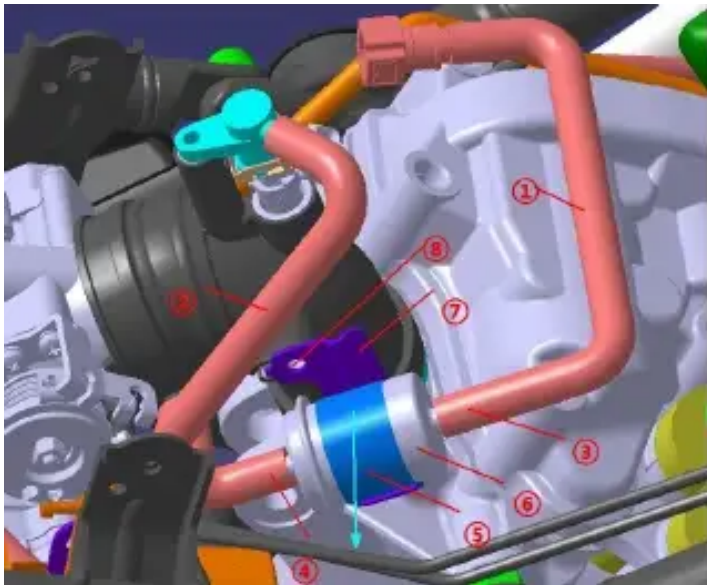
|                                         |    |     |     |
|-----------------------------------------|----|-----|-----|
| Installation torque for fuel pump bolts | M5 | N.m | 6   |
| The static pressure for fuel tank       |    | kp  | 130 |

**Disassembly for fuel sensor**

- Drain off the residual fuel in its tank first.
- Put the removed fuel tank set oppositely.
- Remove the 4 installation nuts for fuel sensor.
- Remove the fuel sensor.
- The re-assembly is exactly opposite to disassembly.

**Important:**

- Replace the gasket when re-assembling the fuel sensor, otherwise the fuel may leak.
- Check the sealing performance when re-assembled the fuel pump, which need the specialized pressure gauge.
- Dispose the replaced gasket for fuel sensor in environment friendly way.



**Parameters**

|                               |    |     |     |
|-------------------------------|----|-----|-----|
| Torque for nut of fuel sensor | M6 | N.m | 9   |
| Fuel tank static pressure     |    | kpa | 130 |

**Disassembly for fuel filter**

Remove the fuel tank by referring the former steps, at this moment, please check the picture below for layout of fuel injector tube at air inlet of engine and fuel filter.

Loosen the clamps( ) between 2 injector tubes ( ) and fuel filter( ).

Remove the fuel filter and its rubber jacket ( ) along blue arrow (The right side of motorcycle) from its bracket.

Remove the connection between fuel filter and injector tube.

Remove the fuel filter rubber jacket from its main body.

Replace for a new fuel filter.

The re-assembly is exactly opposite to disassembly.

**Caution**

Because there is too many connectors at the lower part of fuel tank, please pay attention to install each parts in place, and also avoid too much bending and pressing on pipeline.

**Important:**

Replace the fuel filter follow the arrow shows, whose opposite installation is not allowed.

When re-assembling, the opposite installation for overflow and fuel evaporation rubber tube is now allowed, or it may damage the fuel evaporation system.

The fuel tube undertake high pressure when it working, make sure the clamps on both ends of fuel filter is fasten and firm when re-assembling, otherwise the fuel may leak.

Dispose the replaced old fuel filter in environment friendly way.

**Parameters**

|                                       |    |     |     |
|---------------------------------------|----|-----|-----|
| Installation bolts for covering parts | M6 | N.m | 6   |
| Rear installation bolts for fuel tank | M8 | N.m | 18  |
| Fastening for fuel tube clamps        | M5 | N.m | 4.5 |

**The disassembly, re-assembly and maintenance for fuel evaporation controller set**

**The fuel evaporation controller set**

|    |                                 |     |   |
|----|---------------------------------|-----|---|
| 1  | Fuel evaporation controller set | PCS | 1 |
| 2  | Carbon canister                 | PCS | 1 |
| 3  | Breathing tube                  | PCS | 2 |
| 4  | One-way valve                   | PCS | 2 |
| 5  | Dumping valve                   | PCS | 1 |
| 6  | Breathing tube                  | PCS | 1 |
| 7  | Three-way joint                 | PCS | 1 |
| 8  | Breathing tube                  | PCS | 1 |
| 9  | Breathing tube                  | PCS | 1 |
| 10 | Breathing tube                  | PCS | 1 |
| 11 | Tube clamp                      | PCS | 3 |
| 12 | Tube clamp                      | PCS | 9 |
| 13 | Electrical parts holder         | PCS | 1 |
| 14 | Clip nut                        | PCS | 6 |
| 15 | Seal ring                       | PCS | 2 |

|    |                     |     |   |
|----|---------------------|-----|---|
| 16 | Hexagon flange bolt | PCS | 2 |
| 17 | One-way valve       | PCS | 1 |
| 18 | Hexagon flange bolt | PCS | 2 |
| 19 | Hexagon flange bolt | PCS | 2 |
| 20 | Wire clip           | PCS | 1 |

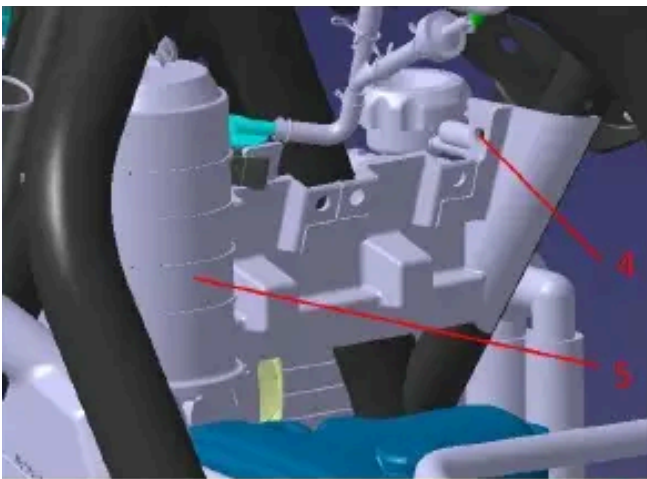
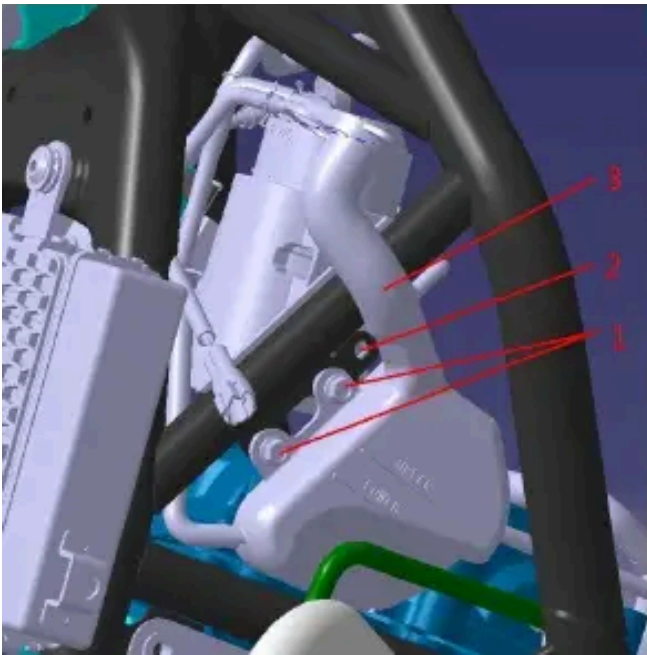
**The disassembly and re-assembly for fuel evaporation controller set**

Refer to the Steps of fuel tank disassembly.

Remove the bolt 1 and loosen the cooling water tank 3.

Remove the bolt 2 and 4, finally remove the fuel evaporation controller 5.

The re-assembly is exactly opposite to disassembly.



**Caution:**

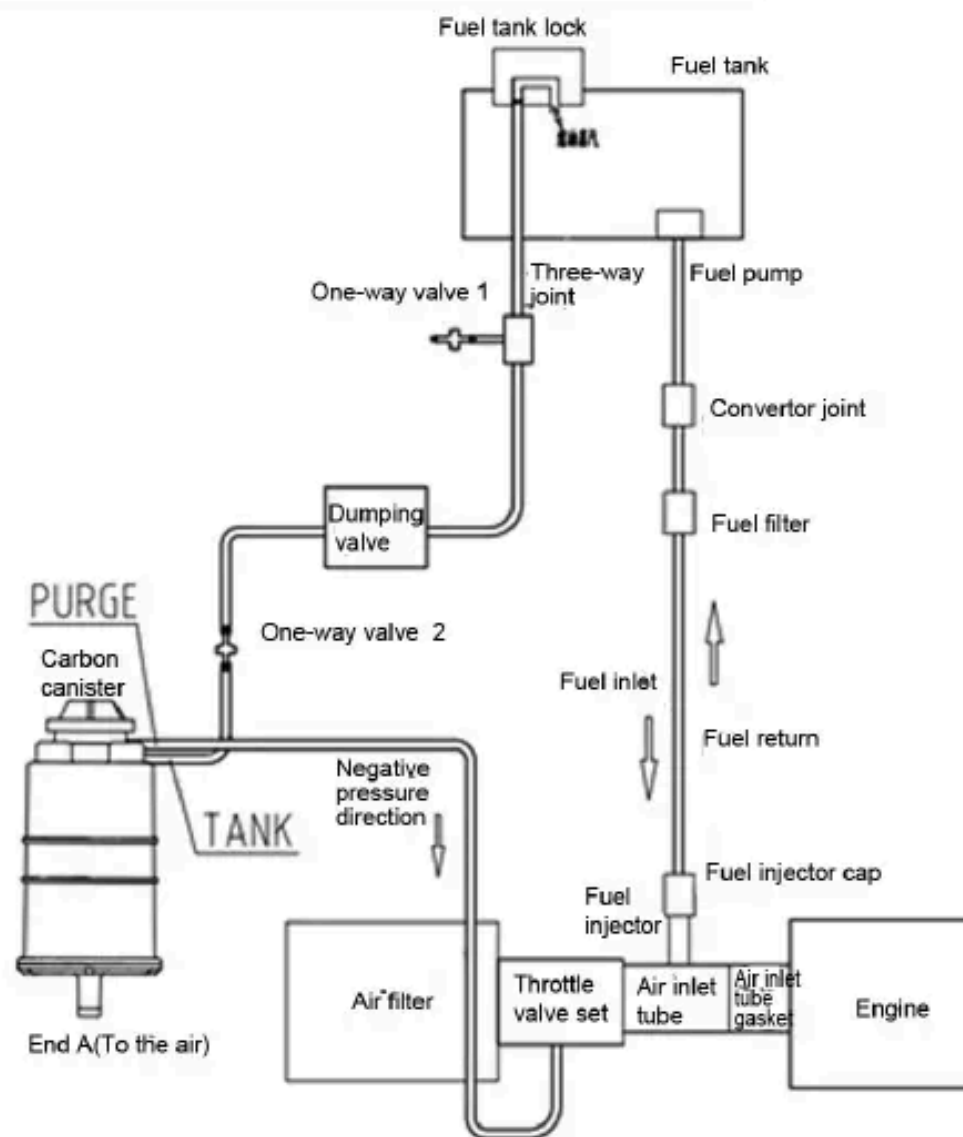
Take a record for pipeline layout and wiring before disassembling due to the space for fuel evaporation controller is small while there is too many pipelines in this set, to ensure the correct re-assembly.

**Important:**

Pay attention to the layout of dumping valve when re-assembling the fuel evaporation valve, which keep parallel to the ground of this part, or its function may go failure.

|                                             |    |    |   |  |
|---------------------------------------------|----|----|---|--|
| Fastening torque for bolt on covering parts | M6 | Nm | 6 |  |
| Fastening torque for carbon canister        | M6 | Nm | 6 |  |
| Fastening torque for cooling tank           | M6 | Nm | 9 |  |

**The Figure for connection of fuel evaporation controller**

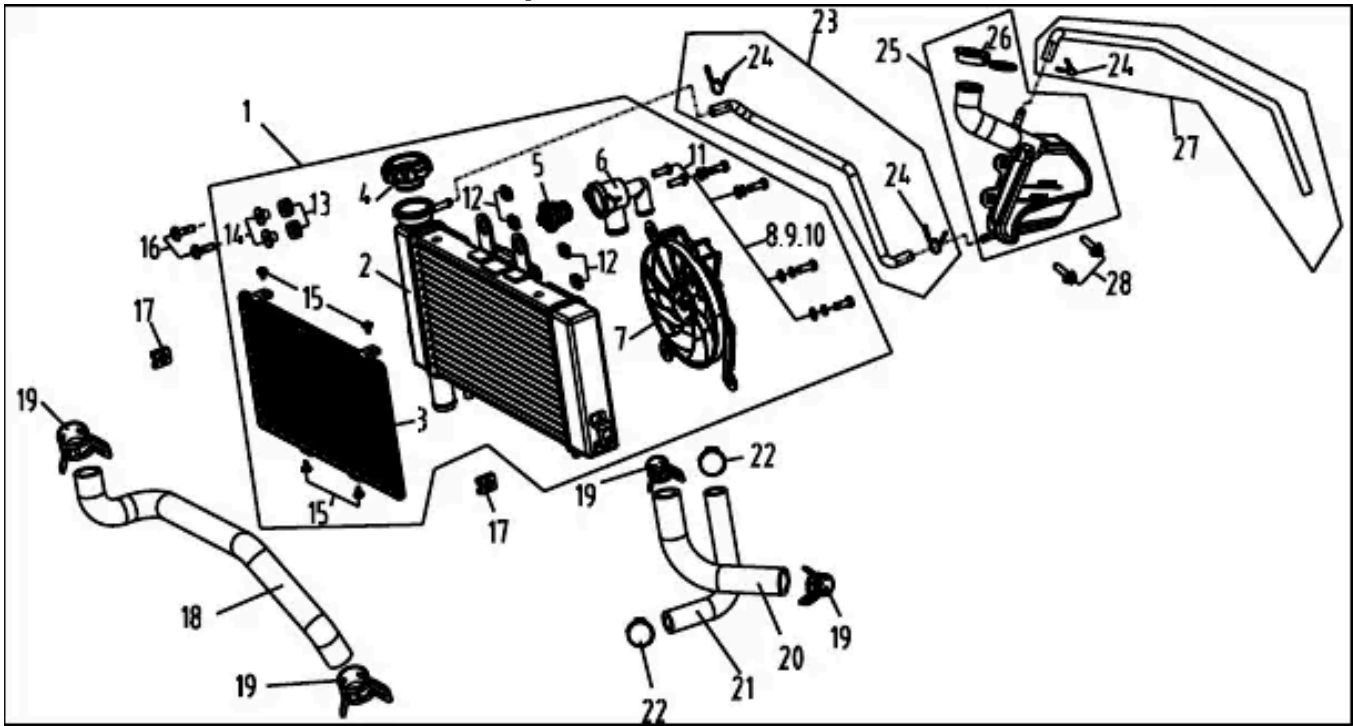


**The working principle for fuel evaporation controller set**

- (1) When the gasoline in fuel tank heated, it evaporates, reaches the end of carbon canister TANK, then absorbed by it.
- (2) When the incline of motorcycle is more than 60°, the dumping valve get close, and the gasoline could not flow into carbon canister through dumping valve.
- (3) The fresh air flow to the end of PURGE though the end A of carbon canister, then bring the gasoline vapor into throttle valve, finally get into engine and join the combustion through air inlet tube.

The disassembly, re-assembly and maintenance for heat radiator

The heat radiator set and its parts



|    |                |                               |     |   |  |
|----|----------------|-------------------------------|-----|---|--|
| 1  | 160010134-0001 | Heat radiator set             | PCS | 1 |  |
| 2  | 160020029-0001 | Heat radiator body            | PCS | 1 |  |
| 3  | 160340007-0001 | Radiator net plate            | PCS | 1 |  |
| 4  | 160050012-0001 | Water filling-up cover        | PCS | 1 |  |
| 5  | 160140008-0001 | Thermal valve                 | PCS | 1 |  |
| 6  | 160120009-0001 | Thermostat case               | PCS | 1 |  |
| 7  | 160240046-0001 | Fan set                       | PCS | 1 |  |
| 8  | 380070022-0009 | Hexagon bolt                  | PCS | 4 |  |
| 9  | 380450007-0014 | Flat washer                   | PCS | 4 |  |
| 10 | 380460003-0013 | Elastic washer                | PCS | 4 |  |
| 11 | 380190005-0013 | Hexagon socket screw          | PCS | 2 |  |
| 12 | 380420061-0001 | Clip nut                      | PCS | 4 |  |
| 13 | 380890378-0001 | I-ring                        | PCS | 2 |  |
| 14 | 380470136-0001 | Flange washer                 | PCS | 2 |  |
| 15 | 380310053-0001 | Cross head self-tapping screw | PCS | 4 |  |
| 16 | 380140077-0012 | Hexagon flange bolt           | PCS | 2 |  |
| 17 | 380420062-0001 | Clip nut                      | PCS | 2 |  |
| 18 | 380760404-0001 | Water tube                    | PCS | 1 |  |
| 19 | 380950456-0001 | Tube clamp                    | PCS | 4 |  |
| 20 | 380760405-0001 | Water tube                    | PCS | 1 |  |

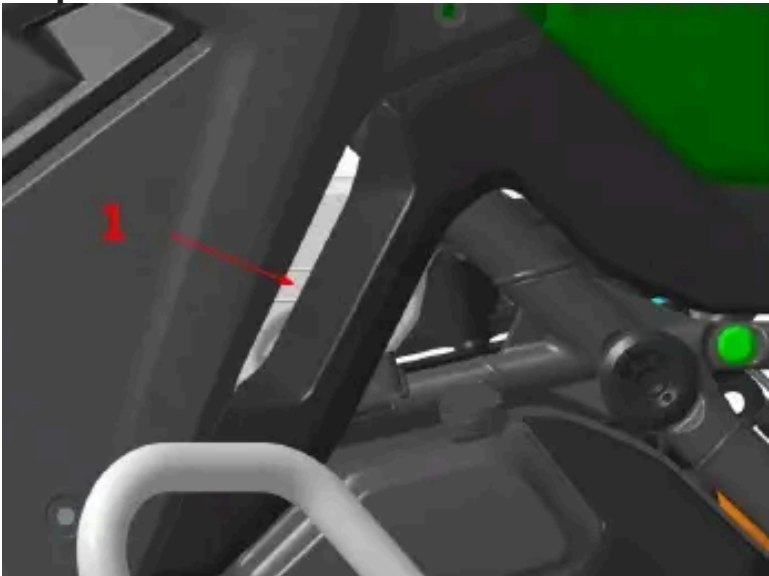
|    |                |                     |     |   |  |
|----|----------------|---------------------|-----|---|--|
| 21 | 380760406-0001 | Water tube          | PCS | 1 |  |
| 22 | 380950407-0001 | Tube clamp          | PCS | 2 |  |
| 23 | 380760407-0001 | Water tube          | PCS | 1 |  |
| 24 | 380950012-0002 | Tube clamp          | PCS | 3 |  |
| 25 | 160310065-0001 | Coolant tank        | PCS | 1 |  |
| 26 | 160500024-0001 | Coolant tank cap    | PCS | 1 |  |
| 27 | 380760408-0001 | Water tube          | PCS | 1 |  |
| 28 | 380140013-0013 | Hexagon flange bolt | PCS | 2 |  |

**Check the coolant**

Keep the motorcycle upright by its main stand.

