

8. Rear end

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8.1. Troubleshooting 2

Rear wheel wobble

- Unbalanced tyre
- Bent rim
- Axle not tight
- Motor support loose
- Low-pressure tyre

Soft suspension

- Weakened spring
- Loss of oil
- Soft preload

Hard suspension

- Dampers with unequal preload
- Hard preload
- Damper poorly mounted
- Damper rod bent
- Damaged swingarm bearings
- Defective motor support

Rear brake weak

- Contaminated disc
- Contaminated pads
- Air in the hydraulic system
- Worn pads
- Warped disc
- Unbalanced caliper
- Blocked hose

Noises in rear wheel

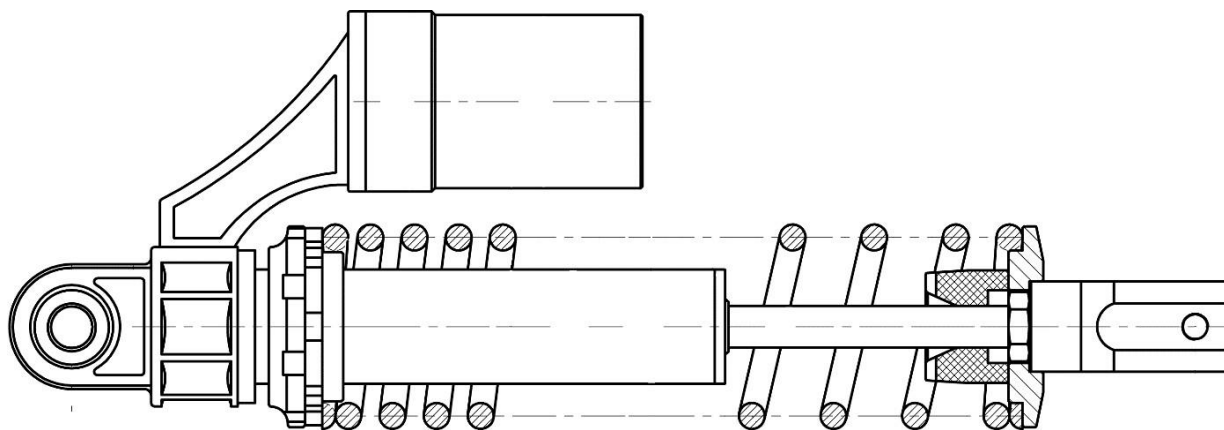
- Worn bearings
- Worn pads
- Deformed swingarm

8.2. Rear end characteristics

Item	Service limit
Radial runout of the rear rim	2.0 mm
Axial runout of the rear rim	2.0 mm
Thickness of the rear brake disc	3.0 mm
Warping of the rear brake disc	0.3 mm

8.3. Tightening torques

Item	Bolt type	Tightening torque
Rear caliper fixing bolts	M8x30	25 Nm
Rear disc fixing bolts	M8x25	25 Nm
Rear axle nut		95 Nm
Rear swingarm fixing bolts	M8x35	25 Nm
Damper top fixing bolt	M10x40	45 Nm
Damper bottom fixing bolt	M10x35	20 Nm



8.4. Damper characteristics

Item	Value
Distance between damper axes	325 $\pm$ 2 mm
Hard spring rate elastic constant	39.22 N/mm
Soft spring rate elastic constant	13.07 N/mm
Hydraulic oil quantity	90 $\pm$ 1 cc
Hydraulic oil viscosity	Suspension oil No 22
Travel	58 mm

8.5. Removing the left damper

Necessary tools



6 mm Allen key



12 mm socket

15 mm angled
ring spannerLarge flat
screwdriver

Remove the top fixing bolt from the damper and its corresponding nut with 15 mm angled or star spanner on the inside and a 12 mm socket on the outside.

Tightening torque:

Top damper bolt 45 Nm

Use a 12 mm socket to remove the two bolts marked with the arrows and that fix the lower anchor support of the left damper to the transmission crankcase.

