

## 2 Wire Motor 393

**The 2 Wire Motor 393 provides up to 60% more torque** than the standard motor, which will allow more powerful mechanisms and drive bases. All of the internal gears are made from a steel alloy, which means that clutches and replacement gears are no longer required. The 2 wire motor can be directly connected to the Cortex and ARM 9 microcontrollers' internal motor controllers. An external motor control module is required to connect the 2 wire motor to the PIC Microcontroller V0.5. External motor control modules can also be used with the Cortex and ARM 9 microcontrollers.

**INSERT THIS PAGE**  
at the **back of the**  
**Motion Chapter** in your  
VEX Inventor's Guide.

### High Speed Option

Want to go faster than the standard motor but still have the same output torque as the standard motor? No problem! The 2 Wire Motor 393 kit can be configured into a "high speed" version. Simply follow the "Gear Change Procedure" step-by-step instructions to increase the output speed by 60%.

### Motor Coupler

The 2 Wire Motor 393 Kit includes the new shaft coupler which can be used in place of the clutch to connect the motor to VEX shafts. The coupler can also be used to connect VEX shafts together.

### Motor Specifications

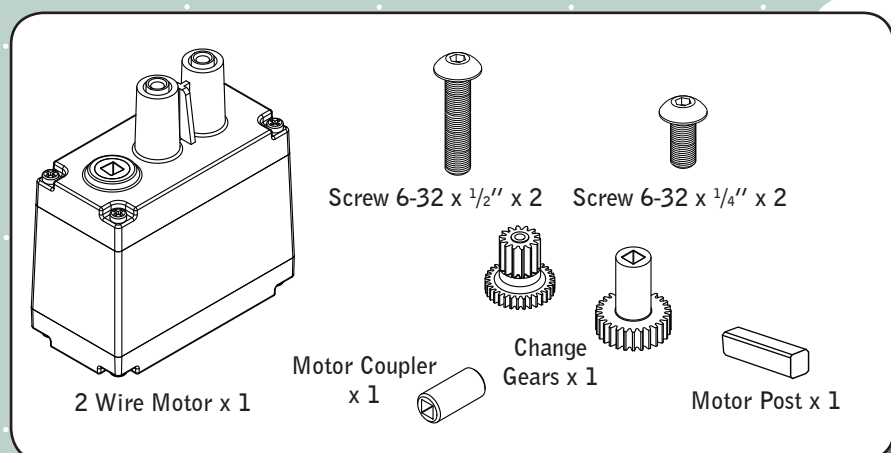
All motor specifications are at 7.2 volts. Actual motor specifications are within 20% of the values below.

Description	As Shipped	High Speed Option
Stall Torque	13.5 in-lb [1.68 N-m]	8.4 in-lb [1.05 N-m]
Free Speed	100 RPM	160 RPM
Stall Current	1.8 Amps	
Free Current	0.15 Amps	

**Limited 90-day Warranty**  
This product is warranted by Innovation First against manufacturing defects in material and workmanship under normal use for ninety (90) days from the date of purchase from authorized Innovation First dealers. For complete warranty details and exclusions, check with your dealer.

Innovation First, Inc.  
1519 IH 30 W  
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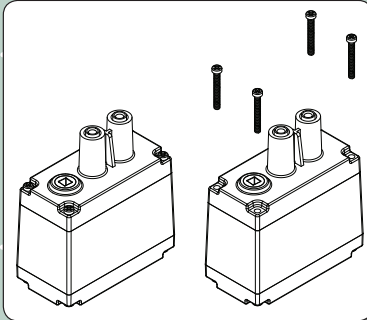
For More Information, and additional Parts & Pieces refer to:  
[www.VEXrobotics.com](http://www.VEXrobotics.com)

### 2 Wire Motor Kit, continued

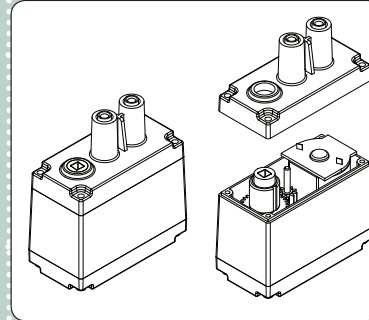
#### Gear Change Procedure

To configure the high speed option, follow these instructions:

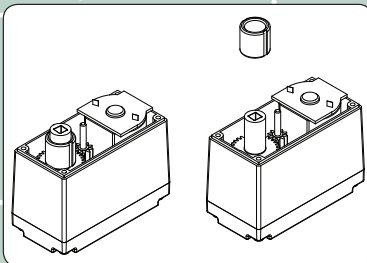
1. Remove the four screws in the corners of the front of the motor case.



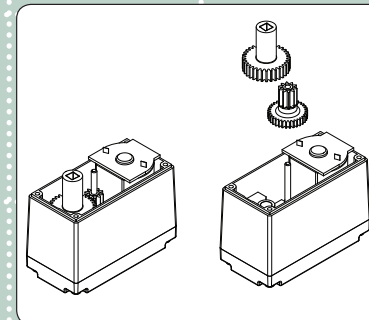
2. Lift off the top cover. Do not disturb the gears inside.



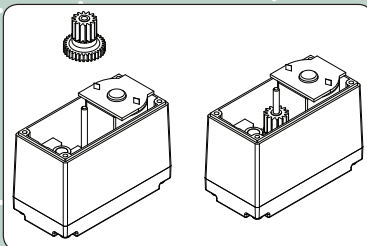
3. Lift off the output bushing and place to the side. This will be used later.



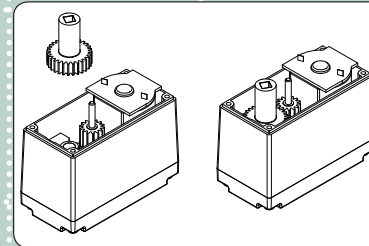
4. Remove the middle gear and the output shaft gear.



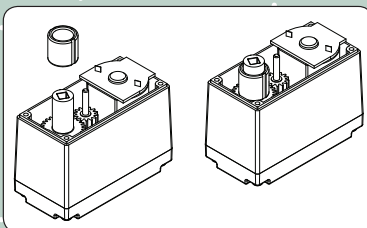
5. Install the high speed middle gear.



6. Install the high speed output shaft gear.



7. Install the output bushing removed in step 3. Make sure the bushing orientation is as shown.



8. Replace the cover and four screws removed in steps 1 and 2.