View the compensation pot 1 on the left side of motorcycle, the coolant level shall be within the scale marks, in case it is under the lower line, please fill up, but don't be higher than the upper line.

**Replace the coolant**



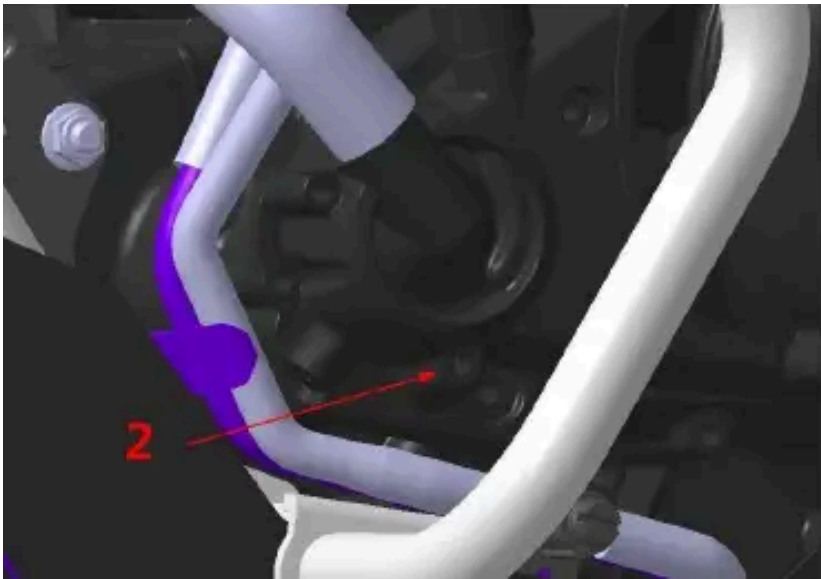
Keep the motorcycle upright by its main stand.

Remove the cover of heat radiator on whose right side.

Lay the liquid tray under the coolant drainage bolt at the left front of engine.

Set the flow way between the coolant drainage bolt 2 and liquid tray by using suitable flow guiding device.

Remove the coolant drainage bolt 2 by tools, drain off the coolant in engine water passage till it finished.



**Important**

Collect the drained coolant by suitable container and dispose in environment friendly way.

When re-assembling, replace for a new gasket for coolant drainage bolt depends in its actual situation.

Clean up the installation surface of coolant drainage bolt gasket on engine to avoid dirt on it.

After reassembled, start the engine and suitable run it in high rotation to check if there is leakage in coolant pipeline.

**Parameter**

|                       |                                   |     |     |
|-----------------------|-----------------------------------|-----|-----|
| Coolant drainage bolt | M6                                | N.m | 6   |
| Coolant capacity      |                                   | L   | 1.6 |
| Coolant specification | With ethanol but without silicate |     | G40 |

**Coolant filling-up**

Fill up coolant by funnel to its pouring port till it get full.

Start the engine and run in idling, view the heat radiator port, at this moment, the liquid level may fall down, then keep filing up till it not goes down any more.

Install the heat radiator cover.

Fill up the coolant into port of compensation pot by funnel, please keep the liquid level is within the upper and lower scale marks.

Install the rubber cap of compensation pot cap.

Finish the filling up of coolant.

**Important:**

Start the engine after replacement and suitably run it in high rotation speed to check if there is leakage in coolant pipeline.

**Caution**

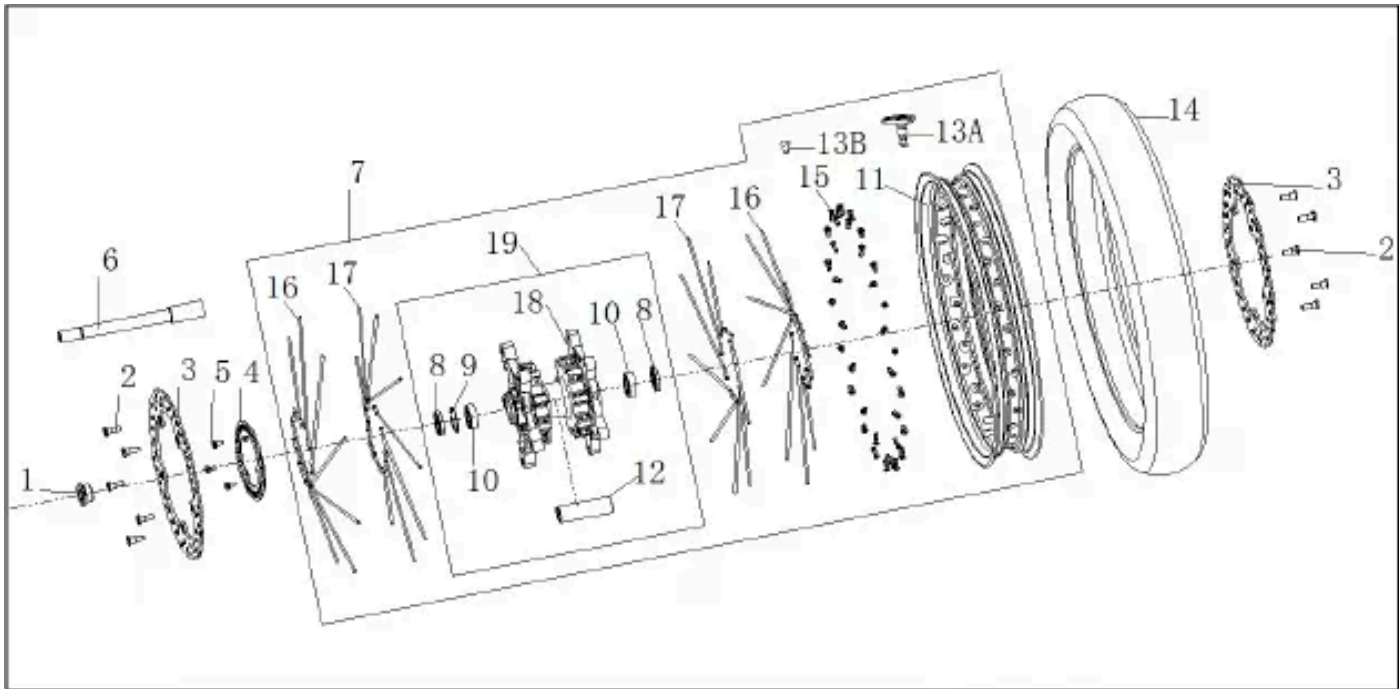
After the work above finished, clean up the greasy dirt on engine surface by cleanser, then dry up by compressed air.

**Parameter**□

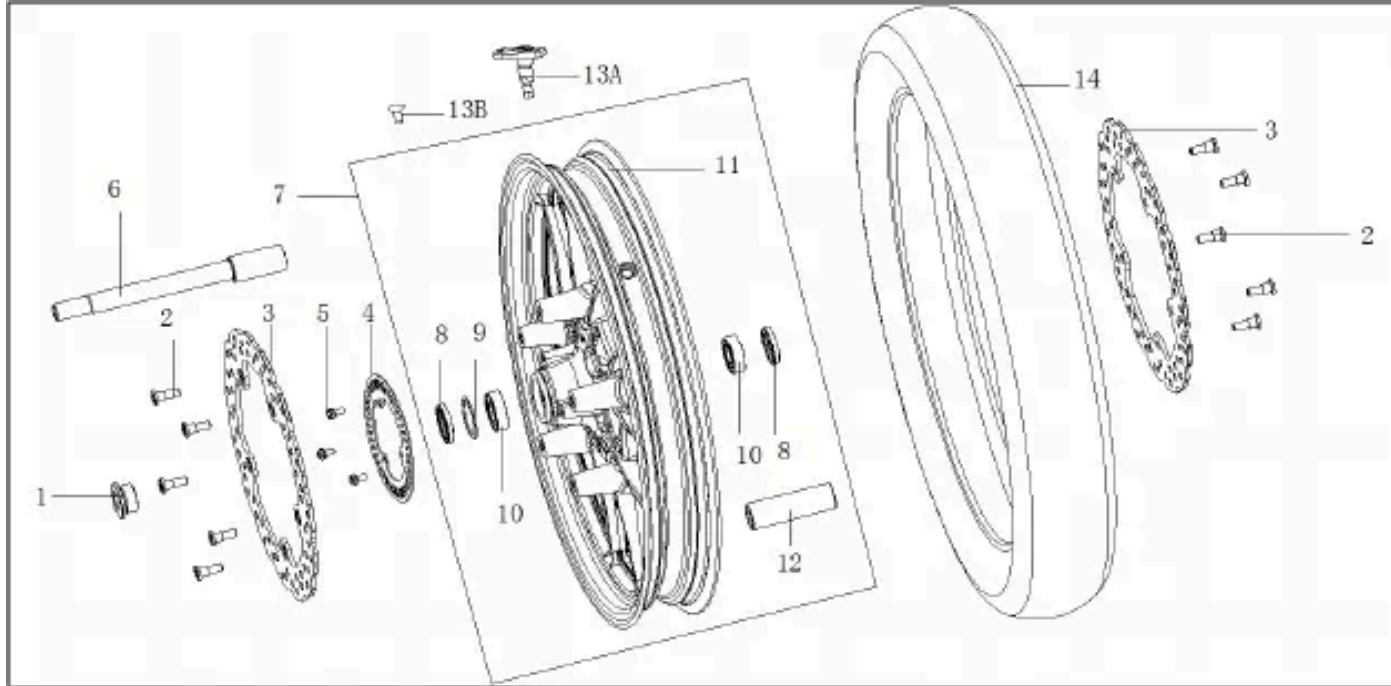
|                       |           |     |
|-----------------------|-----------|-----|
| Coolant capacity      | L         | 1.6 |
| Coolant specification | GLYSANTIN | G40 |

The disassembly, re-assembly and maintenance for front wheel

Front wheel set and its parts



|     |                                           |     |    |
|-----|-------------------------------------------|-----|----|
| 1   | Collar                                    | PCS | 1  |
| 2   | Fastening bolt for disc brake plate       | PCS | 10 |
| 3   | Front disc brake plate                    | PCS | 2  |
| 4   | ABS ring gear                             | PCS | 1  |
| 5   | Hexagon socket screw                      | PCS | 3  |
| 6   | Axle                                      | PCS | 1  |
| 7   | Front wheel                               | PCS | 1  |
| 8   | Oil seal                                  | PCS | 2  |
| 9   | Elastic circlip                           | PCS | 1  |
| 10  | Bearing                                   | PCS | 2  |
| 11  | Front wheel rim                           | PCS | 1  |
| 12  | Wheel hub liner set                       | PCS | 1  |
| 13A | Tire pressure sensor TFT Instrument       | PCS | 1  |
| 13B | Air valve core Negative screen instrument | PCS | 1  |
| 14  | Tire                                      | PCS | 1  |
| 15  | Rear spoke nut                            | PCS | 36 |
| 16  | Front wheel outer spoke                   | PCS | 18 |
| 17  | Front wheel inner spoke                   | PCS | 18 |
| 18  | Front wheel hub body                      | PCS | 1  |
| 19  | Front wheel hub                           | PCS | 1  |



|     |                                           |     |    |
|-----|-------------------------------------------|-----|----|
| 1   | Collar                                    | PCS | 1  |
| 2   | Fastening bolt on disc brake plate        | PCS | 10 |
| 3   | Front disc brake plate                    | PCS | 2  |
| 4   | ABS ring gear                             | PCS | 1  |
| 5   | Hexagon socket screw                      | PCS | 3  |
| 6   | Axle                                      | PCS | 1  |
| 7   | Front wheel                               | PCS | 1  |
| 8   | Oil seal                                  | PCS | 2  |
| 9   | Elastic circlip                           | PCS | 1  |
| 10  | Bearing                                   | PCS | 2  |
| 11  | Front wheel body                          | PCS | 1  |
| 12  | Wheel hub liner set                       | PCS | 1  |
| 13A | Tire pressure sensor TFT Instrument       | PCS | 1  |
| 13B | Air valve core Negative screen instrument | PCS | 1  |
| 14  | Tire                                      | PCS | 1  |

### The disassembly for front wheel

Keep the motorcycle upright by its main stand.

Remove the caliper 1 of front disc brake by tools.

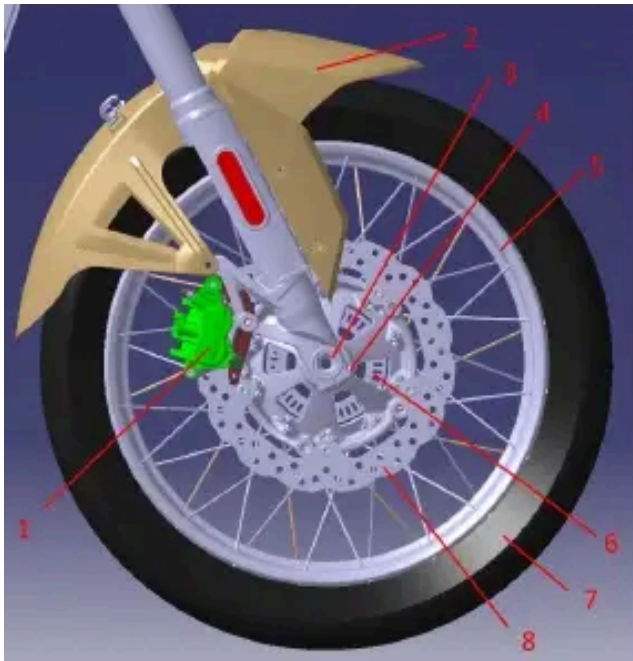
Remove the front fender 2.

Loosen the bolt 4.

Remove the front wheel axle 3.

Remove the front wheel set 5.

The re-assembly is exactly opposite to disassembly.



**Caution:**

When the front brake caliper removed, operate the front brake lever is not allowed to avoid the moving of rear caliper piston, and also makes difficult caliper installation.

When re-assembling the front fender, recover the fixing way of disc brake oil tube to the same situation before disassembling.

**Important:**

There shall not be any dirt on working surface of brake pads and plate when re-assembling.

Repeatedly hold tight front brake level for confirming its normal work after replaced.

Confirm the dynamic balance of front wheel on corresponding device after the tire re-assembled.

The re-assembled collar and oil seal of front wheel must coat with lithium lubricant.

**Parameters:**

|                                                         |     |                         |           |
|---------------------------------------------------------|-----|-------------------------|-----------|
| Front wheel                                             |     | Aluminium alloy<br>cast | 2.5"x19"  |
| Front tire                                              |     | Radial tubeless<br>tire | 110/80-19 |
| The end surface runout on front wheel<br><br>≤          |     | mm                      | 2         |
| The radial runout on front wheel ≤                      |     | mm                      | 2         |
| Fastening bolt on wheel axle of front<br>shock absorber | M8  | Nm                      | 18        |
| Fastening torque for front wheel axle                   | M18 | Nm                      | 75        |
| Fastening torque for front brake<br>caliper             | M8  | Nm                      | 35        |

|                                            |                    |    |     |
|--------------------------------------------|--------------------|----|-----|
| Fastening torque for brake plate           | M8                 | Nm | 35  |
| Fastening torque of bolt on covering parts | M6                 | Nm | 6   |
| Loctite                                    | 262 thread loctite | ml | 10  |
| Lubricant                                  |                    | g  | 10  |
| Allowed max imbalance of front wheel       |                    | g  | 10  |
| Air pressure in tire                       |                    | Kp | 2,3 |

### Disassembly for brake plate

Put the front wheel on the working bench after removed.

Remove the fastening bolt for brake plate, then the plate 8 and ring gear 6.

The re-assembly is exactly opposite to disassembly.

#### Caution:

The screw on front brake plate is with Loctite, whose removing tools must meet demands, otherwise it is difficult to be removed.

#### Important:

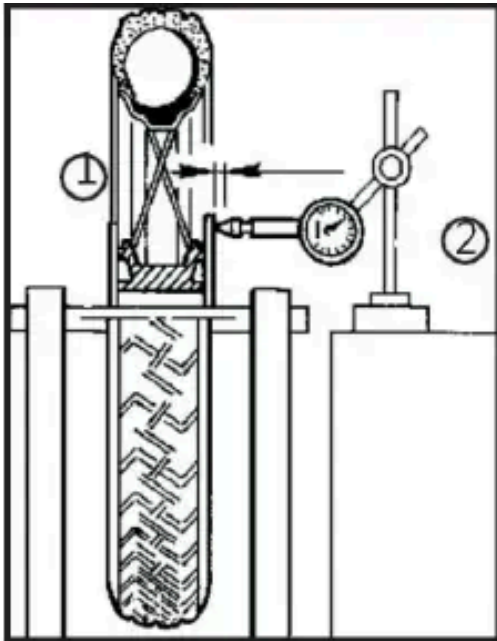
The dirt on working surface of brake pads and plate is not allowed when re-assembling.

The fastening bolt shall be coated with Loctite when re-assembling the brake plate.

Confirm once again the runout of end surface after the brake plate re-assembled, whose method shown as picture.

Put the front wheel on balancing rack by the balancing shaft .

Measure the runout of end surface of brake plate by measuring instrument .



|                                  |   |    |     |
|----------------------------------|---|----|-----|
| The end surface runout should be | ≤ | mm | 0.3 |
|----------------------------------|---|----|-----|

## **Remove the front tire**

Remove the front wheel set and put it on the working bench.

Remove the air valve core and discharge the air in tire.

Remove the front tire by the tools for it only.

Remove the air valve core.

The re-assembly is exactly opposite to disassembly.

### **Caution:**

The re-assembly for tire must use the equipment for this work only, forced installation by external power may permanently damage the tire.

### **Important:**

Align the light point on tire to the position of air valve core when re-assembling tire to get better work of dynamic balancing.

## **Disassembly for front wheel bearing and oil seal**

Remove the front wheel set and put the wheel on working bench.

Remove the brake plate and tire.

Remove the oil seal, elastic circlip, bearing, and inner liner of wheel hub of front wheel by tools for them only like pliers for circlip one after another.

The re-assembly is exactly opposite to disassembly.

### **Important:**

The front wheel oil seal gets broken immediately after removed, so the replacement is necessary.

