

Encoder & Motor Assembly

Description

The standard FTC Kit contains encoder and motor parts in four bags. Below is a step-by-step guide to assembling them into a working unit. Assembling the encoders and motors is a preliminary step to completing the testbed assembly.

Materials Needed

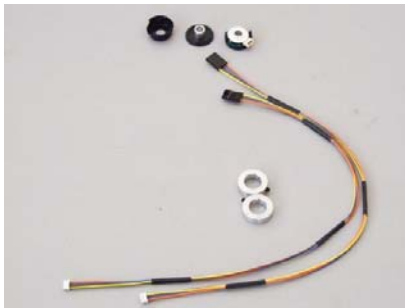
- 1 bag containing 1 DC Motor
- 1 bag containing 1 DC Motor wires
- 1 bag containing 1 Encoder parts
- 1 bag containing 2 Encoder wires and collars

Encoder & Motor Assembly



Unpack DC motor and wires

Find the 2 bags containing the DC motor and its wires and unpack them.



Unpack encoder, wires and collars

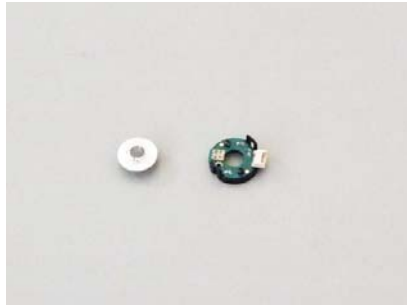
Find the 2 bags containing the encoder, its wires and collars and unpack them.



Separate spacer & centering tools

Find and take apart the spacer installation tool (black) and the centering tool (silver).

Encoder & Motor Assembly



Separate optical hub & encoder

Find and take apart the optical hub disk (silver, cross hatched) and the encoder module (green and black).



Peel off encoder paper backing

Turn over the encoder module, and peel off the paper backing.



Install collar

Slide the collar over the motor shaft and secure it as near as possible to the motor by tightening the set screw.



Slide centering tool over shaft

Slide the centering tool over the motor shaft.

Encoder & Motor Assembly



Set encoder module

Slide the encoder module over the motor shaft sticky side down, so that it goes around the centering tool and presses against the collar. Press the encoder firmly down so that it sticks to the collar.



Remove the centering tool



Slide optical disk over shaft

Slide the optical disk hub over the motor shaft with the pattern side down.



Use spacer/installation tool

Slide the spacer/installation tool onto the optical hub disk and press down firmly until tool bottoms out on encoder module latching ears. This sets the disk at the optimum distance from the encoder module optics.

Encoder & Motor Assembly



Remove the installation tool



Slide housing over shaft

Slide housing over the motor shaft.
Line up the open rectangle of the housing with the plug on the encoder module.



Attach housing to encoder

With thumb and finger, squeeze ears together so that cover latches onto the encoder module.



Plug in encoder wire unit

Plug in encoder wire unit so that it matches the picture.

Encoder & Motor Assembly



Plug in motor wires

Plug in motor wires, being careful to plug in the red wire to the port nearest the + sign on the motor, and the black wire to the port nearest the -.