Falcon 500 Motor User Guide

Changing the Output Shaft

The Falcon 500 gives teams the ability to change or replace the output shaft of the motor. If the motor's output shaft gets cut or damaged, teams can replace the original output shaft with a new output shaft. Similarly, if teams are using the Falcon 500 with the VersaPlanetary, there is a short shaft option (217-6958) that is already cut to the correct length.
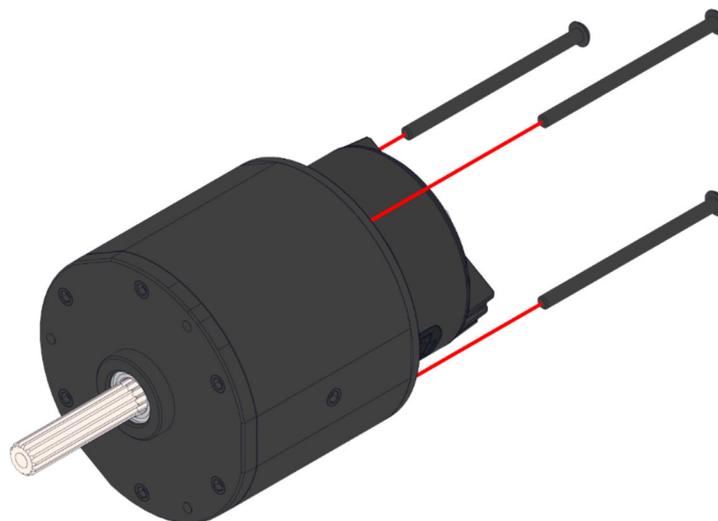
This section goes into detail about how to change the output shaft.

Step 1: Remove the (3x) M3 Screws from the Back of the Motor Chamber

Use a T10 torx key to remove the (3x) M3 screws that secure the front end cap to the motor housing.

Note

T10 torx screw drivers are available from several local and online stores. We recommend McMaster-Carr P/N 5756A14.

Warning

DO NOT remove the screws from the controller end cap. This can result in a loss of calibration between the motor and motor controller. A loss in calibration will result in a loss of efficiency or function of your Falcon 500.
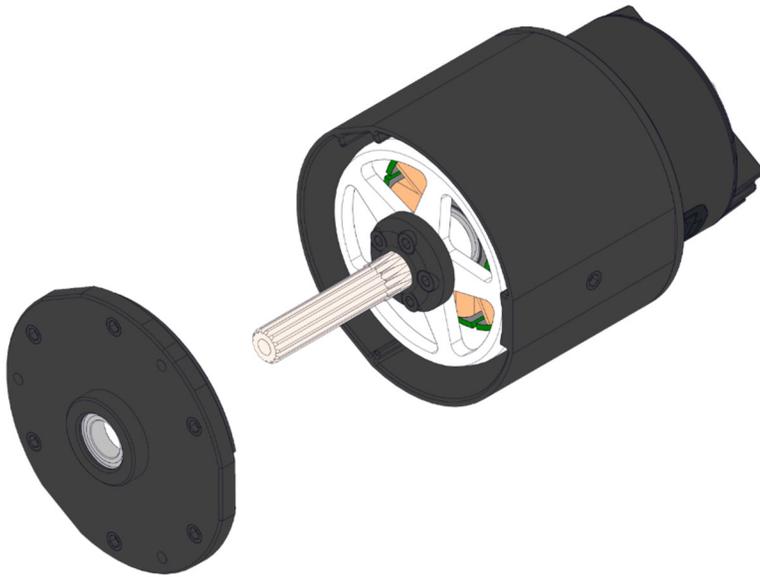
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Step 2: Remove the Front End Cap from the Motor Chamber

Remove the front end cap from the motor housing.

NOTE: When removing the front end cap, make sure you remove the front end cap bearing as well.
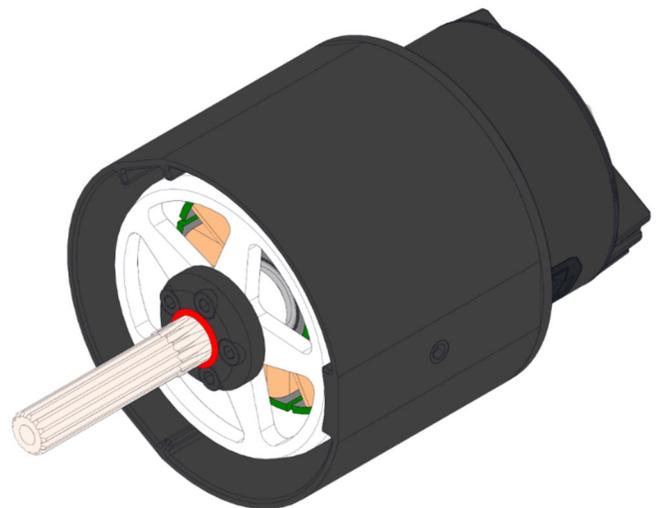

Step 3: Remove the O-Ring from the Shaft

Remove the O-ring installed on the Falcon 500's shaft.