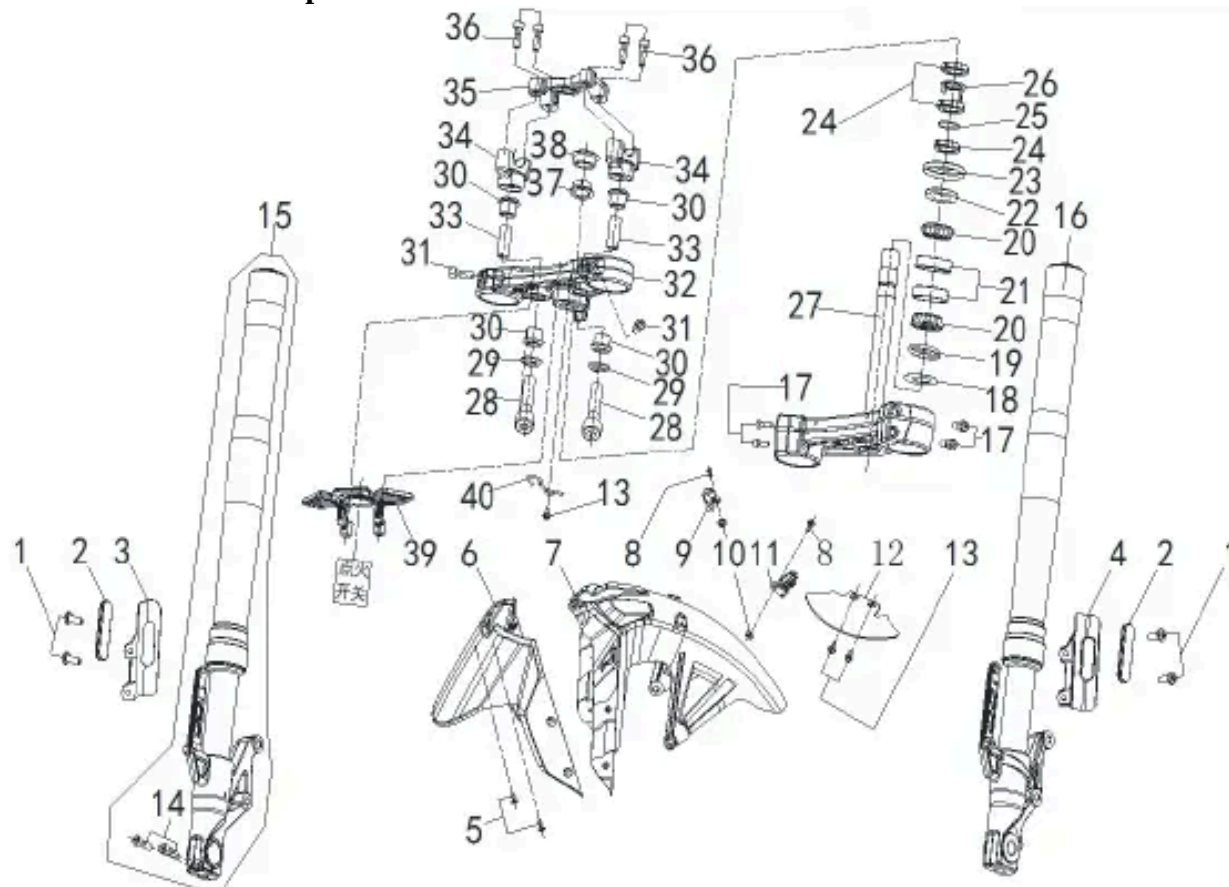
Remove the front wheel bearing needs the drawing tools for it only.

For better re-assembling, heat the bearing hole on front wheel to 100℃, then press and install the bearing.

One side of bearing has the positioning circlip, whose missing installation is not allowed.

# The disassembly re-assembly and maintenance for front fork

## The front fork set and its parts



|    |                                               |     |   |
|----|-----------------------------------------------|-----|---|
| 1  | Hexagon socket screw                          | PCS | 4 |
| 2  | Side reflector                                | PCS | 2 |
| 3  | Right decorative case of front shock absorber | PCS | 1 |
| 4  | Left decorative case of front shock absorber  | PCS | 1 |
| 5  | Cross head self-tapping screw                 | PCS | 2 |
| 6  | Front part of front fender                    | PCS | 1 |
| 7  | Rear part of front fender                     | PCS | 1 |
| 8  | Hexagon socket screw                          | PCS | 2 |
| 9  | Tube clamp                                    | PCS | 1 |
| 10 | Hexagon flange nut                            | PCS | 2 |
| 11 | Tube clamp                                    | PCS | 1 |
| 12 | Front upper fender                            | PCS | 1 |
| 13 | Hexagon flange bolt                           | PCS | 3 |
| 14 | Hexagon socket screw                          | PCS | 2 |
| 15 | Left front shock absorber                     | PCS | 1 |
| 16 | Right front shock absorber                    | PCS | 1 |
| 17 | Hexagon socket screw                          | PCS | 4 |
| 18 | Flat washer                                   | PCS | 1 |
| 19 | Oil seal                                      | PCS | 1 |
| 20 | Bearing circlip                               | PCS | 2 |

|    |                                           |     |   |
|----|-------------------------------------------|-----|---|
| 21 | Bearing circlip                           | PCS | 2 |
| 22 | Flat washer                               | PCS | 1 |
| 23 | Steering stem dust proof cover            | PCS | 1 |
| 24 | Steering locking nut                      | PCS | 3 |
| 25 | Seal ring                                 | PCS | 1 |
| 26 | Locking shim                              | PCS | 2 |
| 27 | Steering stem body                        | PCS | 1 |
| 28 | Hexagon socket screw                      | PCS | 2 |
| 29 | Flange washer                             | PCS | 2 |
| 30 | T-rubber ring                             | PCS | 4 |
| 31 | Hexagon socket screw                      | PCS | 2 |
| 32 | Upper connective plate                    | PCS | 1 |
| 33 | Collar                                    | PCS | 2 |
| 34 | Handle bar clip base                      | PCS | 2 |
| 35 | Handle bar clip                           | PCS | 1 |
| 36 | Hexagon socket screw                      | PCS | 4 |
| 37 | Steering locking nut                      | PCS | 1 |
| 38 | Decorative case of upper connective plate | PCS | 1 |
| 39 | Steering lock bracket                     | PCS | 1 |
| 40 | Wire clip                                 | PCS | 1 |

#### **The disassembly and re-assembly for steering stem**

Keep the motorcycle upright by its main stand.

Remove the handle bar set 1.

Remove the motorcycle head set 2 by referring the disassembly for fuel tank.

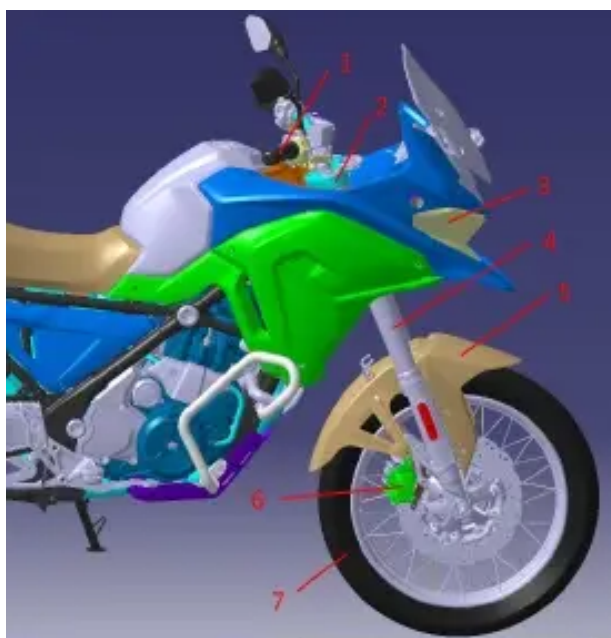
Remove the front fender 5.

Remove the lower caliper 6 of front brake.

Remove the front wheel set 7.

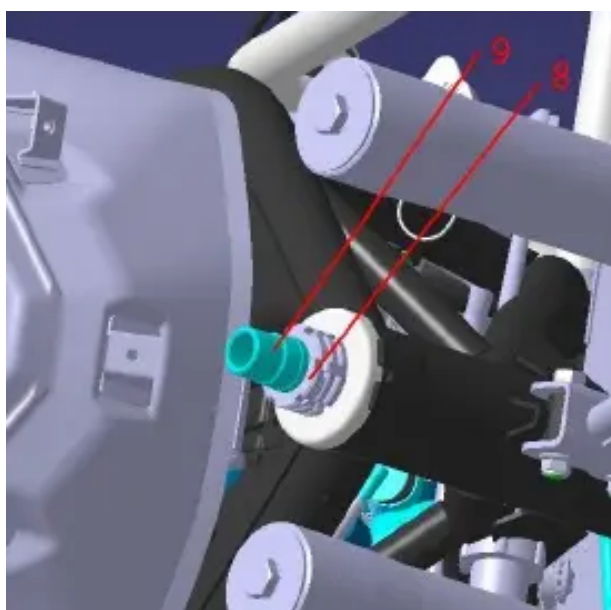
Remove the upper connective plate 2.

Remove the front shock absorber 3.



Remove the locking nut 8.

Remove the steering stem 9.



The re-assembly is exactly opposite to disassembly.

**Caution:**

Please well pack the wire package in left protective plate of fuel tank when re-assembling ensure whose same situation before disassembly, otherwise it is bad for water-proof.

When re-assembling, recover the oil tube and wire package of ABS sensor to that before disassembly, otherwise it may produce interference among shock absorbers, oil tube and front fender in long distance driving.

When re-assembling the front shock absorbers, install one of them first.

**Important:**

When re-assembling bearings, coat them with lithium lubricant for ensuring their normal lubrication.

When re-assembling, check the clearance between detector of ABS and response ring gear on front wheel.

The 3 adjusting or locking nuts on steering stem must be installed strictly according to requirement, whose details refer to Parameter Table, otherwise whose turning may get

bad.



Parameters:

|                                                                                                                                |     |     |                                              |
|--------------------------------------------------------------------------------------------------------------------------------|-----|-----|----------------------------------------------|
| Torque of handle bar clip bolt                                                                                                 | M8  | N.m | 18                                           |
| Torque for locking bolt of upper connective plate                                                                              | M22 | N.m | 90                                           |
| Torque for steering locking bolt                                                                                               | M8  | N.m | 18                                           |
| Torque for steering locking nut (Lower)<br>Torque for steering locking nut (Middle)<br>Torque for steering locking nut (Upper) | M25 | N.m | 50±3.5returningby 150°<br>2.5±0.25<br>60±4.2 |
| Torque for installation torque of covering parts                                                                               | M6  | N.m | 6                                            |
| Clearance between detector and front wheel response ring gear                                                                  |     | mm  | 0.5~ 1.5                                     |

The disassembly and re-assembling for steering bearing

Remove the bearing base 1 in frame standing tube by tools for it only.



Remove the bearing circlip 2 on steering stem by drawing tools (As figure shows) for it only.



Replace for a new steering bearing with same specification.

Remove the oil seal under bearing.

Remove the flat washer under bearing.

The re-assembly is exactly opposite to disassembly.

**Cantion:**

Abnormal operation is not allowed when removing the steering bearing, use the tools for it only, otherwise it may permanently damage the steering stem.

Pay attention to the re-assembling sequence for bearing, oil seal and flat washer.

**Important:**

When press and re-assembling the steering bearing, heat the bearing to 100℃, do in this way is good for bearing press and installation.

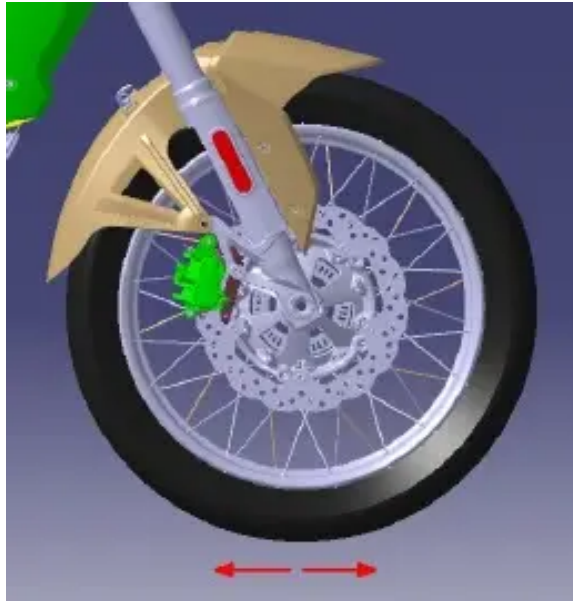
**Judgement for clearance of steering bearing**

Repeatedly operate the front brake lever fast the feel the flexibility of steering bearing.

Keep the motorcycle upright by parking stand.

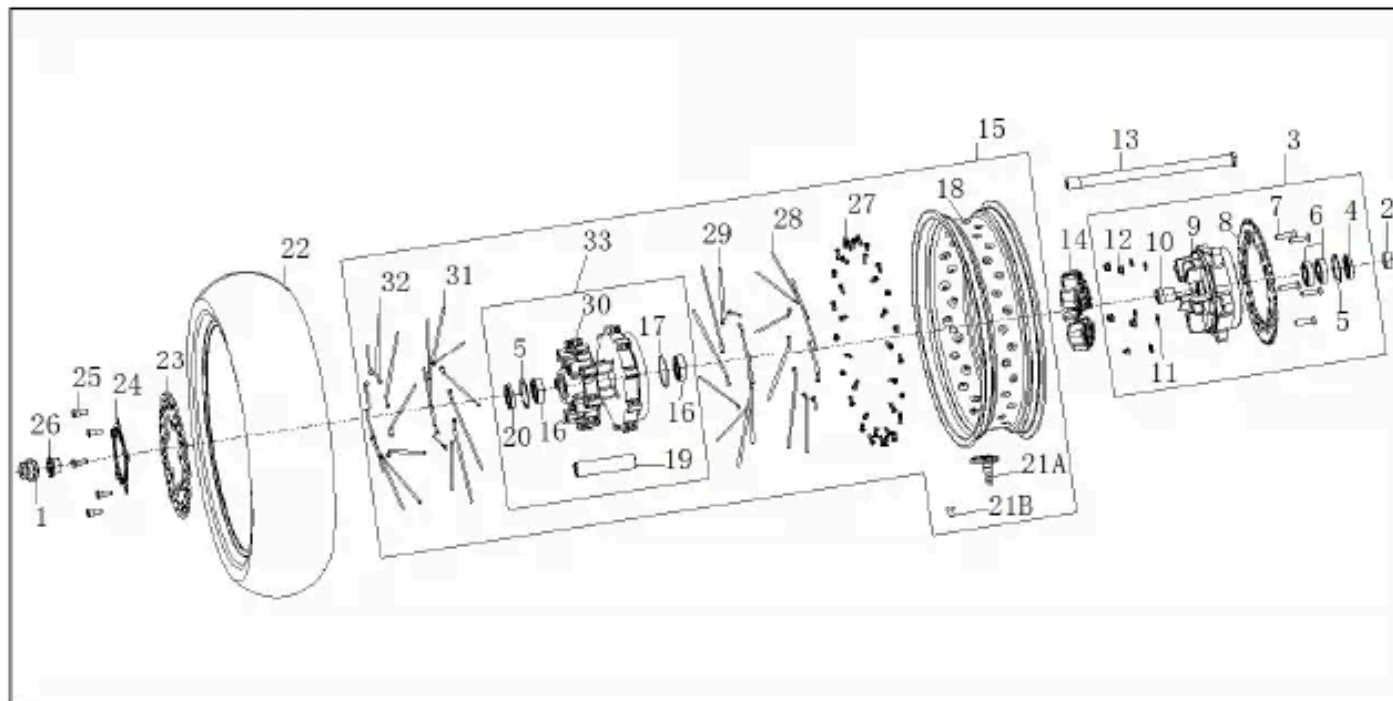
Repeatedly draw the front wheel according to the direction as figure show to feel the

flexibility of steering bearing.



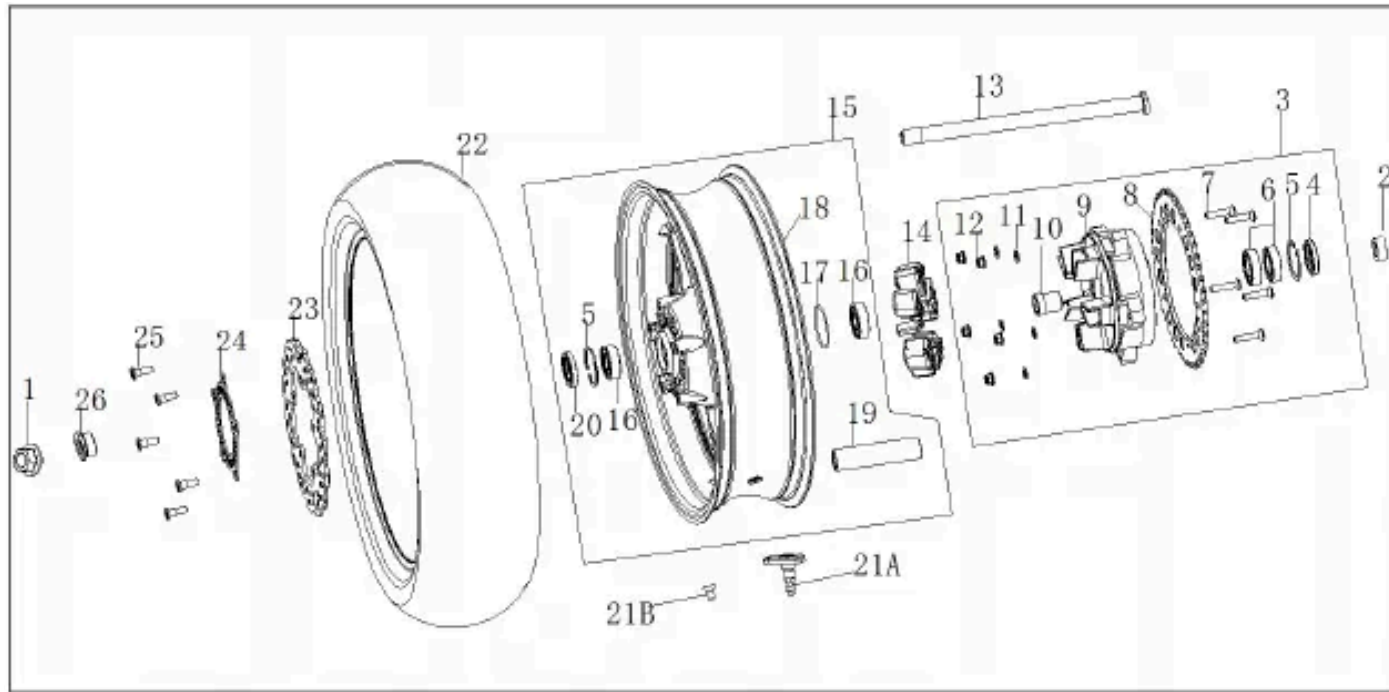
## The disassembly, re-assembly and maintenance for rear wheels

## The rear wheel set and its parts



|     |                                           |     |   |   |
|-----|-------------------------------------------|-----|---|---|
| 1   | Non-metallic hexagon flange locking nut   | PCS | 1 |   |
| 2   | Collar                                    | PCS |   | 1 |
| 3   | Damper set                                | Set |   | 1 |
| 4   | Oil seal                                  | PCS |   | 1 |
| 5   | Elastic circlip                           | PCS |   | 2 |
| 6   | Bearing                                   | PCS |   | 2 |
| 7   | Sprocket wheel bolt                       | PCS |   | 5 |
| 8   | Sprocket wheel                            | PCS |   | 1 |
| 9   | Sprocket wheel base                       | PCS |   | 1 |
| 10  | Collar                                    | PCS |   | 1 |
| 11  | Flat washer                               | PCS |   | 5 |
| 12  | Metallic hexagon flange locking nut       | PCS | 5 |   |
| 13  | Axle                                      | PCS |   | 1 |
| 14  | Rear wheel damping piece                  | PCS |   | 5 |
| 15  | Rear wheel                                | PCS |   | 1 |
| 16  | Bearing                                   | PCS |   | 2 |
| 17  | Seal ring                                 | PCS |   | 1 |
| 18  | Rear wheel rim                            | PCS |   | 1 |
| 19  | Wheel hub liner set                       | PCS |   | 1 |
| 20  | Oil seal                                  | PCS |   | 1 |
| 21A | Tire pressure sensor TFT Instrument       | PCS | 1 |   |
| 21B | Air valve core Negative screen instrument | PCS | 1 |   |
| 22  | Tire                                      | PCS |   | 1 |
| 23  | Rear disc brake plate                     | PCS |   | 1 |
| 24  | ABS ring gear                             | PCS |   | 1 |

|    |                                    |     |    |  |
|----|------------------------------------|-----|----|--|
| 25 | Fastening bolt on disc brake plate | PCS | 5  |  |
| 26 | Collar                             | PCS | 1  |  |
| 27 | Rear wheel spoke nut               | PCS | 36 |  |
| 28 | Rear wheel outer spoke             | PCS | 9  |  |
| 29 | Rear wheel inner spoke             | PCS | 9  |  |
| 30 | Rear wheel hub body                | PCS | 1  |  |
| 31 | Rear wheel inner spoke             | PCS | 9  |  |
| 32 | Rear wheel outer spoke             | PCS | 9  |  |
| 33 | Rear wheel hub                     | PCS | 1  |  |

