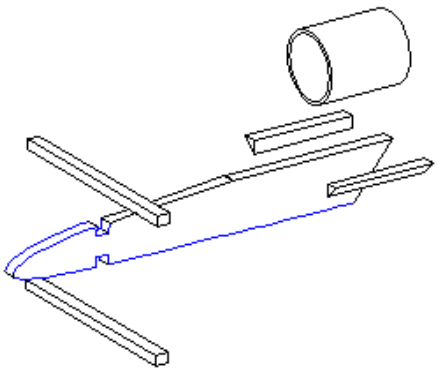
Motor Pod Assembly

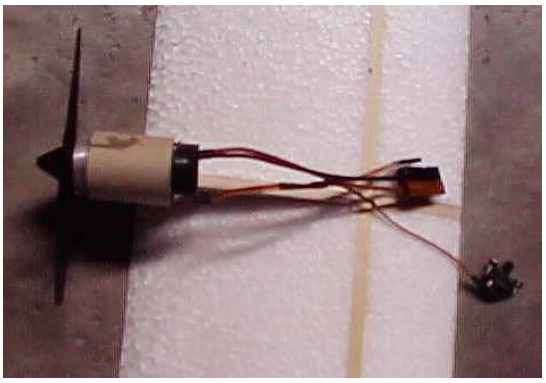


Gather:

- ☐ Motor
- ☐ Speed controller
- ☐ Laser cut motor mount
- ☐ Cardboard motor tube
- ☐ CA glue

Procedure:

☐ Ensure that one end of motor tube is square to sides. Sand if necessary.

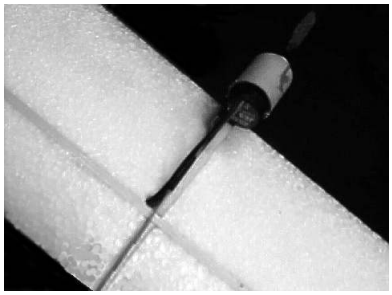


☐ A reference line needs to be drawn the length of the tube to ensure proper alignment on the motor standoff. Lay the tube on its side, place a flat block of lesser thickness next to it, and scribe a horizontal line down the tube.

☐ Drop motor mount into tube and position it so that it is flush with the end of the tube. The best way to do this is to stand tube up on end, drop motor mount in, and use a screwdriver handle or 1" dowel to push the motor mount to the bottom. This should align the mount flush with end of the tube.

☐ If you plan on using a gearbox, the mount needs to be set level to the trailing edge before gluing. The reference line you drew on the bottom of the tube identifies the bottom of the motor tube. With the tube and mount still on the flat surface, turn the mount inside the tube with a ball point pen until the mount screw holes are lined up to be parallel to the bottom of the tube.

☐ Once the mount is aligned and flush, it needs to be glued to the tube. If the fit is fairly tight, you can use Cya glue. If the fit is loose, you need to use some brown paper (such as grocery bags or kraft paper) to shim the tube until the mount fits tightly. The variability in the cardboard tubes makes it impossible to guarantee the fit, so this is a necessary modeler step. Once the mount fits tightly in the tube, run thin CyA glue over the assembly to lock it in place.



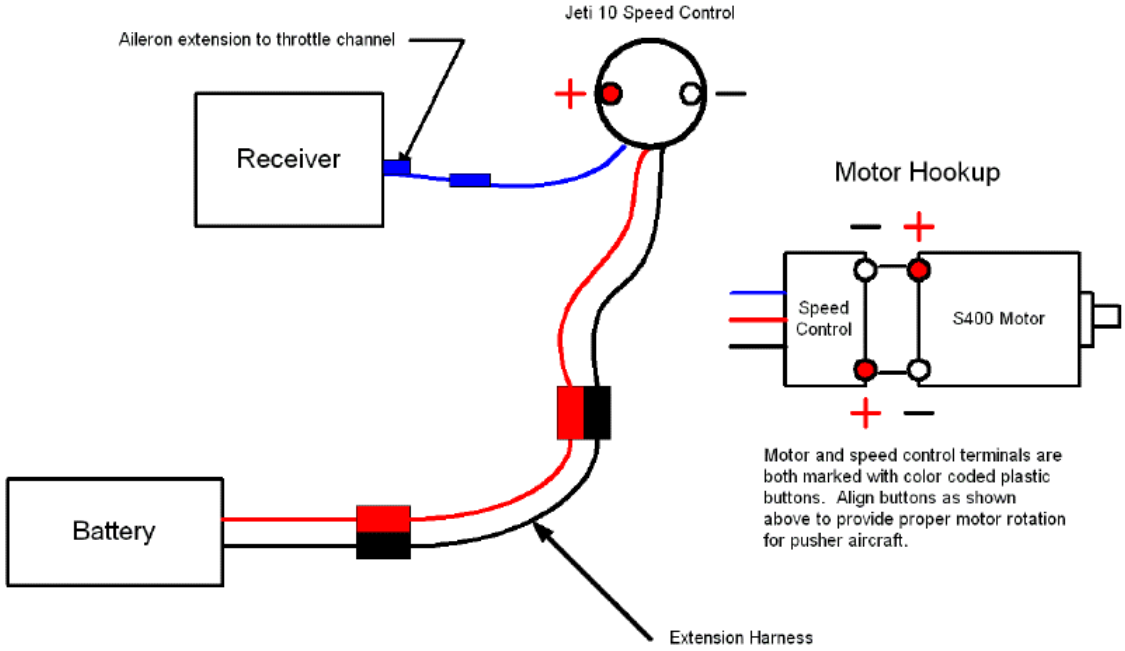
☐ Split the triangle stock into two pieces. Wrap a piece of 100 grit sandpaper around the tube. Sand a round into one side of each piece of triangle stock to accept the motor tube.

