



(2003-2024) Yamaha YZ250/YZ250X E- Starter Kit

Installation Instructions



Scan to watch our Installation Video

DISCLAIMER:

Fisch Moto products are sold for off road use only and are intended be used on vehicles used solely as such. Installation and use of this product may be in direct violation of local laws and are therefore not to be used on public roads.

The buyer is responsible for all Fisch parts after they have been received. This includes installation, monitoring condition, any alterations, and all damages sustained from use.

In the event of a warranty for defects, it is agreed that under no circumstances shall the seller or manufacturer be liable for any labor charged or travel time incurred in diagnosis for defects, removal, reinstallation, or any contingent expenses.

Improper installation may cause damage, or injury. It is recommended that installation be performed by a licensed professional.

Included Components

- Billet Housing (pre-installed gears)
- Funnel / Gear Tool
- Harness (starter solenoid, battery connectors, fuses, etc.)
- Start Button with on/off switch
- Battery Bracket (for Antigravity AG-801)
- 2x Velcro Straps (for battery)
- Hose
- 2x Battery Clamps
- Gasket
- Gasket Maker
- Loctite
- Starter Motor
- Lock-Up Tool (for installation)
- Fasteners (9x bolts, 2x washers, zip-ties, etc.)
- AG-801 Battery*
- 2x Connector Bolts*

*only if battery was bought with the E-Starter Kit

Tools Needed

- Ratchet (with extension)
- 8mm Socket
- 10mm Socket
- 17mm Socket
- 5mm Hex Bit Socket
- 10mm Hex Bit Socket
- 8mm Wrench
- 13/16" Wrench
- Knife
- Marker
- Torque Wrench
- Brake Cleaner
- 75W-90 Oil (Royal Purple Max-Gear recommended)
- Measuring Cup
- Phillips-Head Screwdrivers

Other Important Information

Battery:

For satisfying results, we highly recommend that you use the AG-801 Battery to power this electric starter. It can be bought as add-on with the electric starter, separately on our website or directly from Antigravity at www.antigravitybatteries.com.

Installation

Before:

1. Remove all plastics from your bike, except for rear and front fenders. Also remove the seat and tank.
2. Remove spark plug.
3. Install the provided engine lock tool.
4. Remove shifter, make sure to mark the position by drawing a line on the spline.
5. Remove crank case.
6. Use a cutter knife or just the blade to trim the housing's rubber grommet so that it's even with the housing edge. Make sure you do NOT trim any deeper than the engine housing edge!
- 7. Use a 17mm socket to remove the nut from the crank.**
- 8. Remove the washer behind the nut from step 7.**
9. Use brake cleaner to thoroughly clean the inner case.
10. Carefully pull out the grommet and clean the edges.
11. Apply RTV on all grommet edges by squeezing into the groove and leaving a small excess. When putting grommet back into place, the RTV should slightly squish out for proper sealing.



12. Apply some RTV on the grommet's wire opening, around the wires. A thin screwdriver can help to get it in there.
13. Apply thin layer of RTV to the areas on the housing edge marked in the drawing.

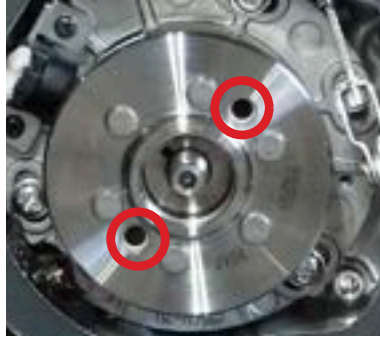
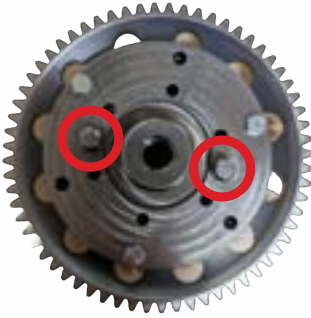


14. Align the new gasket provided with the housing's bolt pattern and gently press it on. The RTV works as the adhesive.



Installing the Starter Gear Sprag Clutch Assembly:

15. Use a 10mm allen key with a 3inch drive to hold onto the gear.
16. Find the locating pins on the back of the gear assembly. These have to go into the counterbores, as circled in pictures below.