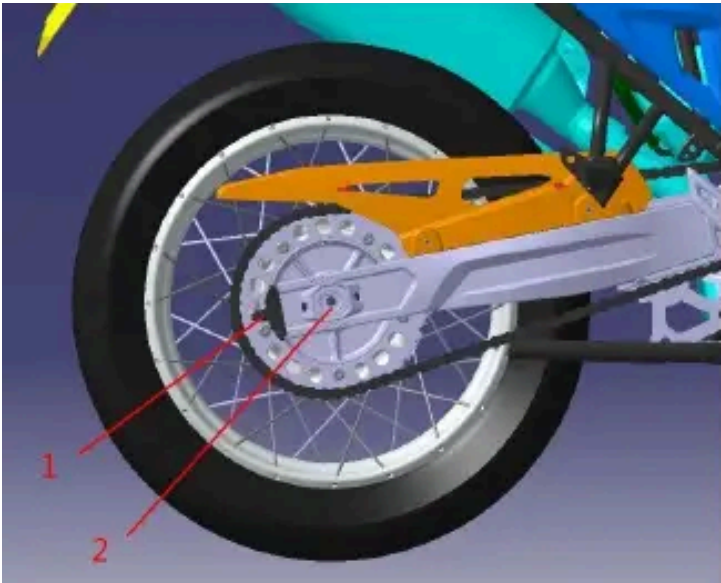


|    |                                         |     |   |  |
|----|-----------------------------------------|-----|---|--|
| 1  | Non-metallic hexagon flange locking nut | PCS | 1 |  |
| 2  | Collar                                  | PCS | 1 |  |
| 3  | Damper set                              | Set | 1 |  |
| 4  | Oil seal                                | PCS | 1 |  |
| 5  | Elastic circlip                         | PCS | 2 |  |
| 6  | Bearing                                 | PCS | 2 |  |
| 7  | Sprocket wheel bolt                     | PCS | 5 |  |
| 8  | Sprocket wheel                          | PCS | 1 |  |
| 9  | Sprocket wheel base                     | PCS | 1 |  |
| 10 | Collar                                  | PCS | 1 |  |
| 11 | Flat washer                             | PCS | 5 |  |
| 12 | Metallic hexagon flange locking nut     | PCS | 5 |  |
| 13 | Axle                                    | PCS | 1 |  |
| 14 | Rear wheel damping piece                | PCS | 5 |  |
| 15 | Rear wheel                              | PCS | 1 |  |
| 16 | Bearing                                 | PCS | 2 |  |
| 17 | Seal ring                               | PCS | 1 |  |
| 18 | Rear wheel body                         | PCS | 1 |  |
| 19 | Wheel hub liner set                     | PCS | 1 |  |

|     |                                           |     |   |
|-----|-------------------------------------------|-----|---|
| 20  | Oil seal                                  | PCS | 1 |
| 21A | Tire pressure sensor TFT Instrument       | PCS | 1 |
| 21B | Air valve core Negative screen instrument | PCS | 1 |
| 22  | Tire                                      | PCS | 1 |
| 23  | Rear disc brake plate                     | PCS | 1 |
| 24  | ABS ring gear                             | PCS | 1 |
| 25  | Fastening bolt on disc brake plate        | PCS | 5 |
| 26  | Collar                                    | PCS | 1 |

**Remove the rear wheel**

- Keep the motorcycle upright by its main stand.
- Loosen the chain adjustor nut 1.
- Remove the rear wheel axle 2.
- Drop off the chain.
- Remove the rear wheel set.
- Remove the damper set.
- Remove the damper rubber piece.
- Remove the rear wheel collar.
- The re-assembly is exactly opposite to disassembly.



**Caution:**

When the rear brake caliper removed, step on the rear brake pedal is not allowed to avoid the moving of rear caliper piston, and also makes difficult caliper installation.

**Important:**

There shall not be any dirt on working surface of brake pads and plate when re-assembling. Repeatedly step on rear brake pedal for confirming its normal work after replaced.

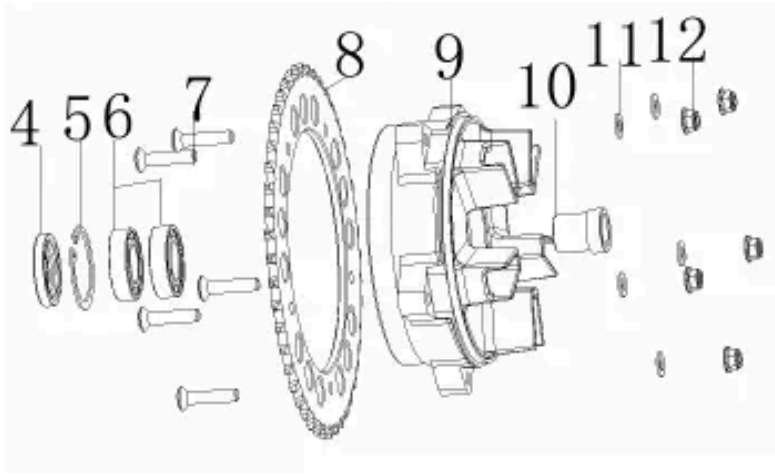
Confirm the dynamic balance on corresponding device after the tire re-assembled.  
The re-assembled collar and oil seal of rear wheel must coat with lithium lubricant.

Parameters:

|                                           |                    |                      |                           |
|-------------------------------------------|--------------------|----------------------|---------------------------|
| Rear wheel                                |                    | Aluminium alloy cast | 4.5"x17"(Aluminium wheel) |
|                                           |                    |                      | 4.5"x17"(Spoke wheel)     |
| Rear tire                                 |                    | Radial tubeless tire | 150/70-17                 |
| The end surface runout on rear wheel<br>≤ |                    | mm                   | 2                         |
| The radial runout on rear wheel ≤         |                    | mm                   | 2                         |
| Torque for chain adjustor nut M8          |                    | Nm                   | 9                         |
| Fastening torque for rear wheel axle M20  |                    | Nm                   | 95                        |
| Fastening torque for brake plate M8       |                    | Nm                   | 35                        |
| Thread loctite                            | 262 thread loctite | ml                   | 10                        |
| Lubricant                                 |                    | g                    | 5                         |
| Allowed max. imbalance on rear wheel      |                    | g                    | 10                        |
| Air pressure in tire                      |                    | bar                  | 2.3                       |

Disassembly for damper set

Remove the connective nut 12, flat washer 11 and bolt 7.  
Remove the sprocket wheel 8.  
Remove the damper collar 10.  
Remove the bearing 6, clip spring 4 and oil seal 4 in damper by special tools one after another.  
The re-assembly is exactly opposite to disassembly.



**Important:**

Coat the thread of fastening bolt with Loctite when re-assembling the sprocket wheel.  
Coat the collar and oil seal of rear wheel with lithium lubricant when re-assembling them.  
Remove the rear wheel bearing needs the drawing tools for it only.  
For better re-assembly. Heat the bearing hole on rear wheel to 100℃, then press and re-assemble the bearing.  
One side of bearing has the positioning circlip, whose missing installation is not allowed.

**Parameters:**

|                                                     |                    |                                |                           |
|-----------------------------------------------------|--------------------|--------------------------------|---------------------------|
| Rear wheel                                          |                    | Aluminium alloy<br>die-casting | 4.5"x17"(Alumimium wheel) |
|                                                     |                    |                                | 4.5"x17"(Spoke wheel)     |
| Rear tire                                           |                    | Radial tubeless                | 150/70-17                 |
| Fastening torque for bolt and nut on sprocket wheel | M8                 | Nm                             | 35                        |
| Thread loctite                                      | 262 Thread loctite | ml                             | 10                        |
| Lubricant                                           |                    | g                              | 5                         |

**Disassembly for brake plate**

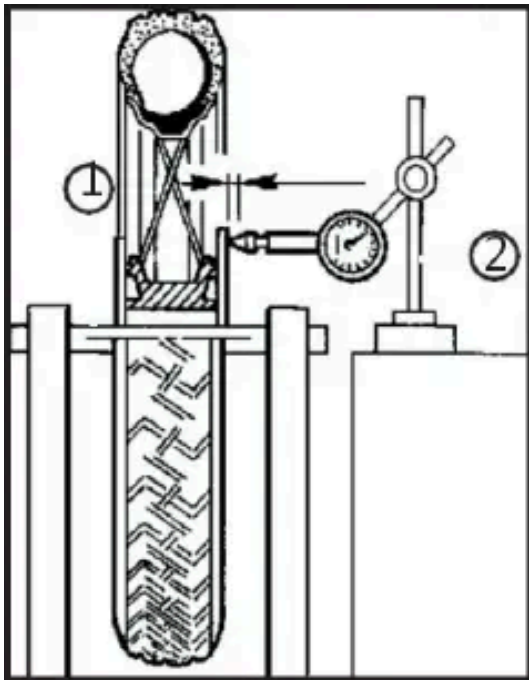
Put the rear wheel on the working bench after removed.  
Remove the fastening bolt for brake plate, then the plate and ring gear.  
The re-assembly is exactly opposite to disassembly.

**Caution:**

The screw on rear brake plate is with Loctite, whose removing tools must meet demands, otherwise it is difficult to be removed.

**Important:**

The dirt on working surface of brake pads and plate is not allowed when re-assembling.  
The fastening bolt shall be coated with Loctite when re-assembling the brake plate.  
Confirm once again the runout of end surface after the brake plate re-assembled, whose method shown as picture.  
Put the rear wheel on balancing rack by the balancing shaft (1).  
Measure the runout of end surface of brake plate by measuring instrument (2).



|                                       |    |     |
|---------------------------------------|----|-----|
| The end surface runout<br>should be ≤ | mm | 0.3 |
|---------------------------------------|----|-----|

**Remove the rear tire**

Remove the rear wheel set and put it on the working bench.  
Remove the air valve core and discharge the air in tire.  
Remove the tire by the tools for it only.  
Remove the air valve core.  
The re-assembly is exactly opposite to disassembly.

**Caution:**

The re-assembly for tire must use the equipment for this work only, forced installation by external power may permanently damage the tire.

**Important:**

Align the light point on tire to the position of air valve core when re-assembling tire to get better work of dynamic balancing.

### **Disassembly for rear wheel bearing and oil seal**

Remove the rear wheel set and put the wheel on working bench.

Remove the brake plate and tire.

Remove the oil seal, elastic circlip, bearing, and inner liner of wheel hub of rear wheel by tools for them only like pliers for circlip one after another.

The re-assembly is exactly opposite to disassembly.

Important:

The rear wheel oil seal gets broken immediately after removed, so the replacement is necessary.

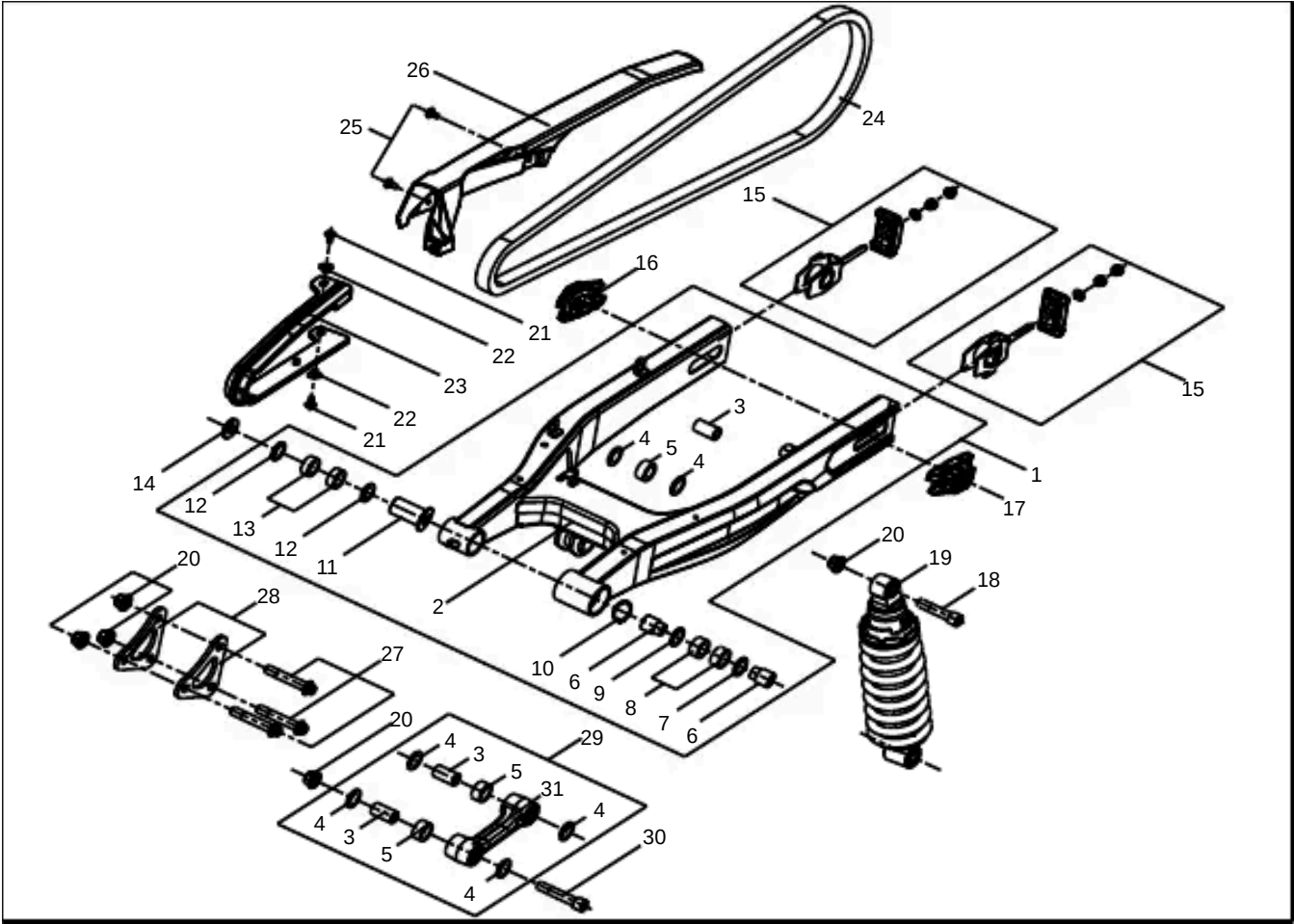
Remove the rear wheel bearing needs the drawing tools for it only.

For better re-assembling, heat the bearing hole on rear wheel to 100°C, then press and install the bearing.

One side of bearing has the positioning circlip, whose missing installation is not allowed.

# The disassembly, re-assembly and maintenance for rear suspension

## Rear suspension set and its parts



|    |                       |     |   |
|----|-----------------------|-----|---|
| 1  | Rear fork set         | PCS | 1 |
| 2  | Rear fork welding set | PCS | 1 |
| 3  | Collar                | PCS | 3 |
| 4  | Oil seal              | PCS | 5 |
| 5  | Bearing               | PCS | 3 |
| 6  | Collar                | PCS | 2 |
| 7  | Oil seal              | PCS | 1 |
| 8  | Bearing               | PCS | 2 |
| 9  | Oil seal              | PCS | 1 |
| 10 | Elastic circlip       | PCS | 1 |
| 11 | Collar                | PCS | 1 |
| 12 | Oil seal              | PCS | 2 |
| 13 | Bearing               | PCS | 2 |
| 14 | Collar                | PCS | 1 |
| 15 | Chain adjustor        | PCS | 2 |
| 16 | Adjustor hanger       | PCS | 1 |
| 17 | Adjustor hanger       | PCS | 1 |
| 18 | Axis                  | PCS | 1 |

|    |                             |     |   |
|----|-----------------------------|-----|---|
| 19 | Rear shock absorber         | PCS | 1 |
| 20 | Metallic flange locking nut | PCS | 5 |
| 21 | Hexagon socket screw        | PCS | 2 |
| 22 | Collar                      | PCS | 2 |
| 23 | Chain slider                | PCS | 1 |
| 24 | Chain                       | PCS | 1 |
| 25 | Hexagon socket screw        | PCS | 2 |
| 26 | Chain case                  | PCS | 1 |
| 27 | Axis                        | PCS | 3 |
| 28 | Bigger rocker rack          | PCS | 2 |
| 29 | Smaller rocker rack         | PCS | 1 |
| 30 | Axis                        | PCS | 1 |
| 31 | Rocker rack body            | PCS | 1 |

### The disassembly and re-assembly for rear shock absorber

Keep the motorcycle upright by its main stand.

Remove the right side cover.

Remove the installation bolt 1 on rear shock absorber by tools.

Remove the installation bolt 3 on bigger rocker rack by tools, finally remove the rear shock absorber 2 (Slightly adjust the height of rear fork 4 may get more suitable space for disassembly).

The re-assembly is exactly opposite to disassembly.



The direction for removing the shock absorber

#### Important:

When re-assembling the bigger rocker rack, pay attention to no dropping between matching bearings and collars, meanwhile coat with lithium lubricant.

#### Parameters

|                                            |     |     |    |
|--------------------------------------------|-----|-----|----|
| Upper installation for rear shock absorber | M12 | N.m | 60 |
| Installation bolt for bigger rocker rack   | M12 | N.m | 60 |
| Installation bolt for side cover           | M6  | N.m | 6  |
| Lithium lubricant                          |     | g   | 15 |

### Disassembly and re-assembly for rear fork and chain

Keep the motorcycle upright by its main stand.

Loosen the chain adjustor nut 1.

Loosen the rear wheel axle nut 2, powerfully move forward for a short distance, then remove the rear wheel axle.

Remove the chain case 3.

Remove the rear wheel 4.

Remove the engine left rear cover 5.

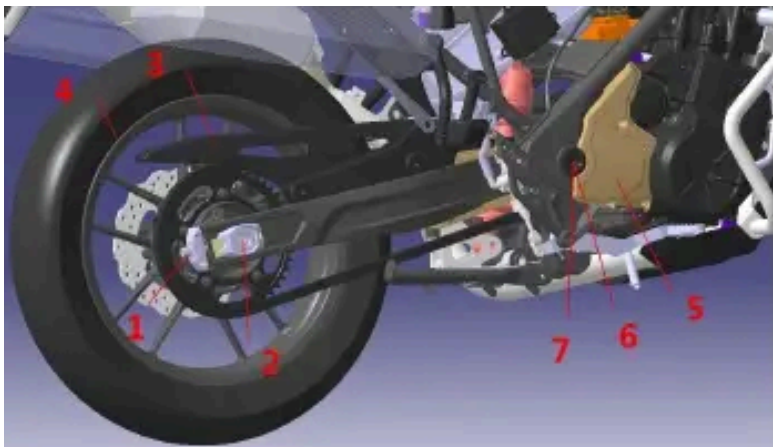
Remove the frame decorative cover 6.