☐ Using the reference line, place the motor tube on the motor pylon so that the motor or motor mount is facing towards the REAR of the wing (It *is* a Pusher plane!). Align the tube fore-and-aft so that the end with the motor mount is flush with the rear edge of the motor pylon.

☐ Once aligned, glue in place. When the tube is secure, glue in the triangle stock between the motor pylon and the cardboard tube.

☐ Drill or cut a 1/4"- 3/8" hole or slot to pass the BEC and motor leads through the wing. This can be located on either side of the wing, but needs to be immediately behind the main spar and as close to the motor standoff as possible.

Push-E Cat Wiring Schematic



Safety Warning:

At no time should you ever attempt to run the motor with the prop attached when holding the motor in your hand or when the wing is not secured to the fuselage. Attempting to hold the motor or running the motor with the wing loose from the plane can result in serious personal injury and emergency room bills. Always secure the wing to the fuselage and then secure the fuselage to the ground before test running the motor.

☐ And now a word about the motor installation: The suggested motor/speed control for the Push-E Cat is the Graupner Speed 400 motor and the Jeti 14 Compact speed

control. These are both cost effective, readily available items that, among other things, have a distinct advantage: they both mark the default positive terminal with a red dot.

When you assemble the motor to the speed control by aligning the dots, the motor will rotate counter-clockwise, which is the standard direction for **tractor** type airplanes. If you were to install a motor/controller assembled like this in **pusher** configuration applications, such as with the Push-E Cat, the motor rotation (looking from the front of the airplane) would be reversed, and would now appear to be going clockwise. It would also attempt to drag the aircraft backward through the air.

To rectify this, assemble the speed control to the back of the motor so that the red dots are NOT aligned and the prop must be flipped over compared to a standard aircraft.

> WARNING! Do **NOT** reverse the battery to speed control polarity. Doing this **will** blow out the brake FET in the controller **and** void the warranty!

- ☐ Now is also a good time to adjust the speed control for maximum power at full throttle. We will discuss the Jeti 14 Compact (a procedure that is good for all Jeti controllers). If you have a different speed control, please check you instructions or contact the manufacturer to learn how to adjust the speed control (if necessary).
- ☐ First, you will need a multi-meter, your speed control, your battery pack, and your radio.
- ☐ Set the meter so you can read a voltage in the 12V range.
- ☐ Connect the multi-meter leads to the meter and to the speed control output (easy with a Jeti 14C).
- ☐ Turn on your radio and adjust the throttle trim all the way up.
- ☐ Plug in your motor battery and turn on your speed control.
- ☐ Move the throttle stick all the way to the top.
- ☐ The meter should be reading a voltage. Using a small screwdriver, you can now adjust the throttle set point screw. **DO NOT GET ANXIOUS AND CRANK THE SCREW ONE WAY OR ANOTHER**. It is very easy to damage the potentiometer in the speed control by over aggressively turning the screw.
- ☐ Carefully adjust the screw a little bit one way or the other. Observe the voltage change on the meter. Adjust the screw until the control just obtains the maximum available voltage.
- ☐ Pull the throttle stick all the way back. Check the voltage to see if it is negative. If so, you are done. If not, adjust the screw until the voltmeter just reads a negative voltage. Then move the stick all the way forward and check to see if the maximum voltage is still being delivered. If you can't get both the negative voltage and the maximum voltage, move the throttle trim back until you can.
- ☐ The prop is installed so that the writing molded on the front of the prop faces the motor. The front of the prop is the side which has the prop diameter and pitch molded into the blades. Again: **The text on the prop goes TOWARDS the motor**. Mounting

the prop backwards will drastically reduce the plane's performance and the Push-E Cat will not fly right (if at all).

☐ Remount motor and speed controller. Pass power and BEC leads through the hole. A neat way of securing the Jeti 14 Compact switch is to stick it to the front of the speed control with a piece of double back foam tape. Secure any other loose wiring at this time. Make sure nothing can come off and get into the prop.

You can now move on to assembling the fuselage.