Note

Do not discard the O-ring. This is an import part of the Falcon 500 assembly. If the O-ring is damaged or lost, a replacement O-ring can be purchased from McMaster-Carr (P/N 9262K442).
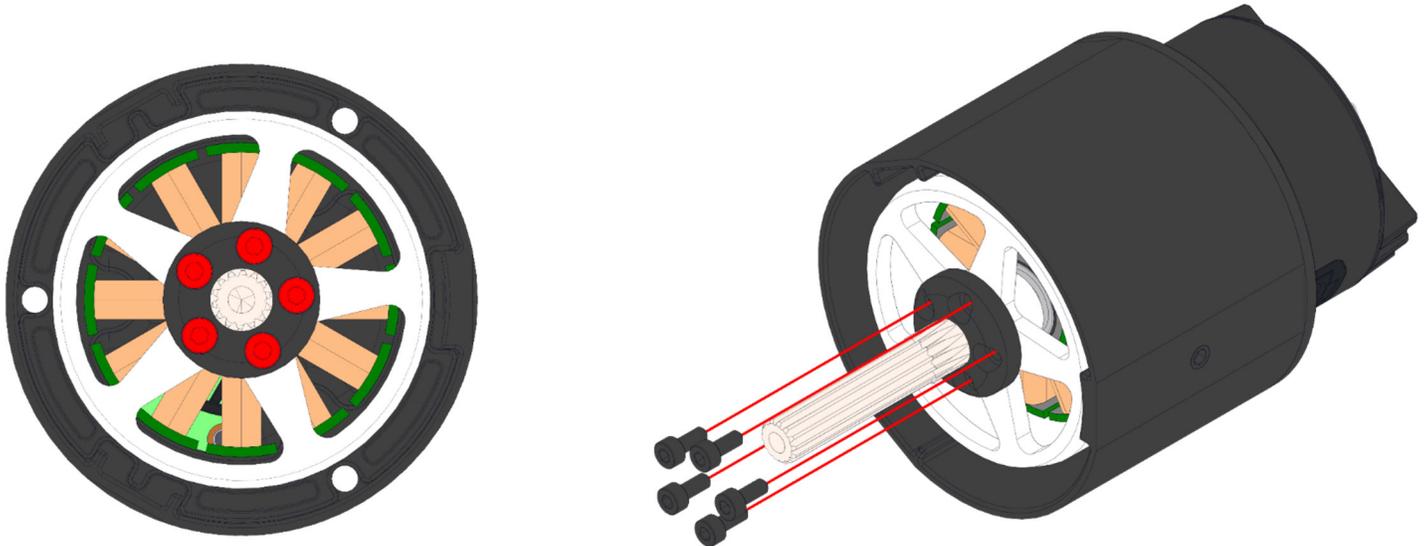

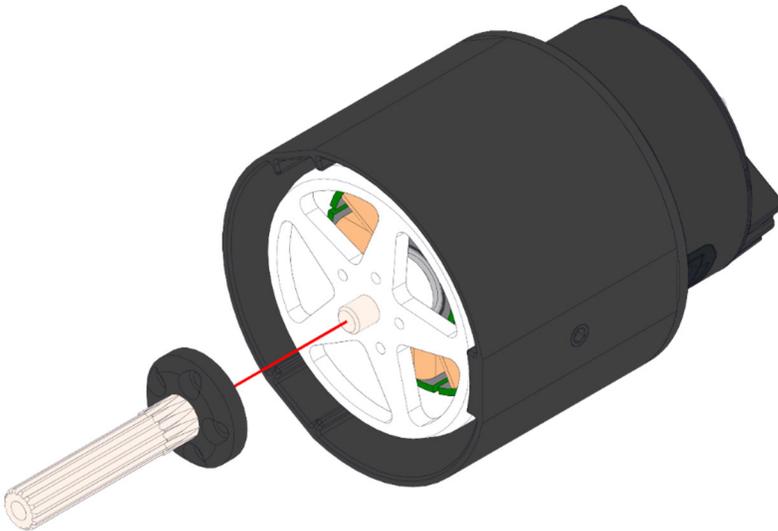vexpro.com   ctr-electronics.com

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Step 4: Remove the (5x) M2.5 Screws from the Flange of the Shaft

Use a 2mm hex key to remove the (5x) 2.5mm screws that secure the Falcon 500's output shaft to the motor assembly.