Loosen the axle nut 7 of rear fork, remove the axle next, finally the rear fork body.

Remove the chain (The completely closed chain)

Replace for a new chain with same specification.

The re-assembly is exactly opposite to disassembly.



**Caution:**

Adjust and fasten the left and right chain adjusters first when re-assembling, then fasten the nut on rear wheel axle.

Please adopt the oil for chain or oil seal chain only, or use the gear oil of SAE90 with high viscosity.

**Important:**

Check and confirm the left and right chain adjusters are on the same scale mark when re-assembling.

Check the stress and tension force of chain must be when the motorcycle under 0 loading.

**Parameter**

|                                      |     |     |       |
|--------------------------------------|-----|-----|-------|
| Torque for chain adjustor nut        | M8  | N.m | 9     |
| Torque for rear wheel axle nut       | M20 | N.m | 95    |
| Torque for engine left rear cover    | M6  | N.m | 6     |
| Torque for rear fork axle nut        | M14 | N.m | 120   |
| Installation bolt for covering parts | M6  | N.m | 6     |
| Chain deflection                     |     | mm  | 45-55 |

**The disassembly and re-assembly for rear fork bearing**

Put the removed fork on the working bench.

Remove the collar, oil seal, elastic circlip, bearing (Rolling ball), rear fork lining tube, bearing

(Needle) collar and oil seal at the position of rear fork axle tube one after another by special tools.  
Remove the collars, oil seals and bearings (Needle) in the bearing hole on rear suspension base of rear fork by special tools.

The re-assembly is exactly opposite to disassembly.

**Caution:**

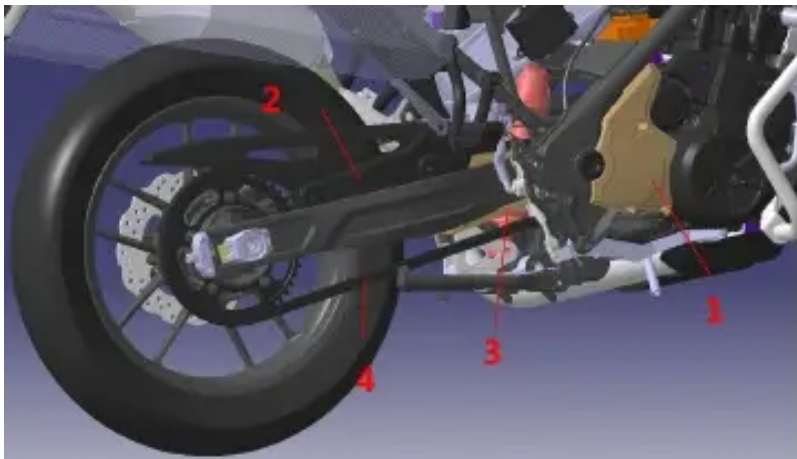
Please use the tools for bearing and oil seal only, powerful removing may damage the parts.

**Important:**

This needle bearing adopts the full needle type due to the demands of strength.  
The needle drop from bearing when re-assembling is not allowed, specially when re-assembling the collar for the bearing.  
When re-assembling, the collar, oil seal and bearing must be coated with lithium lubricant.

**Disassembly and re-assembly for chain slider**

Keep the motorcycle upright by its main stand.  
Remove the chain case 2.  
Remove the rear left cover 1 of engine.  
Remove the chain slider 3.  
Replace for new chain slider with same specification.  
The re-assembly is exactly opposite to disassembly.



**Caution:**

The limit hole on arc of chain slider must clip into the limit sheet at the front end of rear fork axle sleeve when re-assembling.  
In case too tight the chain, it is bad for removing the chain slider, under this case, loosen the chain first, then continue the disassembly or re-assembly.

**Parameters**

|                                      |    |     |     |
|--------------------------------------|----|-----|-----|
| Torque for left rear cover of engine | M6 | N.m | 6   |
| Installation bolt for covering parts | M6 | N.m | 6   |
| Torque T for chain slider bolt       | M6 | N.m | 4.5 |

**Disassembly and re-assembly for driving sprocket wheel**

Keep the motorcycle upright by its main stand.

Loosen the chain adjustor nut.

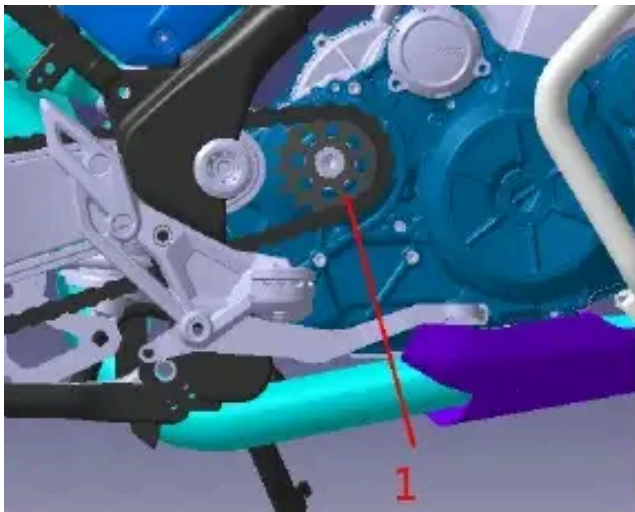
Loosen the rear wheel axle nut, then powerfully move the rear wheel forward, loosen the chain.

Remove the left rear cover of engine.

Remove the installation bolt for driving sprocket wheel, them remove the driving sprocket wheel 1.

Replace for a new driving sprocket wheel with same specification.

The re-assembly is exactly opposite to the disassembly.



**Caution:**

Adjust and fasten the left and right chain adjustors first when re-assembling, then fasten the rear wheel axle nut.

Important:

Check and confirm the left and right chain adjustors are on the same scale mark when re-assembling.

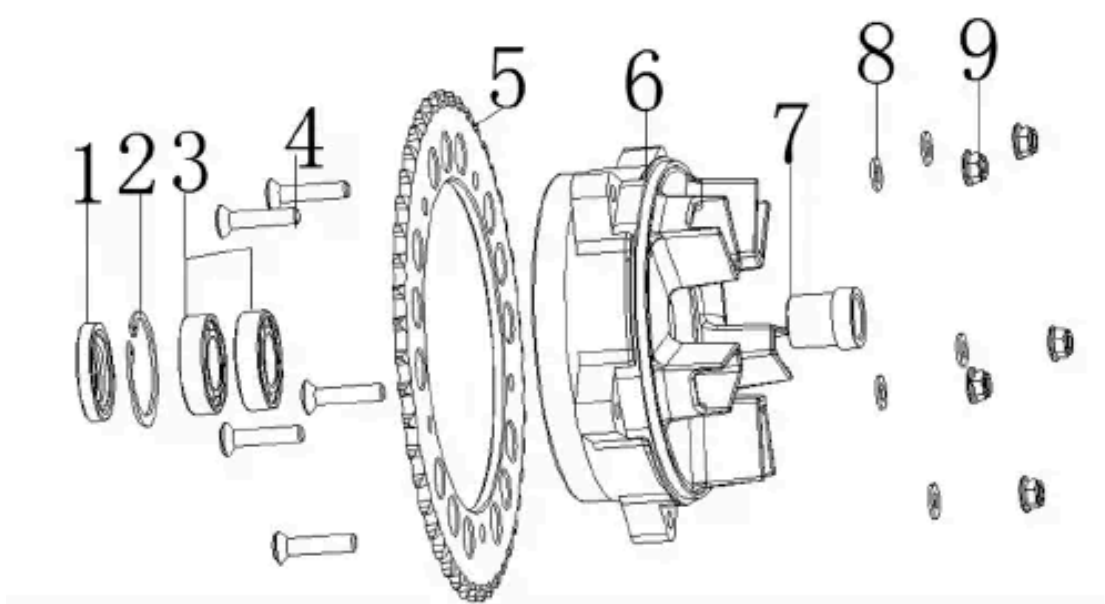
Check the stress and tension force of chain must be when the motorcycle under 0 loading.

Coat the thread with fastening glue when re-assembling the bolt of driving sprocket wheel.

**Parameters**

|                                                  |                 |     |       |
|--------------------------------------------------|-----------------|-----|-------|
| Torque for chain adjustor nut                    | M8              | N.m | 9     |
| Torque for rear wheel axle nut                   | M20             | N.m | 95    |
| Torque for left rear cover of engine             | M6              | N.m | 6     |
| Fastening torque for driving sprocket wheel bolt | M10             | N.m | 55    |
| Specification for thread glue                    | 262 thread glue | ml  | 10    |
| Chain deflection                                 |                 | mm  | 45-55 |

Disassembly and re-assembly for damper set



|   |                                     |     |   |
|---|-------------------------------------|-----|---|
| 1 | Oil seal                            | PCS | 1 |
| 2 | Elastic circlip                     | PCS | 1 |
| 3 | Sprocket bearing                    | PCS | 2 |
| 4 | Sprocket bolt                       | PCS | 5 |
| 5 | Sprocket wheel                      | PCS | 1 |
| 6 | Sprocket wheel base                 | PCS | 1 |
| 7 | Collar                              | PCS | 1 |
| 8 | Flat washer                         | PCS | 5 |
| 9 | Metallic hexagon flange locking nut | PCS | 5 |

Keep the motorcycle upright by its main stand.

Loosen the chain adjustor nut.

Loosen the rear wheel axle nut, powerfully move the rear wheel forward, then remove it.

Remove the damper set.

Replace for a new damper body and the rubber with same specification.

The re-assembly is exactly opposite to disassembly.

Caution:

Adjust and fasten the left and right chain adjustors first when re-assembling, then fasten the rear wheel axle nut.

Important:

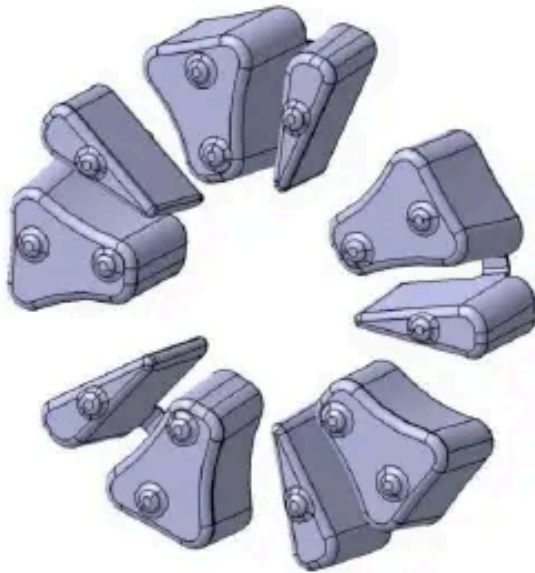
Check and confirm the left and right chain adjustors are on the same scale mark when re-assembling.

Check and adjust the stress and tension force of chain must be when the motorcycle under 0 loading.

Coat the seal with lithium lubricant when replacing for a new damper.

**Parameters**

|                                |     |     |       |
|--------------------------------|-----|-----|-------|
| Torque for chain adjuster nut  | M8  | N.m | 9     |
| Torque for rear wheel axle nut | M20 | N.m | 95    |
| Chain deflection               |     | mm  | 45-55 |

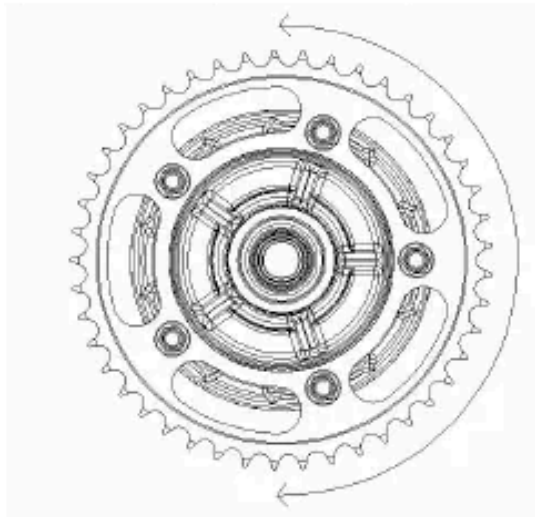
**Disassembly and re-assembly for damper piece of rear wheel**

Keep the motorcycle upright by its main stand.

Remove the rubber piece of rear wheel damper by referring the disassembly for damper set.

Check if the damper rubber piece worn-out or damaged, in case it is, please replace.

In addition, it could be judged on the motorcycle, when parking, lift up the rear wheel, lay stress on sprocket wheel according to the direction in figure, in case the runout could be felt, which means the damper rubber piece already damaged, please replace.

**Caution:**

The sharp acceleration or deceleration repeatedly attacks the damper rubber piece, which produce the heat, meanwhile the rubber piece was sealed in chamber, hard for heat radiation, this may accelerate the rubber piece get worn-out.

**The cases for replacing chain**

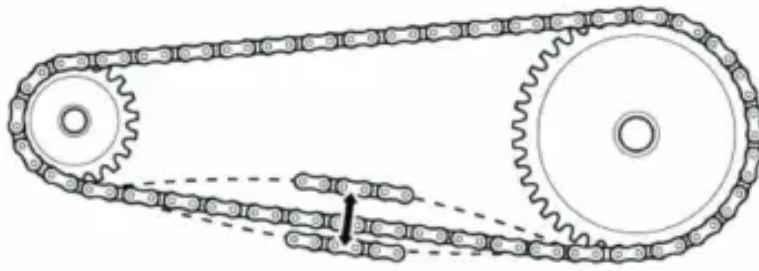
There are dead links on the chain.

The roller of chain damaged.

There are sealing rings for chain are missing.

The distance between links get to be 2 times.

Adjust to the limit but still fall short of meeting demands below, and the data are bigger.



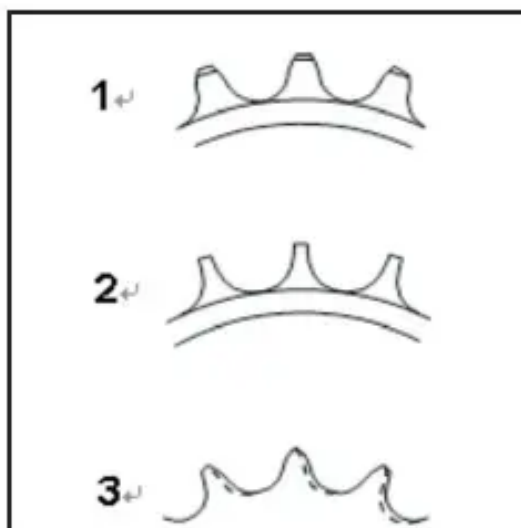
45~55毫米

### The cases for replacing the sprocket wheel

There is distortion on surface of sprocket wheel.

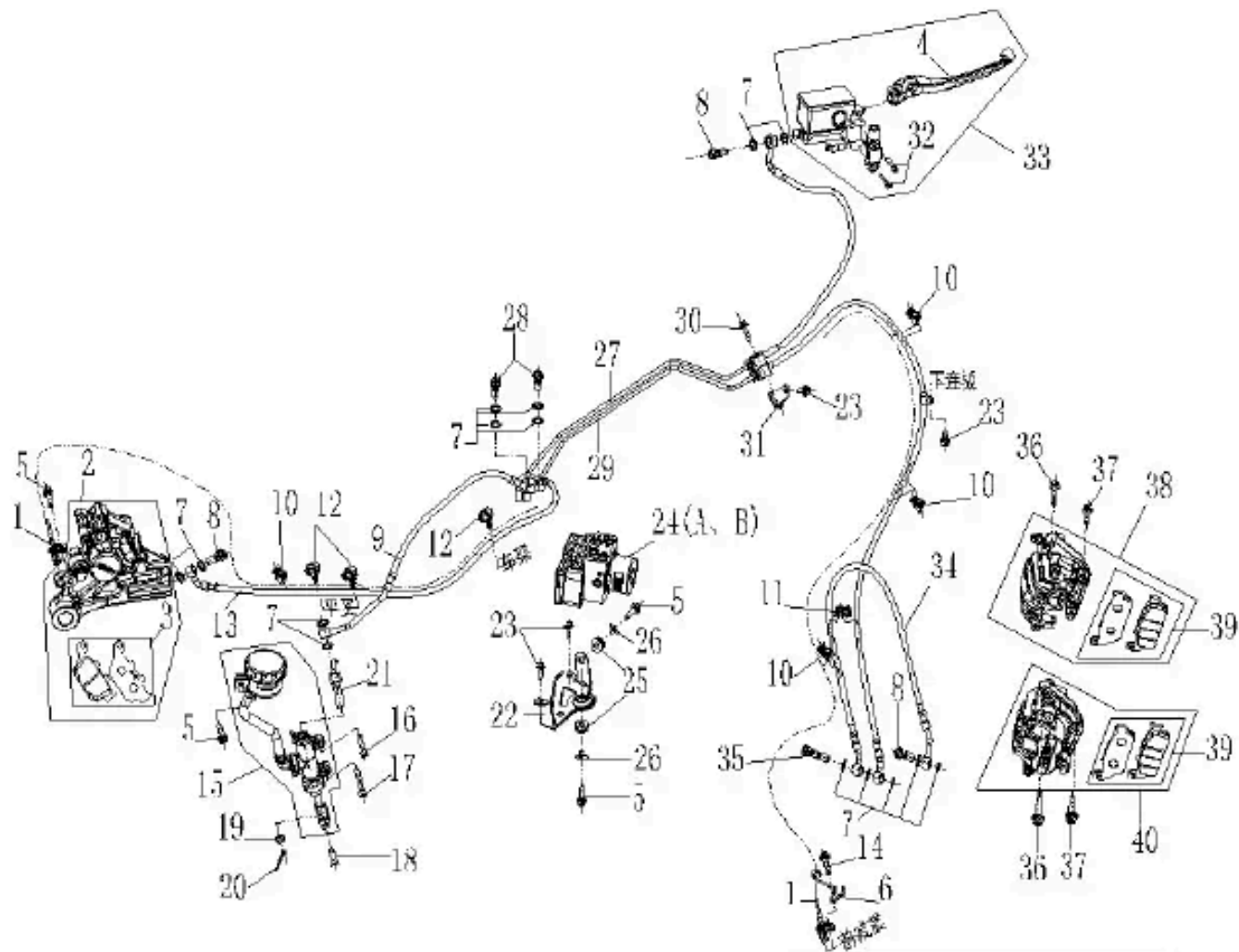
The tooth of sprocket wheel get broken or damaged.

Show as picture below, the 1 is qualified, while the 2 and 3 need replacement.



