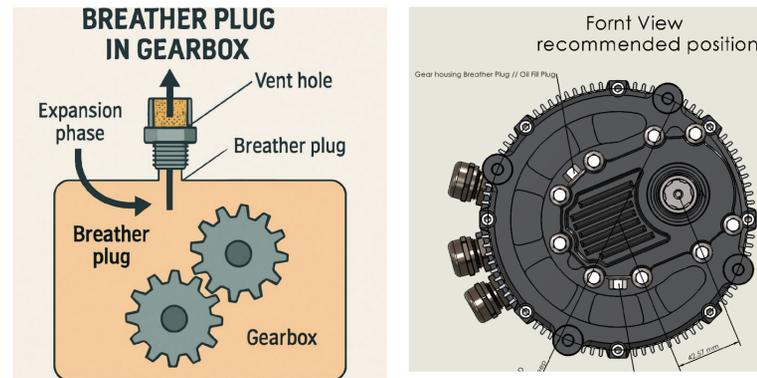


Gearbox Motor Installation Guide

Mounting Orientation



The gearbox motor must be mounted in the **correct orientation** to ensure proper ventilation and oil pressure balance.

Correct Mounting Requirement

The **breather plug must always remain in the top direction** when the motor is installed on the bike.

Reason

The breather plug allows internal pressure inside the gearbox housing to equalize with atmospheric pressure.

If the gearbox is mounted incorrectly:

- Oil may escape from seals or joints
- Internal pressure may build up
- Oil seals may be damaged
- Gearbox lubrication may be compromised

Improper mounting orientation may lead to **oil leakage or seal failure**.

Gearbox Oil Specification

Use only the recommended oil specification.

Recommended Oil Type

- SAE 80W90 Gear Oil

Oil Quantity

- 60–80 ml only

⚠ **Do not overfill the gearbox.**

Excess oil may cause:

- Increased internal pressure
- Oil leakage
- Seal damage
- Reduced gearbox efficiency

Gearbox Oil Filling Procedure

1. Locate the **fill / breather plug** on the gearbox housing.
2. Remove the plug carefully.
3. Fill **60–80 ml** of SAE 80W90 gear oil.
4. Reinstall the plug.

⚠ **Do not overtighten the fill (breather) plug.**

Overtightening may:

- Damage the breather function
- Strip threads in the housing
- Prevent proper ventilation

Tighten the plug **securely but gently**.

Gearbox Oil Change Schedule

Regular oil replacement is necessary to ensure long gearbox life.

Service Interval	Action
First oil change	After 1000 km
Second oil change	After 2500 km
Regular oil change	Every 3000 km thereafter

Oil changes remove:

- Metal wear particles
- Contaminants
- Degraded lubricant

Failure to change oil regularly may lead to **premature gearbox wear**.

Phase Wire Connection

The gearbox motor uses **three phase wires of equal length**.

Because the wires are identical, they may be connected in different positions on the controller.

Recommended Connection

Connect the **center phase wire** to the **V terminal** of the controller.

The remaining two wires can be connected to **U and W terminals** in any order.

The **U and W wires** may be swapped if needed for installation convenience.

The controller tuning process will determine the correct phase alignment.

Encoder Connection

Connect the **motor encoder connector** to the controller encoder input port.

Ensure:

- Connector is fully seated
- No bent pins
- Cable is routed away from moving parts or sharp edges

The encoder provides **precise rotor position feedback** required for motor control and tuning.

Important Notes

⚠ **Do not swap phase wires after controller tuning or programming is completed.**

Once the controller has completed the tuning process:

- Phase order becomes fixed
- Encoder alignment matches the phase sequence

If the phase wires are swapped after tuning:

- Motor operation may become unstable
- Encoder alignment will be incorrect
- Controller retuning will be required

First Power-On Procedure

1. Lift the rear wheel off the ground.
2. Turn on the bike ignition.
3. After turning on the ignition **for the first time**, open the **controller mobile application**.
4. Follow the instructions in the mobile app to perform the **motor tuning / setup procedure**.

During this setup the controller will:

- Detect motor parameters
- Calibrate encoder position
- Determine correct phase alignment

⚠ **Do not ride the bike before completing the tuning process in the mobile application.**

After tuning is completed:

5. Slowly apply throttle.
6. Verify:
 - Smooth motor rotation
 - No abnormal noise
 - Correct wheel direction

Gearbox Motor Warranty Policy

Warranty Coverage

Warranty is valid under the following conditions:

- Manufacturing defects in motor components
- Electrical winding or insulation failure
- Internal rotor or stator defects
- Encoder or internal wiring defects
- Bearing failure under normal operating conditions
- **Internal gearbox gear failure due to manufacturing defect**
- **Gear housing structural failure due to manufacturing defect**

Warranty Does NOT Cover

Warranty will be void under the following conditions.

Improper Installation

- Gearbox mounted incorrectly
- Breather plug not positioned at the top
- Improper motor mounting

Incorrect Oil Usage

- Using oil other than **80W90 gear oil**
- Overfilling gearbox oil
- Running gearbox with insufficient oil

Lack of Maintenance

- Failure to follow recommended oil change intervals
- Operating gearbox with degraded oil

Mechanical Damage

- Crash or impact damage
- Shaft damage due to incorrect drivetrain setup
- External damage to gearbox housing

Electrical Misuse

- Operating motor above recommended voltage or current limits
- Incorrect controller configuration
- Continuous overheating

Unauthorized Modifications

- Opening motor or gearbox housing
- Modifying internal components
- Replacing gears, bearings, or seals without authorization

Improper Use

- Operating the motor in ways not recommended by the manufacturer
- Failure to follow installation or maintenance instructions in this manual