Step 5: Remove the Shaft
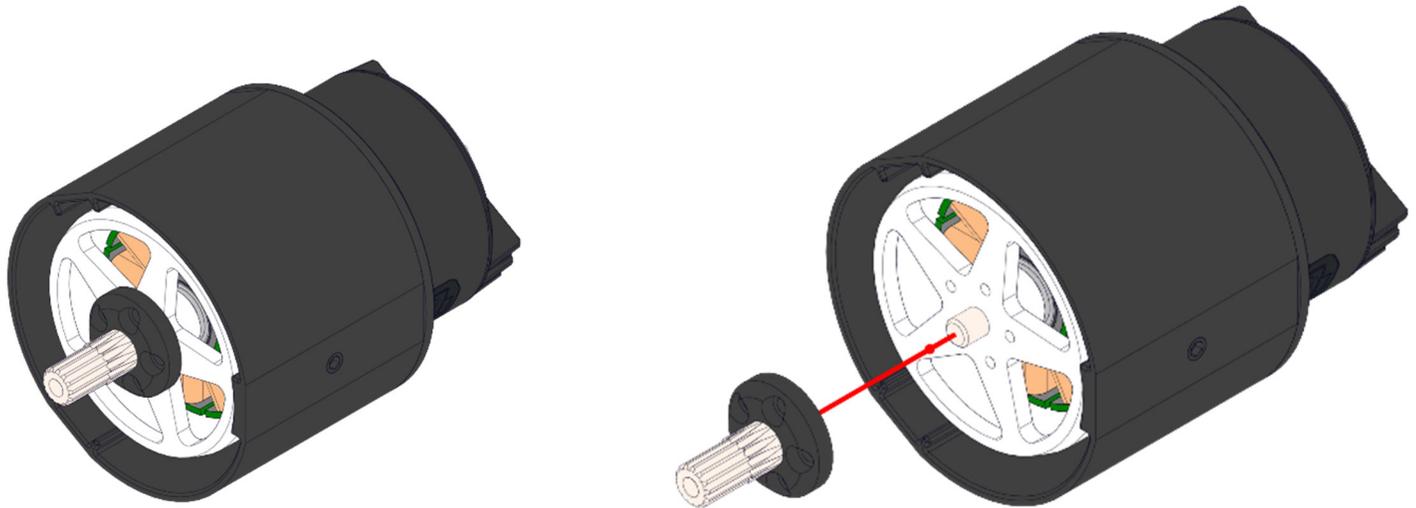
Remove the output shaft from the Falcon 500.

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Step 6: Place New Shaft on Motor

Slide the new output shaft onto the motor assembly.