Tightening torque:

Left damper bottom support bolts 25 Nm

Use a large flat screwdriver to lever the back of the bottom anchor support of the left damper.

Remove the damper.



8.6. Removing the right damper

Necessary tools



6 mm Allen key



12 and 10 mm
socket



15 mm angled
ring spanner

Remove the top fixing bolt from the damper and its corresponding nut with 15 mm angled or star spanner on the inside and a 12 mm socket on the outside.



Remove the damper's bottom fixing bolt with a 10 mm socket.



Remove the damper by hand.

The assembly sequence is the reverse of disassembly.

Tightening torques:

Damper top bolt 45 Nm Damper bottom bolt 20 Nm



8.7. Adjusting the damper preload

Necessary tools



Half-moon
spanner (x2)



Gauge

Hold the nut that rests on the spring with a half-moon spanner and, with the other half-moon spanner, loosen the locknut and move it to the top of the thread.



Tighten or loosen the nut that rests on the spring with the half-moon spanner in order to achieve a harder preload (for a heavier load transported on the scooter or sports driving) or softer, respectively.



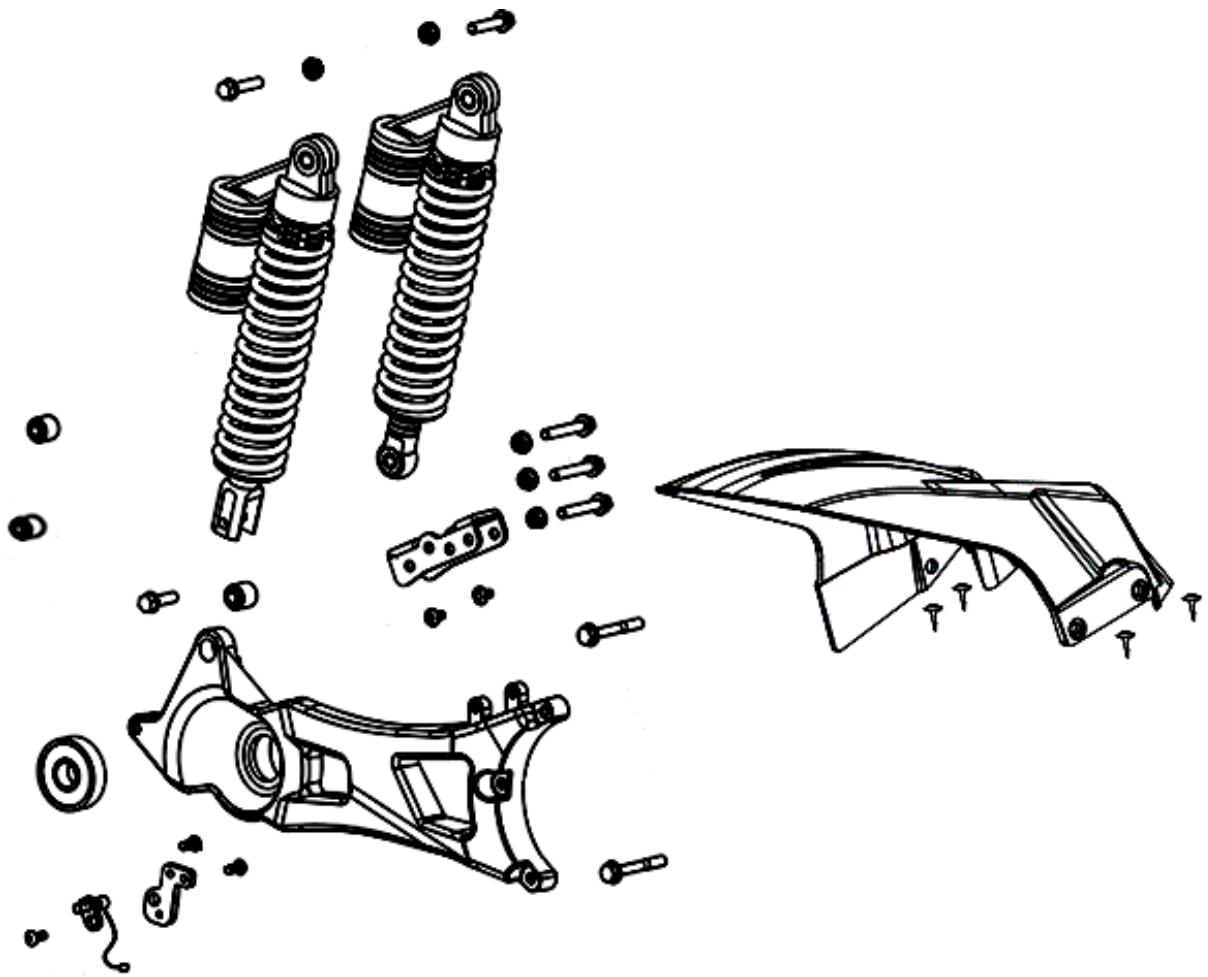
Again, hold the nut that rests on the spring with a half-moon spanner and, with the other half-moon spanner, tighten the locknut in order to fix that preload position.