# The disassembly re-assembly and maintenance for brake system

## The brake system set and its parts

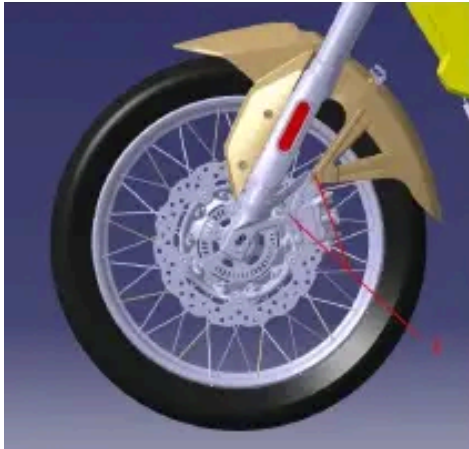


|    |                               |     |    |
|----|-------------------------------|-----|----|
| 1  | Speed sensor                  | PCS | 2  |
| 2  | Lower pump of rear disc brake | PCS | 1  |
| 3  | Rear brake pads set           | Set | 1  |
| 4  | Right lever                   | PCS | 1  |
| 5  | Hexagon flange bolt           | PCS | 4  |
| 6  | Wire clip                     | PCS | 1  |
| 7  | Flat washer                   | PCS | 15 |
| 8  | Brake hose bolt               | PCS | 3  |
| 9  | ABS connective tube           | PCS | 1  |
| 10 | Tube clip                     | PCS | 4  |
| 11 | Tube clip                     | PCS | 1  |
| 12 | Location wire clip            | PCS | 3  |
| 13 | ABS connective hose           | PCS | 1  |
| 14 | Hexagon flange bolt           | PCS | 1  |
| 15 | Upper pump of rear disc brake | PCS | 1  |

|     |                                                                                |     |   |
|-----|--------------------------------------------------------------------------------|-----|---|
| 16  | Hexagon socket screw                                                           | PCS | 1 |
| 17  | Hexagon socket screw                                                           | PCS | 1 |
| 18  | Pin axis                                                                       | PCS | 1 |
| 19  | Flat washer                                                                    | PCS | 1 |
| 20  | Split pin                                                                      | PCS | 1 |
| 21  | Rear brake switch                                                              | PCS | 1 |
| 22  | ABS Installation lug                                                           | PCS | 1 |
| 23  | Hexagon flange bolt                                                            | PCS | 4 |
| 24A | ABS anti-locking up device (TOURANCE turtle tire under common road condition)  | PCS | 1 |
| 24B | ABS anti-locking up device Scorpion Rally Str scorpion tire under unpaved road | PCS | 1 |
| 25  | I-ring                                                                         | PCS | 2 |
| 26  | Collar                                                                         | PCS | 2 |
| 27  | ABS connective oil tube                                                        | PCS | 1 |
| 28  | Brake hose bolt                                                                | PCS | 2 |
| 29  | ABS connective oil hose                                                        | PCS | 1 |
| 30  | Hexagon flange bolt                                                            | PCS | 1 |
| 31  | Fixing bracket for disc brake hose                                             | PCS | 1 |
| 32  | Hexagon socket screw                                                           | PCS | 2 |
| 33  | Upper pump of front brake                                                      | PCS | 1 |
| 34  | Front brake hose set                                                           | PCS | 1 |
| 35  | Brake hose bolt                                                                | PCS | 1 |
| 36  | Hexagon flange bolt                                                            | PCS | 2 |
| 37  | Hexagon flange bolt                                                            | PCS | 2 |
| 38  | Left lower pump for front disc brake                                           | PCS | 1 |
| 39  | Front brake pads set                                                           | PCS | 2 |
| 40  | Right lower pump for front disc brake                                          | PCS | 1 |

### Replace the front brake pads

Keep the motorcycle upright by its main stand.



Remove the installation bolt 1 for caliper.

Remove the bolt 2, finally remove the brake pads 3.

Replace for new pads.

The re-assembly is exactly opposite to disassembly.

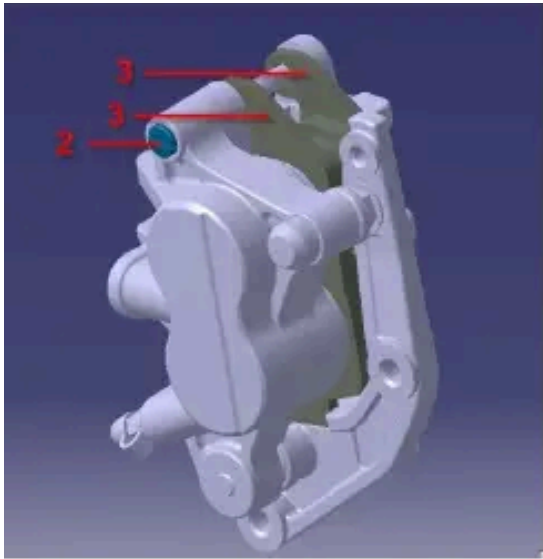


Figure 1-10-10 Front brake pads

**Important:**

The shim missing between the end surface of brake pads and limit groove of front caliper is not allowed, and they must be installed in place.

When removing the brake pads, operate the front brake lever is not allowed, to avoid the move of piston in caliper, or and re-assembly for brake pads is difficult.

When replacing the pads, the outside and inside ones must be replaced as a whole.

The working surface of brake pads and plate shall not be with dirt when re-assembling.

After replaced, repeatedly hold the brake lever tight to confirm it is normal.

Dispose the replaced front brake pads in environment friendly way.

**Parameter:**

|                                 |    |     |         |
|---------------------------------|----|-----|---------|
| The torque for dust proof cover | M6 | N.m | 9       |
| Torque for sliding shaft        | M8 | N.m | 25 ~ 30 |

**Replace the rear brake pads**

Keep the motorcycle upright by its main stand.

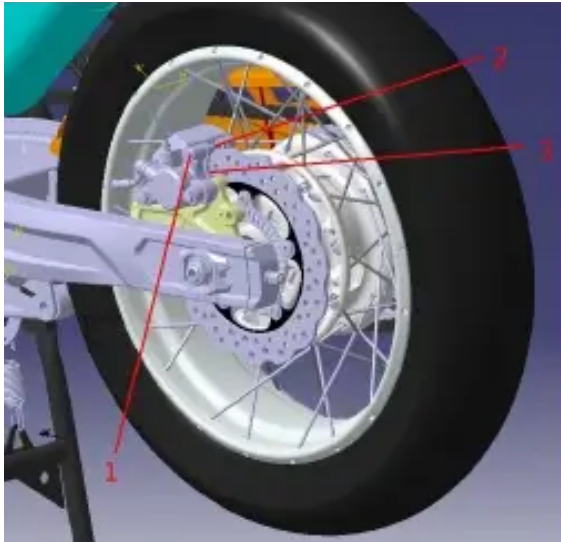
Remove the dust proof cover 1 on rear caliper by screwdriver.

Remove the guiding rod of brake pads inside by hexagon socket tools.

Remove the rear disc brake pads 3.

Replace for new rear disc brake pads.

The re-assembly is exactly opposite to disassembly.



#### Important:

The shim missing between the end surface of brake pads and limit groove of rear caliper is not allowed, and they must be installed in place.

When removing the brake pads, step on the rear brake pedal is not allowed, to avoid the move of piston in caliper, or and re-assembly for brake pads is difficult.

When replacing the pads, the outside and inside ones must be replaced as a whole.

The working surface of brake pads and plate shall not be with dirt when re-assembling.

After replaced, repeatedly step down the rear brake pedal to confirm it is normal.

Dispose the replaced front brake pads in environment friendly way.

#### Parameter:

|                                      |    |     |         |
|--------------------------------------|----|-----|---------|
| Torque for dust proof cover          | M6 | N.m | 9       |
| Torque for guiding rod of brake pads | M8 | N.m | 25 ~ 30 |

#### Check the brake pads

The worn-out mark on front brake pads must be clear as Figure 1 shows.

The rear brake pads are without worn-out mark, whose thickness need be measured, with minimum thickness of 1mm.



## **Check the brake liquid level in front and rear brake systems**

Keep the motorcycle upright by its main stand.

Turn the grip to let the front brake pump horizontal.

The liquid level must be within the scale marks UPPER/LOWER both on front and rear brake oil cup.

Caution:

The front and rear brake pads' brake liquid capacity (Min/Max) must meet the demands from brand new to wear-out.

Fill up brake liquid usually doesn't due the consumption of brake pads.

During the using of brake pads, in case the liquid level fall below the minimum, it means other problems may exist.

## **Replace the liquid in front brake**

Keep the motorcycle upright by its main stand.

Turn the grip to let the brake oil cup's cover 1 get horizontal.

Connect the brake liquid extraction device to the air exhaust screw 2 on caliper.

Turn half round to open the exhaust screw by tools.

Start the extraction device to drain off the residual brake liquid.

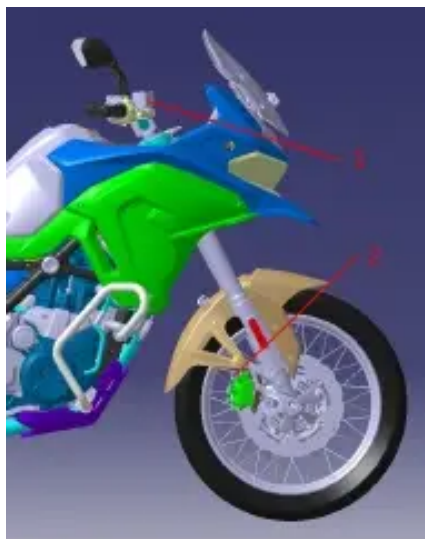
Fill up new brake liquid at oil cup place meanwhile starting the extraction device to let the liquid get full of the whole brake pipe line.

Turn tight the exhaust screw.

Check and confirm the brake liquid level is between scale marks UPPER and LOWER in oil cup.

Connect the diagnosis instrument of ABS into its controller to check the malfunction code, in case it is, make troubleshooting.

The re-assembly is exactly opposite to disassembly.



Caution:

After the brake liquid filled up, clean up the surrounding greasy dirty of oil cup and lower caliper.

Important:

The painting parts on motorcycle touch the brake liquid are not allowed due to corrosive.

When extracting the liquid, the level fall below scale mark LOWER is not allowed, or the air bubble may get into the brake system, under this case, the extraction need be done once again.

After filled up, lay the stable force on brake lever and keep for a while, to check if there is leakage on brake pipeline.

In case problems were found at the joint of brake hose or threaded pats, please replace immediately.

The mixture of brake liquid from different brands are not allowed.

**Parameters:**

|                                       |    |  |             |           |
|---------------------------------------|----|--|-------------|-----------|
| Torque for dust proof cover           | M6 |  | N.m         | 9         |
| Torque for guiding rod of brake pads  | M8 |  | N.m         | 25 ~ 30   |
| Torque for air exhaust screw          | M8 |  | N.m         | 3.9 ~ 6.9 |
| Liquid capacity in front brake system |    |  | mL          | 150       |
| Liquid specification                  |    |  | Chang Cheng | DOT4      |

**Replace the rear brake liquid**

Keep the motorcycle upright by its main stand.

Remove the oil cup cover 1 and its rubber cap together by tools.

Connect the brake liquid extraction device to the air exhaust screw 2 on caliper.

Turn half round to open the exhaust screw by tools.

Start the extraction device to drain off the residual brake liquid.

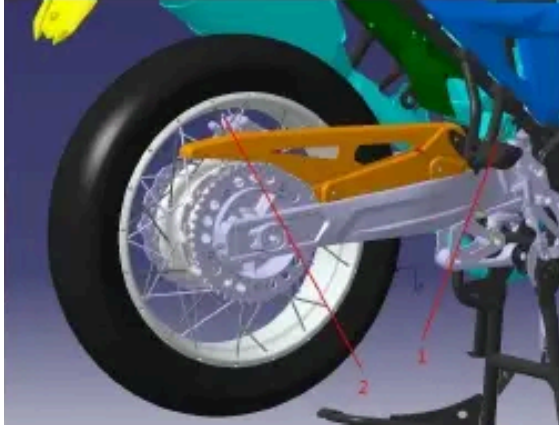
Fill up new brake liquid at oil cup place meanwhile starting the extraction device to let the liquid get full of the whole brake pipe line.

Turn tight the exhaust screw.

Check and confirm the brake liquid level is between scale marks UPPER and LOWER in oil cup.

Connect the diagnosis instrument of ABS into its controller to check the malfunction code, in case it is, make troubleshooting.

The re-assembly is exactly opposite to disassembly.



After the brake liquid filled up, clean up the surrounding greasy dirty of oil cup and rear caliper.

Important:

The painting parts on motorcycle touch the brake liquid are not allowed due to corrosive.

When extracting the liquid, the level fall below scale mark LOWER is not allowed, or the air bubble may get into the brake system, under this case, the extraction need be done once again.

After filled up, lay the stable force on brake pedal and keep for a while, to check if there is leakage on brake pipeline.

In case problems were found at the joint of brake hose or threaded pats, please replace immediately.

The mixture of brake liquid from different brands are not allowed.

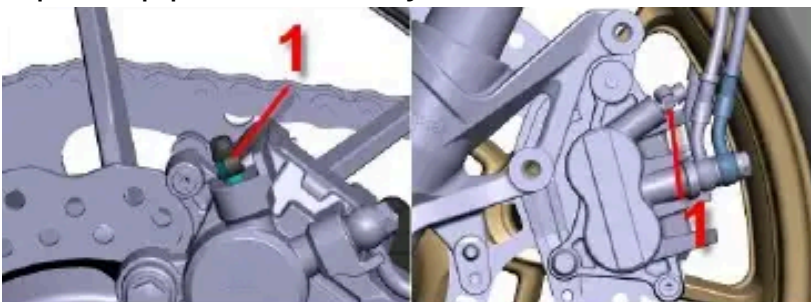
#### Parameters:

|                                      |    |             |           |
|--------------------------------------|----|-------------|-----------|
| Torque for dust proof cover          | M6 | N.m         | 9         |
| Torque for guiding rod of brake pads | M8 | N.m         | 25 ~ 30   |
| Torque for air exhaust screw         | M8 | N.m         | 3.9 ~ 6.9 |
| Liquid capacity in rear brake system |    | mL          | 150       |
| Brake liquid specification           |    | Chang Cheng | DOT4      |
|                                      |    |             |           |

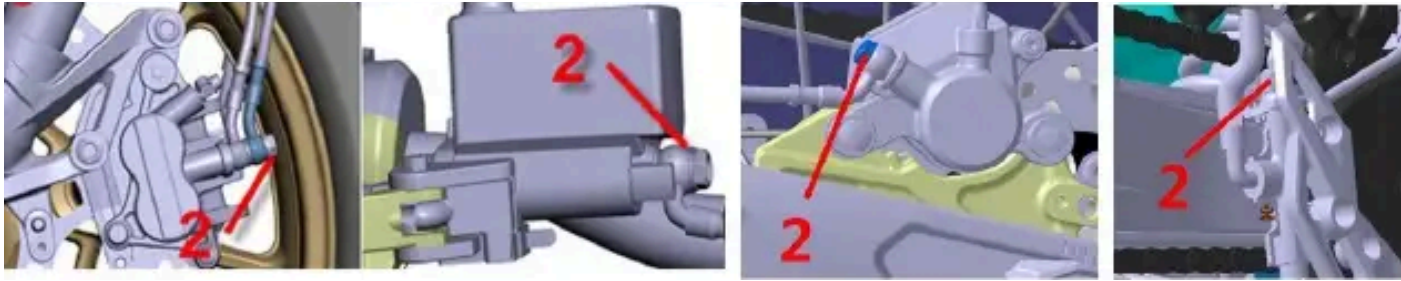
#### Replace the parts in ABS and pipeline of front and rear brake

Remove the seats, covering plastic parts and fuel tank.

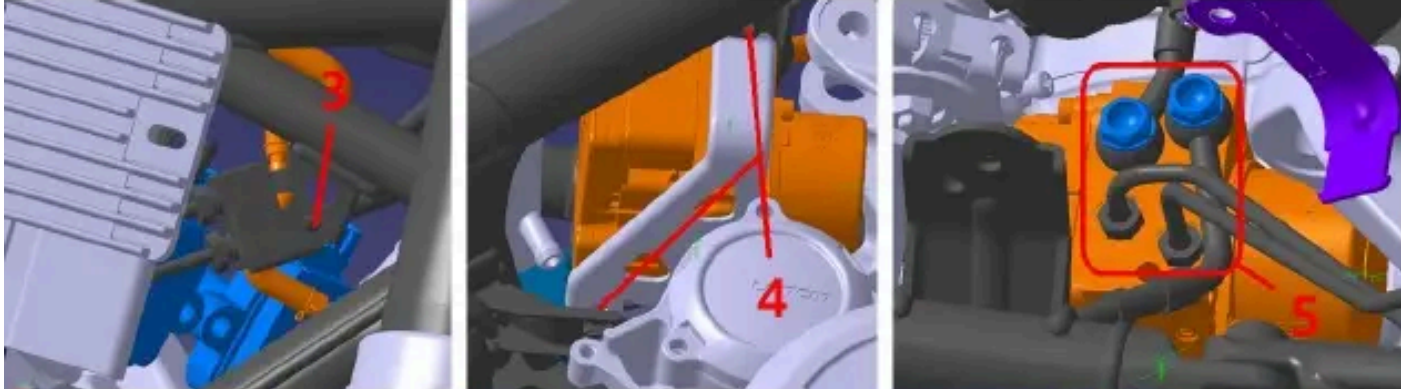
Loosen the air exhaust screw 1, and connect it to vacuum device, drain off the brake liquid in pipeline. The way is the same with above for replacing brake liquid.



Remove the drilling bolt 2 and seal washer for installing oil tube on front and rear brake pump.



Remove the connective bolt 3 between the front & rear ends and frame, remove the connective screw 4 between installation bracket of ABS controller and frame, then remove the connecting 5 and seal washer between brake hose and controller of ABS.



After the steps above finished, the ABS controller and brake oil hose are removeable. The re-assembly is exactly opposite to disassembly.

Fill up brake liquid by following its replacing procedure above and make the final inspection

#### **Important:**

The brake liquid is corrosive, touch skin or cloths when draining off or filling up is not allowed.

The gasket at the drilling bolt needs be replaced when re-assembling, otherwise it may leak.

Each adjoining surface need install the gasket.

#### **Parameters**

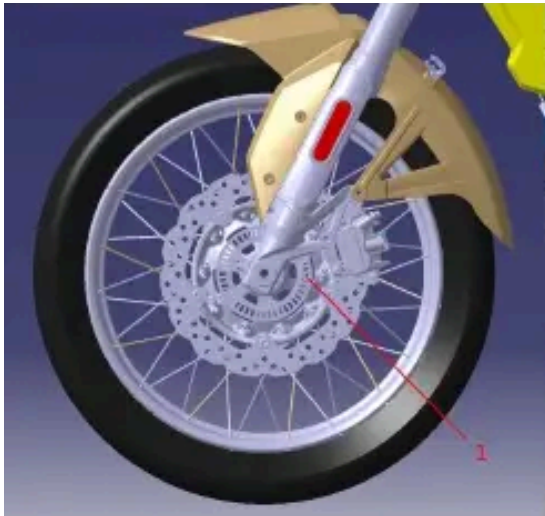
|                                                          |    |     |          |
|----------------------------------------------------------|----|-----|----------|
| Torque of drilling bolt and ABS                          | M8 | N.m | 21~27    |
| The torque of drilling bolt at front and rear disc brake | M8 | N.m | 30~40    |
| Torque of air exhausting screw                           | M8 | N.m | 3.9 ~6.9 |

#### **The disassembly for front speed sensor**

Keep the motorcycle upright by its main stand.

Remove the bolt 1, then the speed sensor on the front wheel.

The re-assembly is exactly opposite to disassembly.



Important

Suspend the front wheel when re-assembling the front wheel. Turn the front wheel to view its change on the clearance between speed sensor and ring gear.