17. Apply red thread locker to the thread on the crank. Hand-tighten the gear to the crank locating pins facing the crank, until the piston touches the piston stop. Make sure the locating pins go into the counterbores of the OEM crank housing.
18. Use a torque wrench with a 10mm hex bit socket and tighten the gear to **45 ft-lb/61Nm**.

Installing the E-Starter Housing:

19. Make note of the lip inside the E-Starter housing.



20. Align the E-Starter housing bolt pattern to the flywheel housing's bolt pattern and slightly angle the E-Starter housing to let the gear go into the lip.



21. Place the E-Starter housing flat onto the crank housing.
22. If the E-Starter housing does not sit flush on the flywheel housing, locate the gear alignment tool on the E-Starter housing and turn it until it pops on, flat against the crank housing.



23. Apply loctite on five of the provided bolts and hand-tighten in locations marked below, using a 5mm allen key.
24. Double-check that the E-Starter housing sits flat on the flywheel housing.
25. Rotate gear alignment tool to double-check that sprag clutch is working. Gear alignment tool locks up when turned one way (could take some more turns until it locks up, depending on where piston is located) and freely turns the other way to indicate that the sprag clutch works.
26. Use a torque wrench with a 5mm hex bit socket to further tighten the five bolts to **8ft-lb/11Nm**.



27. Let all of this sit for 24h to ensure proper sealing.

Installing the Breather Hose:

28. Find the push lock in the back of the housing.



29. Insert the provided hose, making sure the push lock locks the hose. If the hose does not come back out even when gently pulling, it is properly locked. Picture shows what this would look like if the E-Starter housing was not bolted on.
30. Let the hose run down along the left side of the E-Starter housing, like the OEM hoses.



Filling Oil (after 24h drying!):

31. Use 5mm allen key to undo the filler bolt on the E-Starter housing top. Make sure to also take off the crush washer underneath and securely set aside filler bolt and crush washer.
32. Measure **250ml 75W-90** gear oil in measuring cup. (We recommend Royal Purple Max-Gear)



33. Use the gear alignment tool as funnel and pour in gear oil through the top hole.
34. Put the filler bolt with washer back in using a 5mm allen key to tighten.



Installing the Starter Motor:

35. Push in the E-Starter Motor as on pictures provided.



36. Bolt the motor to the housing using two of the provided bolts and a 5mm allen key.
37. Pull out the engine lock tool and reinstall the spark plug.
38. Reinstall the shifter. Every shifter can differ. Make sure you adjust it so that it does NOT touch the housing.



Installing the Harness and Battery:

39. Assemble battery like pictures using the provided bracket, velcro straps, 2 bolts and washers.



40. Detach the starter button from the harness by pulling up the small clamp and wiggling out the plug.



41. Undo the starter button's screw labeled in the picture to open up the starter button.



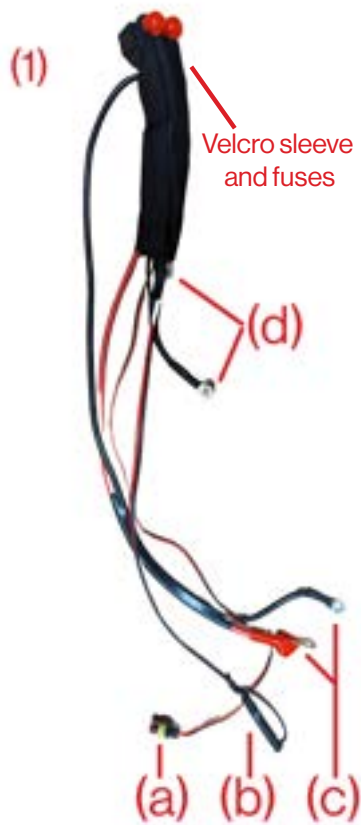
42. Clamp the starter button around the handle bar next to the right handle. Make sure the screws face down and cable comes out from the left side of the starter button.
43. Tighten the screw on the bottom, once the starter button is properly positioned.