Use the gauge to measure the thread separation between the locknut and the top of the damper and apply that same separation on the other damper by following the above steps.



8.8. Removing the right swingarm



Prior operations:

- Remove the right damper only (➊ See 8.4 Removing the damper)

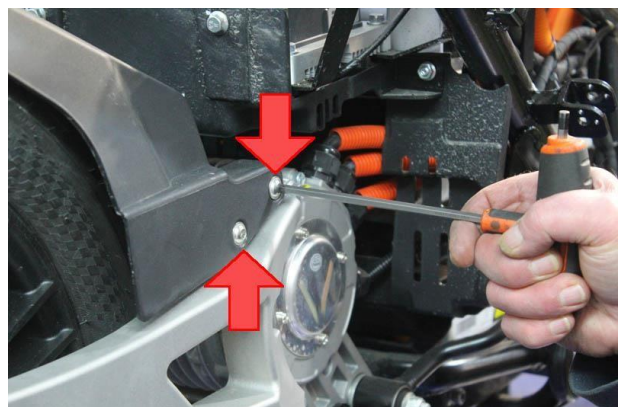
Necessary tools



5 mm Allen key 21 mm socket

Remove the two bolts that fix the rear mudguard to the swingarm on the right-hand side using a 5 mm Allen key.

Repeat the procedure on the left-hand side of the rear mudguard.



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Remove the rear mudguard by hand.



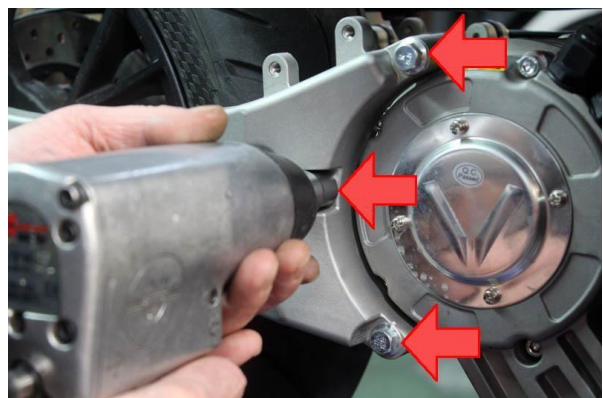
Remove the nut from the rear axle with a 21 mm socket.



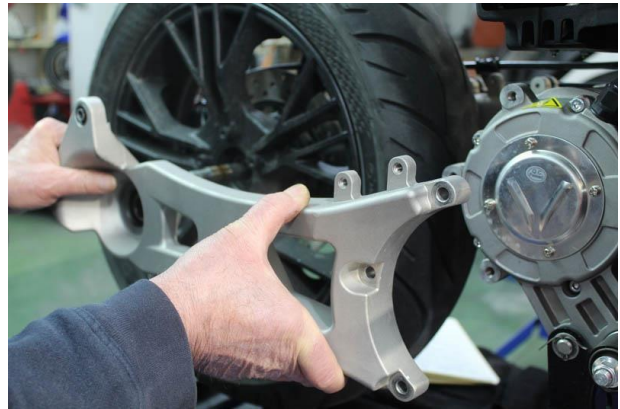
Remove the spacer bush.