Parameters:

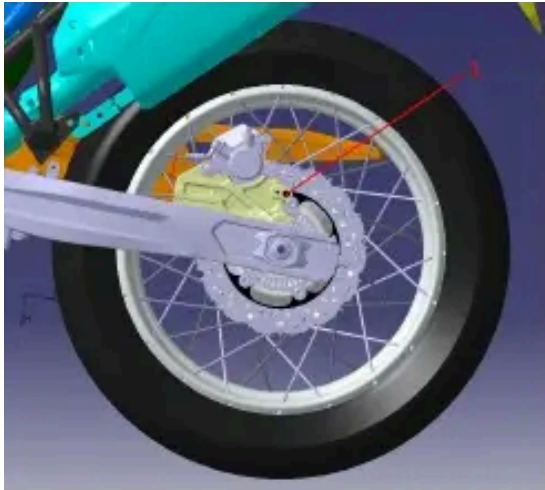
|                                        |    |    |           |
|----------------------------------------|----|----|-----------|
| Fastening torque of speed sensor bolt  | M6 | Nm | 9         |
| Clearance between sensor and ring gear |    | mm | 0.8 ~ 1.5 |

### The disassembly for rear speed sensor

Keep the motorcycle upright by its main stand.

Remove the bolt 1, then the speed sensor on the rear wheel.

The re-assembly is exactly opposite to disassembly.



Important

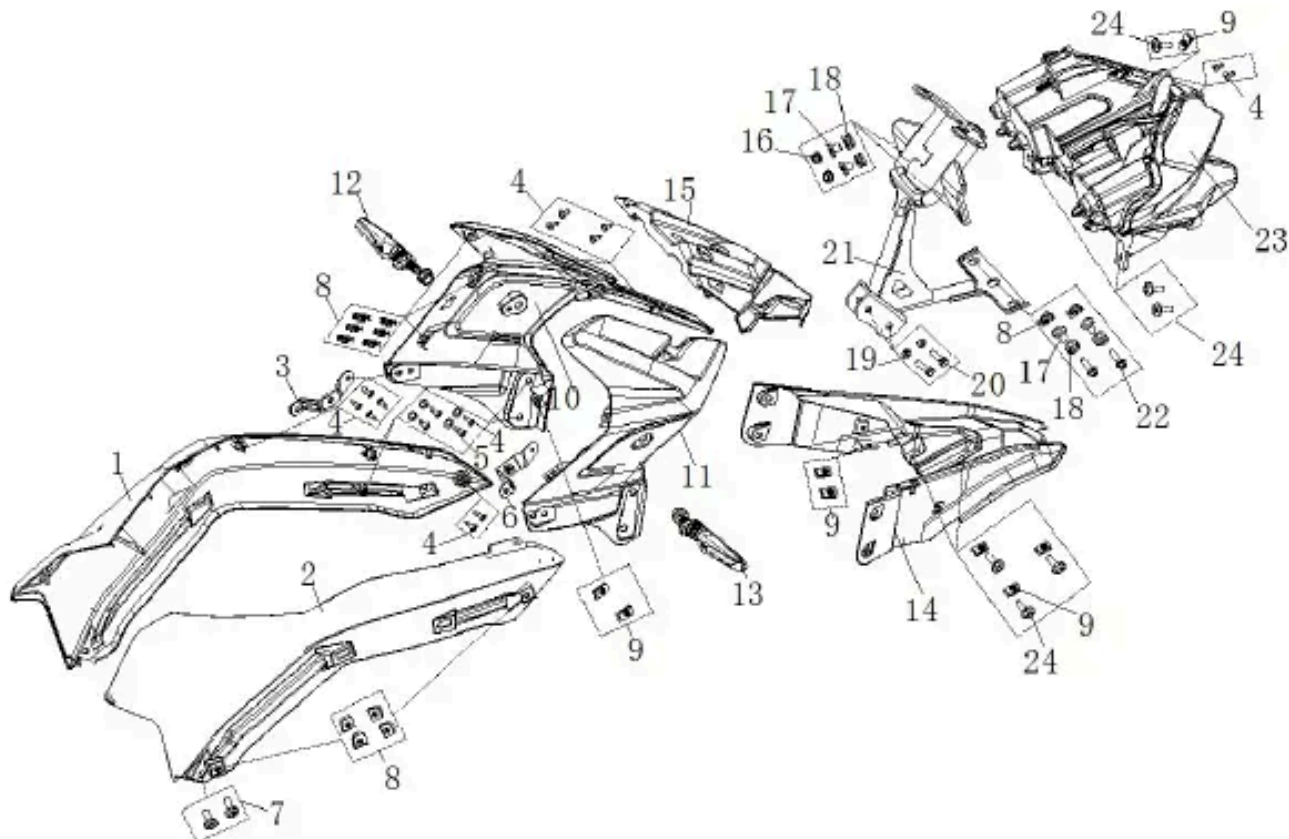
Suspend the rear wheel when re-assembling the rear wheel. Turn the rear wheel to view its change on the clearance between speed sensor and ring gear.

Parameter:

|                                        |    |    |         |
|----------------------------------------|----|----|---------|
| Fastening torque of speed sensor bolt  | M6 | Nm | 9       |
| Clearance between sensor and ring gear |    | mm | 0.8~1.5 |

The disassembly, re-assembly and maintenance for lights

The headlight set and its parts



|    |                                          |     |    |
|----|------------------------------------------|-----|----|
| 1  | Fuel tank left decorative cover          | PCS | 1  |
| 2  | Fuel tank right decorative cover         | PCS | 1  |
| 3  | Fuel tank left decorative cover bracket  | PCS | 1  |
| 4  | Cross head self-tapping screw            | PCS | 16 |
| 5  | Flat washer                              | PCS | 4  |
| 6  | Fuel tank right decorative cover bracket | PCS | 1  |
| 7  | Hexagon socket screw                     | PCS | 2  |
| 8  | Clip nut                                 | PCS | 12 |
| 9  | Clip nut                                 | PCS | 8  |
| 10 | Fairing cover left protective plate      | PCS | 1  |
| 11 | Fairing cover right protective plate     | PCS | 1  |
| 12 | Left turning signal light                | PCS | 1  |
| 13 | Right turning signal light               | PCS | 1  |
| 14 | Front fork mud guard plate               | PCS | 1  |
| 15 | Windshield of fairing cover              | PCS | 1  |
| 16 | Hexagon flange nut                       | PCS | 2  |
| 17 | Collar                                   | PCS | 4  |
| 18 | I-ring                                   | PCS | 4  |
| 19 | Metallic flange locking nut              | PCS | 2  |
| 20 | Hexagon flange bolt                      | PCS | 2  |
| 21 | Headlight bracket                        | PCS | 1  |

|    |                      |     |   |
|----|----------------------|-----|---|
| 22 | Hexagon flange bolt  | PCS | 2 |
| 23 | Headlight            | PCS | 1 |
| 24 | Hexagon socket screw | PCS | 6 |

**The disassembly for headlight set**

Keep the motorcycle upright by its main stand.

Remove the left and right protective plates, also the front decorative cover of fuel tank by referring the steps for removing fuel tank.

Loosen the bolt 1, then remove the instrument set 2 and its decorative cover. (Disconnect all the connectors between instrument and wire harness)

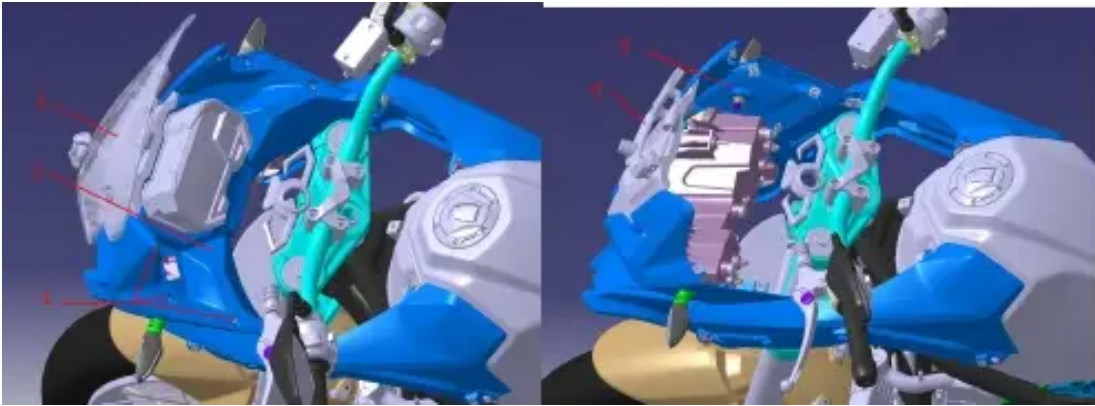
Loosen the bolt and adjust button of windshield glass, then remove the windshield glass3.

Loosen the bolt and remove the lug 4 of windshield glass.

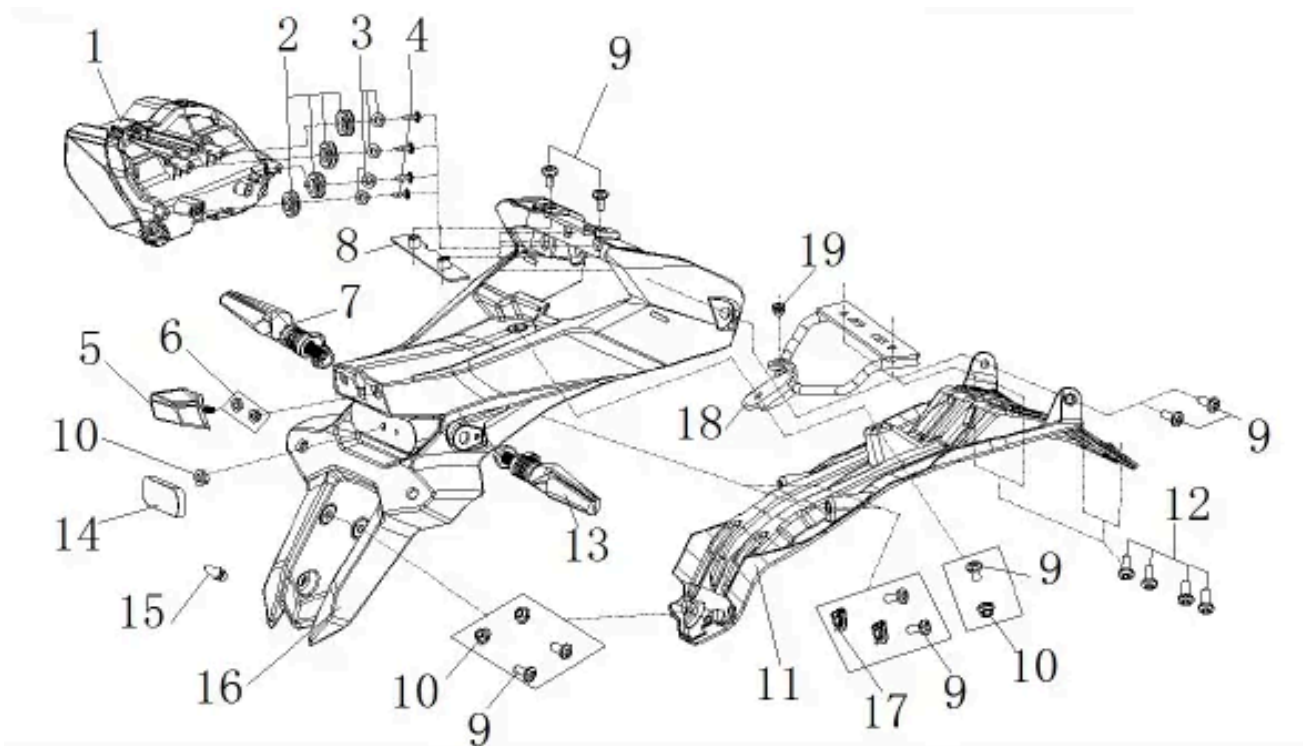
Loosen the bolt ,remove the left & right decorative covers of fuel tank and left & right protective plate of fairing cover (Including mud guard plate of front fork and windshield of fairing cover, disconnect all the connectors between left & right turning signal light and wire harness.).

Loosen the bolt, finally remove the headlight set.

The re-assembly is exactly opposite to disassembly.



The taillight set and its parts



|    |                                    |     |   |
|----|------------------------------------|-----|---|
| 1  | Taillight                          | PCS | 1 |
| 2  | I-ring                             | PCS | 4 |
| 3  | Flat washer                        | PCS | 4 |
| 4  | Cross head self-tapping screw      | PCS | 4 |
| 5  | Rear registration plate light      | PCS | 1 |
| 6  | Hexagon flange nut                 | PCS | 2 |
| 7  | Left rear turning signal light     | PCS | 1 |
| 8  | Installation piece for rear fender | PCS | 1 |
| 9  | Hexagon socket screw               | PCS | 9 |
| 10 | Hexagon flange nut                 | PCS | 4 |
| 11 | Inner plate of rear fender         | PCS | 1 |
| 12 | Hexagon socket screw               | PCS | 4 |
| 13 | Right rear turning signal light    | PCS | 1 |
| 14 | Rear reflector                     | PCS | 1 |
| 15 | Damping rubber nail                | PCS | 1 |
| 16 | Rear fender rear part              | PCS | 1 |
| 17 | Clip nut                           | PCS | 2 |
| 18 | Rear fender bracket                | PCS | 1 |
| 19 | Damping rubber nail                | PCS | 1 |

The disassembly for tailligjht

Keep the motorcycle upright by its main stand.

Remove the driver and passenger seats.

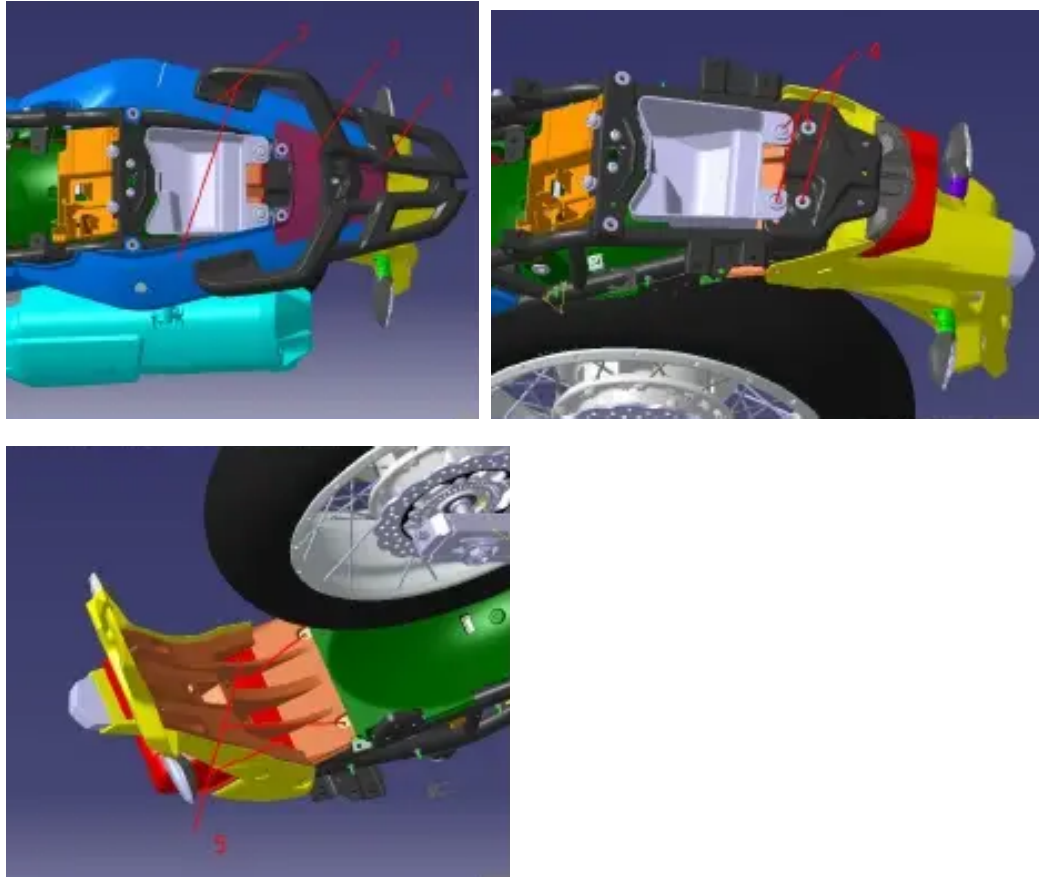
Loosen the bolt and remove luggage rack 1.

Loosen the bolt and remove tail cover 2.

Loosen the bolt and remove tail cover and its connecting piece set 3.

Loosen the bolt 4 and 5, then remove the taillight, rear fender and its inner plate, finally remove the taillight.

The re-assembly is exactly opposite to disassembly.



**Caution:**

Please disconnect the connectors between wire harness and taillight wires before removing the taillight.

**Disassembly for rear turning signal and rear registration plate light**

Keep the motorcycle upright by its main stand.

Loosen bolt 1, then remove the inner plate of rear fender.

Remove the left and right turning signal lights.

Remove the registration plate light.

The re-assembly is exactly opposite to disassembly.