Step 7: Use (5x) M2.5 Screws to Secure the New Shaft to the Motor

Using a 2mm hex key and the (5x) 2.5mm screws that were removed in Step 4, secure the new output shaft to the rest of the motor assembly.
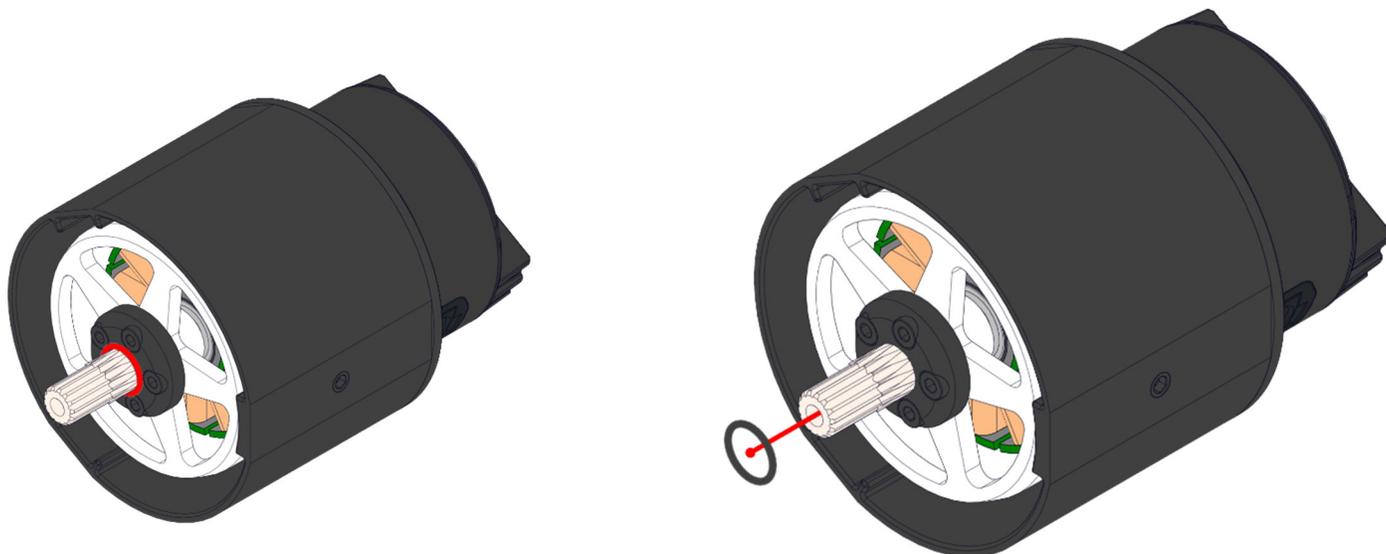
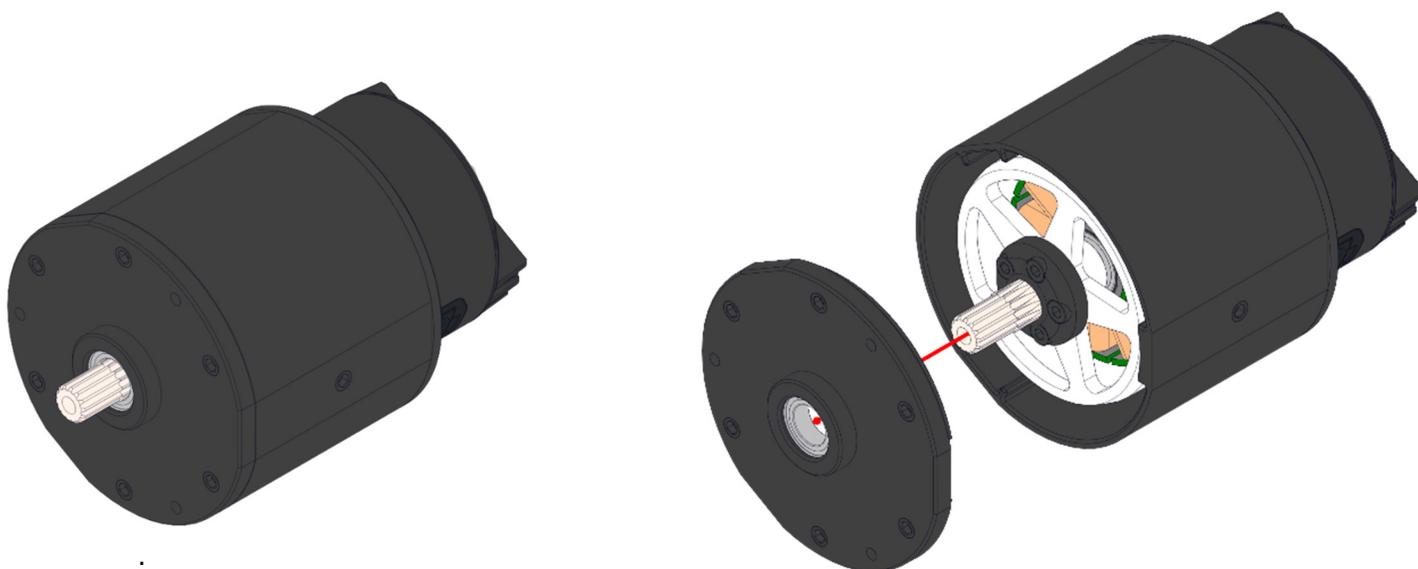# Falcon 500 Motor User Guide

Step 8: Install the O-Ring

Slide the O-ring that was removed in Step 3 onto the newly installed output shaft.

Step 9: Install the Front End Cap on the Motor Chamber

Reinstall the front end cap that was removed in Step 2.

NOTE: The front end cap is keyed to the sleeve of the motor chamber. If the end cap doesn't seat correctly, turn it 120° until it does.

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Step 10: Install (3x) M3 Screws into the Back of the Motor Chamber

Use a T-10 star drive to reinstall the (3x) M3 screws that were removed in step 1, securing the front end cap to the rest of the motor assembly.

The M3 screws will be attracted to the side of the motor, making it difficult to thread them into the front end cap. Here's a tip to make this easier:

1. Push the (3x) M3 screws all the way through the housing.
2. Then line up an M3 screw with the corresponding M3 tapped hole on the front end cap.
3. Thread the M3 screw into the front end cap just 1-2 threads.
4. Repeat #2 and #3 until all three M3 screws a threaded into the end cap.
5. Push the front end cap so it's seated on the housing.
6. Tighten the (3x) M3 screws.

NOTE:
After putting the Falcon 500 back together, check to make sure the shaft spins free by hand. If you feel any binding, the front end cap may not be properly aligned with the shaft or the motor chamber sleeve.

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