Remove the three bolts that hold the swingarm by its front part to the electric motor support with a 10 mm socket.



Remove the swingarm by hand



On the inside of the swingarm support, there is a second spacer bush.

The assembly sequence is the reverse of disassembly.

Tightening torques:

Rear axle nut 95 Nm Swingarm fixing bolts 25 Nm



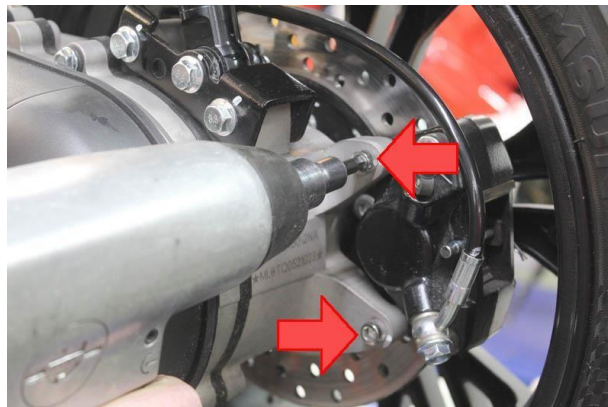
8.9. Removing the rear brake caliper

Necessary tools



6 mm Allen key

Remove the two bolts that fix the caliper to the transmission crankcase using a 6 mm Allen key.



Remove the disc caliper by hand.

Tightening torque

Rear caliper fixing bolts: 25 Nm



8.10. Changing the brake pads

→ Follow the procedure similar to that indicated in 7.5

8.11. Brake disc check

→ Follow the procedure similar to that indicated in 7.6

8.12. Rim check

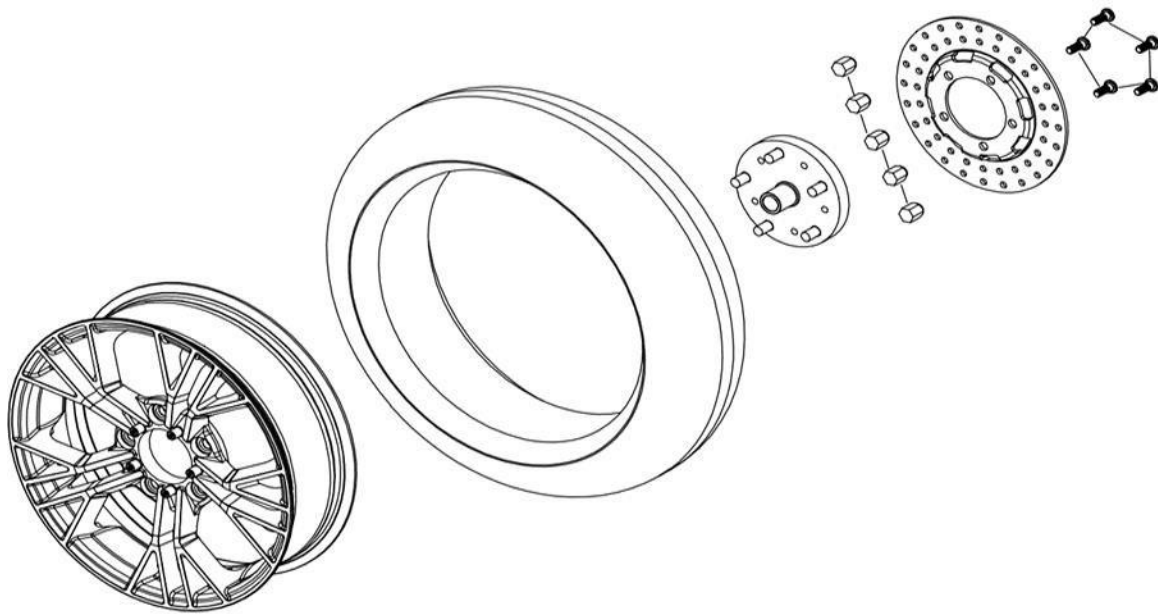
→ Follow the procedure similar to that indicated in 7.7