**Caution:**

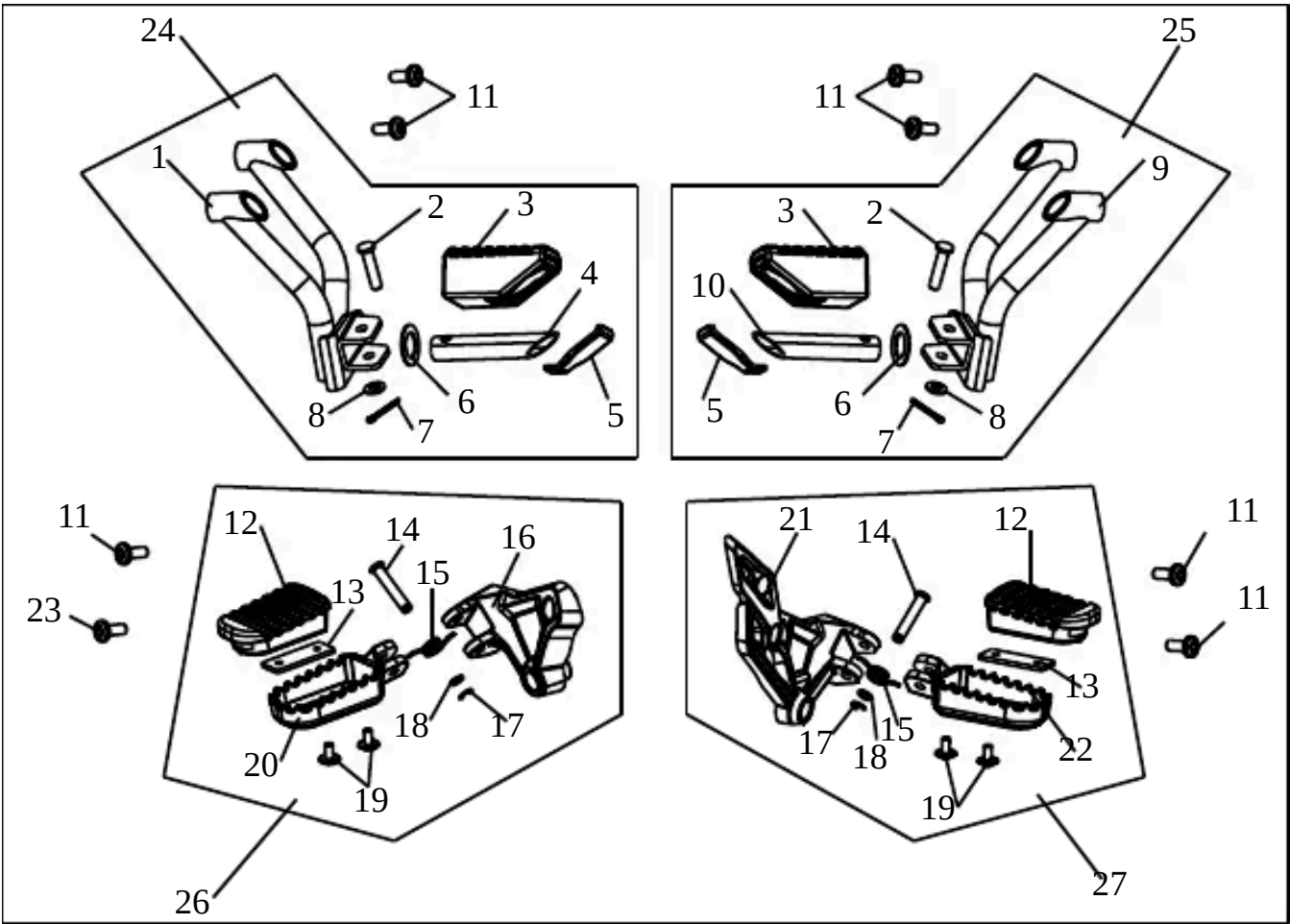
When re-assembling the rear turning signal lights and registration plate light, straighten the wires between inner and outer plate of rear fender to avoid to be pressed/

**Parameters:**

|                                                   |       |    |   |
|---------------------------------------------------|-------|----|---|
| Torque for self-tapping screw of covering parts   | ST4.2 | Nm | 2 |
| Torque for hexagon socket screw of covering parts | M6    | Nm | 6 |
| Torque for flange nut                             | M6    | Nm | 6 |

# The disassembly, re-assembly and maintenance for main footrest and step pillion

Main footrest & step pillion and their parts



|    |                              |     |   |
|----|------------------------------|-----|---|
| 1  | Left step pillion bracket    | PCS | 1 |
| 2  | Pin axis                     | PCS | 2 |
| 3  | Pillion rubber jacket        | PCS | 2 |
| 4  | Left pillion core            | PCS | 1 |
| 5  | Outer piece for pillion core | PCS | 2 |
| 6  | Flat washer                  | PCS | 2 |
| 7  | Split pin                    | PCS | 2 |
| 8  | Flat washer                  | PCS | 2 |
| 9  | Right step pillion bracket   | PCS | 1 |
| 10 | Right step pillion core      | PCS | 1 |
| 11 | Hexagon socket screw         | PCS | 7 |
| 12 | Footrest rubber jacket       | PCS | 2 |
| 13 | Footrest rubber limit piece  | PCS | 2 |
| 14 | Pin axis                     | PCS | 2 |
| 15 | Turning spring               | PCS | 2 |
| 16 | Left footrest bracket        | PCS | 1 |
| 17 | Opening circlip              | PCS | 2 |

|    |                             |     |   |
|----|-----------------------------|-----|---|
| 18 | Seal ring                   | PCS | 2 |
| 19 | Hexagon socket screw        | PCS | 4 |
| 20 | Main footrest body          | PCS | 1 |
| 21 | Right main footrest bracket | PCS | 1 |
| 22 | Main footrest body          | PCS | 1 |
| 23 | Hexagon socket screw        | PCS | 1 |
| 24 | Left step pillion set       | PCS | 1 |
| 25 | Right step pillion          | PCS | 1 |
| 26 | Left main footrest          | PCS | 1 |
| 27 | Right main footrest         | PCS | 1 |

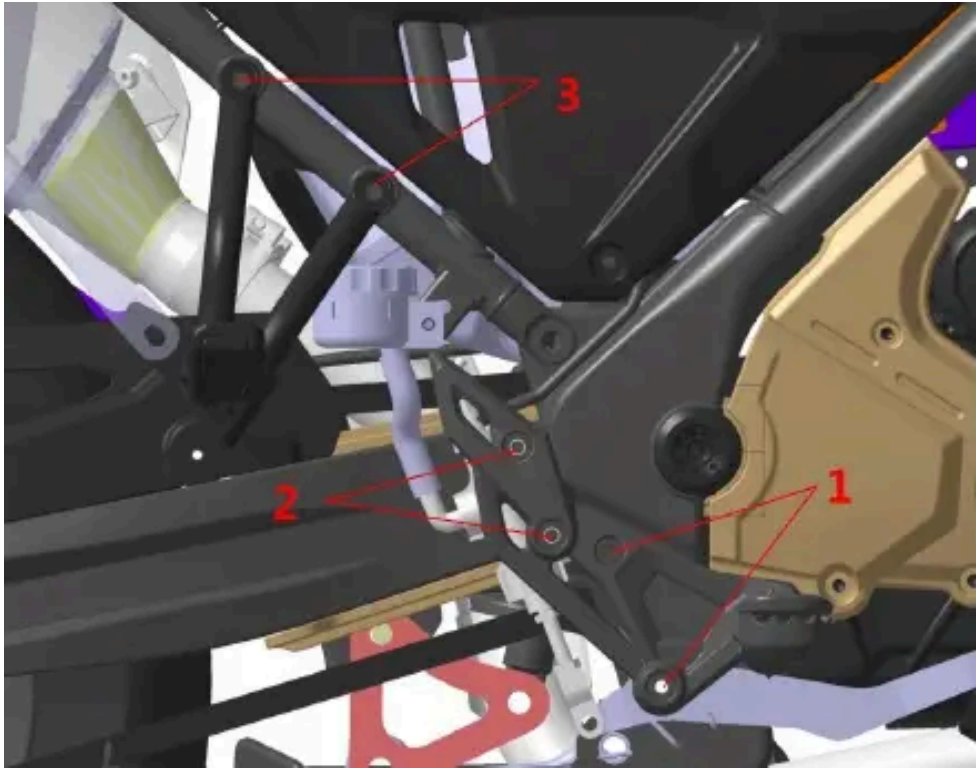
**Disassembly for left & right main footrests and step pillions**

Keep the motorcycle upright by its main stand.

Remove the bolt 1 and 2 by tools and remove the right main footrest.

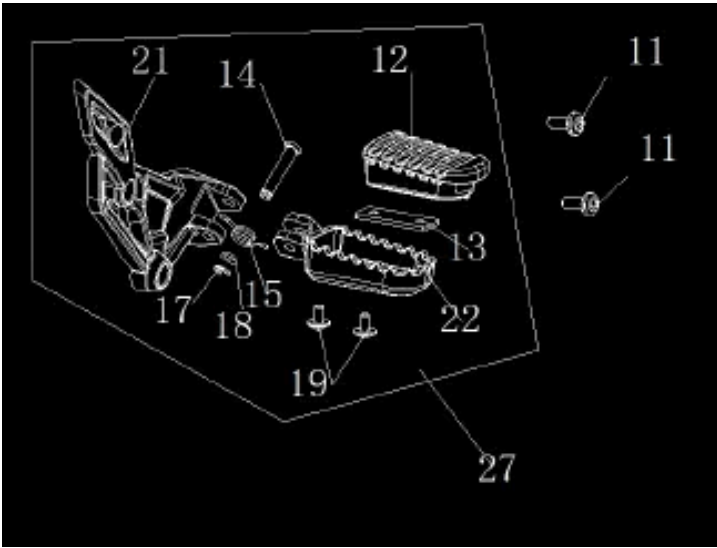
Remove the bolt 3 and finally remove the right step pillion.

The re-assembly is exactly opposite to disassembly.



**Disassembly for left & right footrests**

The right main footrest could be disassembled as picture below.



Caution:

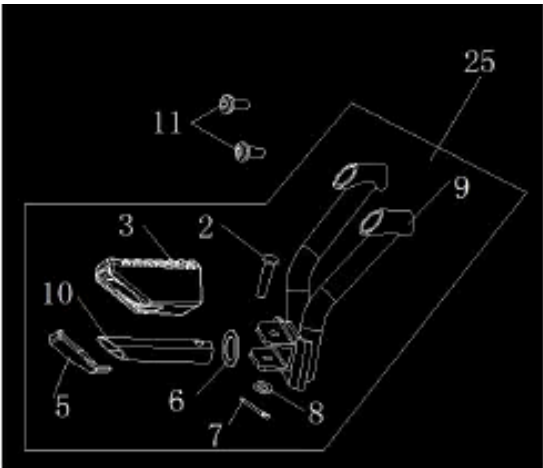
Coat the turning position with lithium lubricant when re-assembling the footrest.

Parameters

|                   |   |    |
|-------------------|---|----|
| Lithium lubricant | g | 10 |
|-------------------|---|----|

Disassembly for left and right step pillions

The right step pillion could be disassembled as picture below.



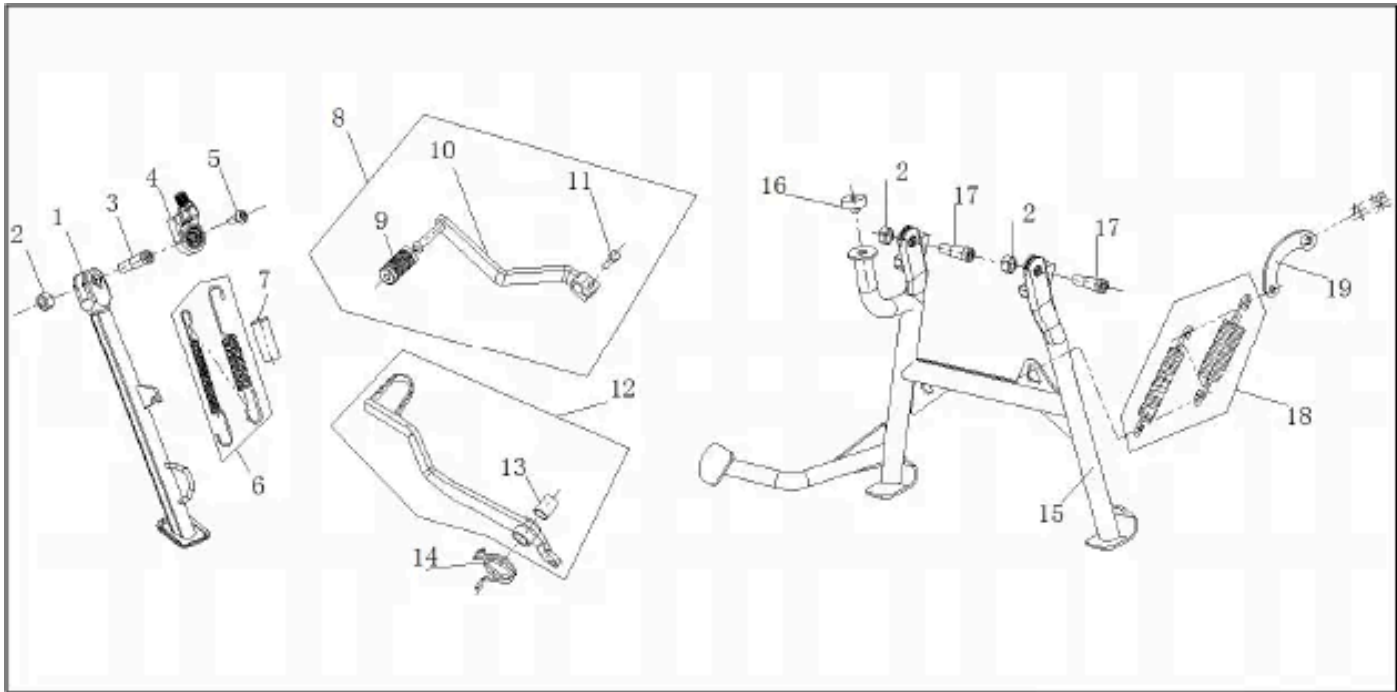
Caution

Coat the turning position with lithium lubricant when re-assembling the step pillion.

|                   |   |    |
|-------------------|---|----|
| Lithium lubricant | g | 10 |
|-------------------|---|----|

**The disassembly, re-assembly and maintenance for side & main stands, and gearshift & rear brake pedals**

**Side & main stands, gearshift & rear brake pedals and their parts**

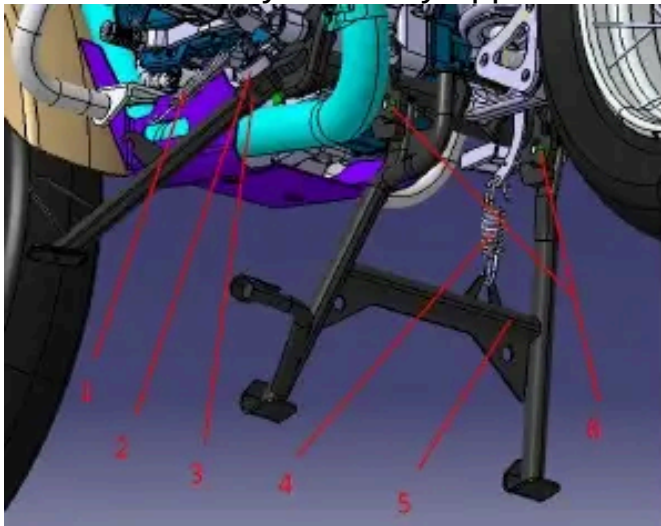


|    |                               |     |   |
|----|-------------------------------|-----|---|
| 1  | Side stand                    | PCS | 1 |
| 2  | Metallic flange nut           | PCS | 3 |
| 3  | Hexagon shoulder bolt         | PCS | 1 |
| 4  | Side stand kill switch        | PCS | 1 |
| 5  | Hexagon socket screw          | PCS | 1 |
| 6  | Drawing spring                | Set | 1 |
| 7  | Rubber jacket                 | PCS | 1 |
| 8  | Gearshift pedal               | PCS | 1 |
| 9  | Gearshift pedal rubber jacket | PCS | 1 |
| 10 | Gearshift pedal welding set   | PCS | 1 |
| 11 | Hexagon bolt                  | PCS | 1 |
| 12 | Rear brake pedal              | PCS | 1 |
| 13 | Collar                        | PCS | 1 |
| 14 | Turning spring                | PCS | 1 |
| 15 | Main stand                    | PCS | 1 |
| 16 | Main stand damping sheet      | PCS | 1 |
| 17 | Hexagon shoulder bolt         | PCS | 2 |
| 18 | Drawing spring                | Set | 1 |
| 19 | Spring hanger                 | PCS | 1 |

**Disassembly and re-assembly for side and main stands**

Keep the motorcycle upright by its main stand.

Remove the drawing spring 1 of side stand by tools.  
After the bolt removed, remove the kill switch 2 of side stand.  
After the bolt removed, remove the side stand 3.  
The re-assembly is exactly opposite to disassembly,



Keep the motorcycle parking by its side stand.  
Remove the drawing spring 4 of main stand by tools.  
Loosen the nut and remove main stand shaft 6.  
Remove the main stand 5.  
The re-assembly is exactly opposite to disassembly.

Caution:

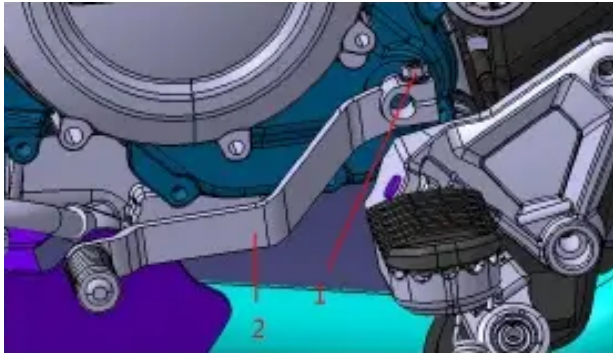
Coat the turning position with lithium lubricant when re-assembling the side and main stands.

Parameters:

|                                     |     |    |    |   |
|-------------------------------------|-----|----|----|---|
| Fastening of side stand step bolt   | M10 | Nm | 40 |   |
| Fastening of side stand nut         | M10 | Nm | 40 |   |
| Fastening of side stand kill switch | M6  | Nm | 6  |   |
| Fastening for main stand shaft nut  | M10 | Nm | 40 |   |
| Lithium lubricant                   |     | g  |    | 5 |

The disassembly and re-assembly for gearshift pedal

Keep the motorcycle upright by parking stand.  
Remove the bolt 1 by tools, then the gearshift pedal.  
The re-assembly is exactly opposite to disassembly.



#### Parameters:

|                                       |    |    |   |
|---------------------------------------|----|----|---|
| Fastening for spline base welding set | M6 | Nm | 9 |
|---------------------------------------|----|----|---|

### Disassembly and re-assembly for rear brake pedal

Keep the motorcycle upright by parking stand.

Remove the split pin connecting rear brake pedal and rear brake main cylinder, then remove the washer and pin axis 1.

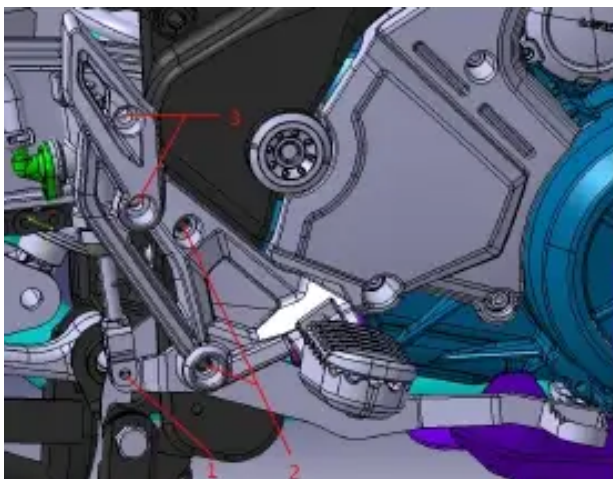
Remove the bolt 2 connecting main cylinder of rear brake.

Remove the bolt 3 connecting right main footrest, finally remove the footrest and rear brake pedal set.

Remove the drawing spring connecting right main footrest and rear brake pedal.

Remove the bolt, finally remove the rear brake pedal.

The re-assembly is exactly opposite to disassembly.



#### Caution:

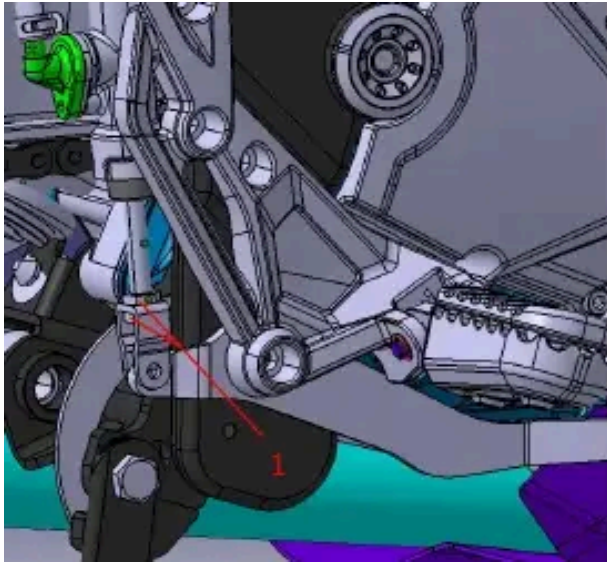
The height of rear brake pedal is adjustable through loosening the nut 1.

#### Important:

Coat the turning position of rear brake pedal with lithium lubricant.

Adjust the height of rear brake pedal, but after this work finished, the nut must be fastened, otherwise it may lead to braking failure and accident.

Replace for a new split pin when replace it connecting the rear brake pedal and rear brake main cylinder, because the used split pin is easy to crack and lead to accident.



**Parameters:**

|                                               |    |    |    |
|-----------------------------------------------|----|----|----|
| Fastening torque for rear brake pedal         | M6 | Nm | 9  |
| Fastening torque for rear brake main cylinder | M6 | Nm | 9  |
| Fastening torque for right main footrest      | M8 | Nm | 18 |
| Lithium lubricant                             |    | g  | 10 |