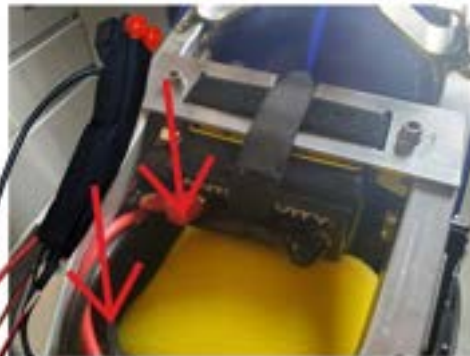
44. Let the cable run down to the left side of the bike, like the brake line and throttle cable.
45. Undo the clamp for the brake line and throttle cable
46. Let the starter button wire run through the clamp.
47. Fasten clamp again.
48. If not already done, take off the zip ties holding the brake line and throttle cable along the frame.



49. Arrange harness wires so that they all flow in one direction, as on picture (1).
50. Tuck in harness on the right hand side of the air box, wires running as shown on picture (2) but before attaching the battery. Cables a,b, and c should run over to the left side of the bike and fiddled between frame and air box, as in picture (3).



(2)



(3)



- 51. Let cable (a) run along the frame towards the starter button wire and plug into the starter button's outlet.
- 52. Use about 3 zip ties to fasten the original lines and plugged-in cable (a) against the frame.



- 53. Let cable (b) hang loose. It is the battery charger plug and can be accessed underneath the seat later on.
- 54. Let cable (c) run down to the E-Starter Motor.
- 55. Undo the top hex nut by hand.
- 56. Push the red, positive cable (c) connector over the exposed bolt thread.
- 57. Use a 10mm hex bit socket to clamp the positive connector with the hex nut removed earlier.



- 58. Use a 5mm allen key to undo the starter bolt marked in picture.
- 59. Clamp the black, negative cable (c) connector using the earlier removed bolt by fastening it again.



- 60. Clamp battery onto the frame, tightening bolts with a 5mm allen key.



61. Attach positive connector from cable (d) to battery using a screwdriver and hex bolts provided with the battery. Make sure the black, negative connector does not touch any metal during this process.
62. Attach negative connector from cable (d) to battery, as in step before.



Finishing Up:

63. Reinstall all plastics, seat, and tank.

Before trying out the electric start, make sure the battery connectors are properly positioned and fastened.

Maintenance

Breather Hose:

After riding, make sure the breather hose is not clogged. Depending on where you ride, this could happen and needs to be cleaned.

Oil Change:

To keep the E-Starter performance, change the oil for the first time after 5h of riding. Then, change oil every 15h - 20h of riding.

Troubleshooting:

When experiencing electrical issues, open the black velcro sleeve around the cables. Check if all fuses are not blown.

Rotor Nut:

Our "Starter Gear Sprag Clutch Assembly" with the 10mm hex replaces the OEM ROTOR NUT. According to Yamaha's maintenance intervals (Chapter 3-2 in the manual), this nut must be retightened to 45 ft-lb (61 Nm) "AFTER break-in" and after every 12.5 hours. With our system, you should do this with every oil change (15h-20h). If the nut comes loose, the Woodruff key will shear off, resulting in no spark. Please use the provided red thread locker when tightening and re-tightening.

Ensure the Woodruff key is in good condition and the maintenance has been performed correctly!

Our Gasket can be reused multiple times!


Please contact us if you have any questions!

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