8.13. Bleeding the hydraulic system

→ Follow the procedure similar to that indicated in 7.12

8.14. Removing the rear wheel

Diagram



Prior operations:

- Remove the right damper only (🔧 See 8.4 Removing the damper)
- Remove the swingarm (🔧 See 8.6 Removing the swingarm)
- Remove the rear caliper (🔧 See 8.7 Removing the rear caliper)

Remove the second spacer bush and check whether the seal and bearing are worn or damaged. Change the seal and/or bearing for new ones if necessary.

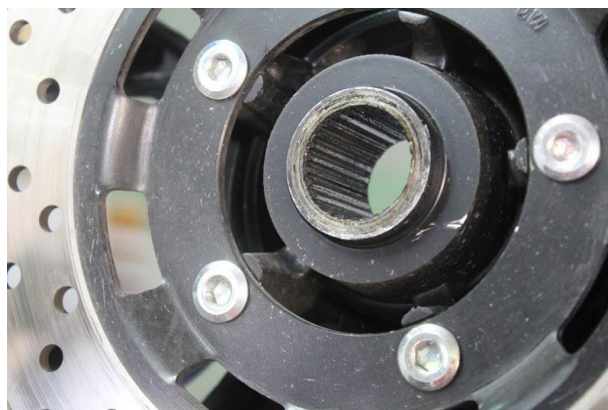


Check whether the spline of the rear wheel axle is damaged or worn.



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Check whether the spline of the axle housing on the rear rim is damaged or worn.

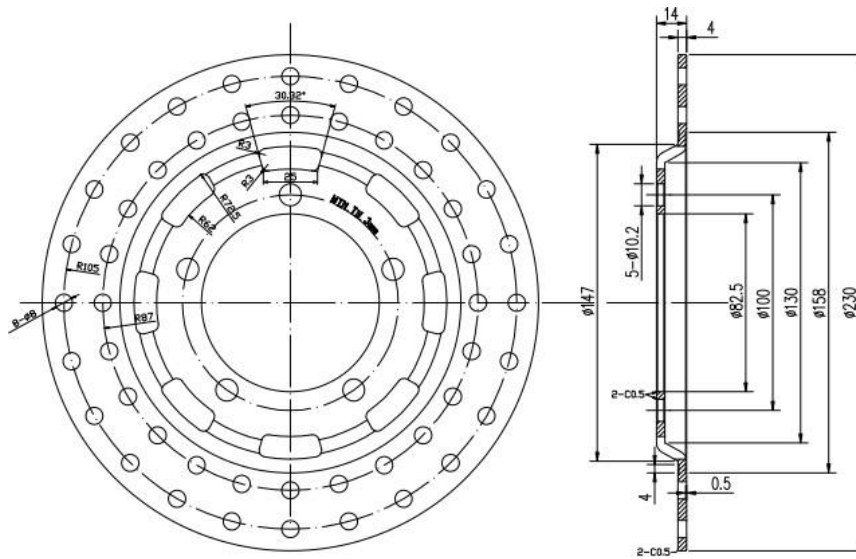


Remove the rear wheel from the axle by hand.



8.15. Removing the rear brake disc

Diagram



Prior operations:

- Remove the right damper only (🔧 See 8.3 Removing the damper)
- Remove the swingarm (🔧 See 8.5 Removing the swingarm)
- Remove the rear caliper (🔧 See 8.6 Removing the rear caliper)
- Remove the rear caliper (🔧 See 8.12 Removing the rear caliper)

Necessary tools



5 mm Allen key

Remove the 5 bolts that fix the brake disc to the rear rim with a 5 mm Allen key.

Tightening torque:

Rear brake disc bolts 25 Nm.

