22mm brushless Thruster instructions and tips

Before assembly, please refer to my guide on dealing with cast resin parts on my website: http://www.scalemodelcastings.com/Parts-prep_ep_51.html

Kit contents

After much thought on the little submerged motors and the inherent issues with that, I have come up with what I believe the best setup for longevity and maintenance.

I abandoned the idea of trying to make the motor watertight. This presents a few problems, namely its unreliable and there is drag created by the O ring that the BL motors don't like. A brushless motor is just windings and a smooth magnetic rotor, so in theory water is no big deal to them like it is with brushed motors.

To "marineize" the motors, the windings get dipped in Pennzoil ZM marine anti corrosion coating. It's kinda a mix of paint and Corrosion X and I think its the perfect product to seal windings with.

Next the rotor, cover and prop just pull out of the unit. So after use, you would pull them out and let the motor innards dry out. This will prevent the long term wetness and corrosion inside that was my main concern with these. The running part is easy, its them sitting around forever with water inside that's what's really bad for them.
Properly installing and removing the rotor/prop assembly

Notice in the above picture the needle nose pliers are gripping the propeller hub and touching the motor cover. This is the correct way to hold the unit when installing it in the motor case. Insert the unit into the motor case and feel for the shaft to go in to the rear bearing. It will slide in fully and easily when you find it. Press gently to seat the rear cover. Removal is the opposite, just grip the propeller hub firmly and pull out.
Installing Kort nozzle

The notch in the nozzle is for the strut and goes directly up.

You may cut spacers from thick paper, or eyeball the propeller/nozzle clearance gap. It MUST NOT touch AT ALL. Make it as tight and even as possible. If the propeller is just too big, you can hook up the motor to the battery/esc and run the motor and Touch an emery board on the outside of the prop to sand it's diameter down a little.

When your clearance looks good, tack the nozzle in place on the 3 mounting areas and test run the unit. When satisfied and there is no rubbing, you can glue the nozzle on. Make nice neat glue fillets in the areas shown below
Dealing with motor wire connectors
These can be a pain but are necessary to remove and re install after the unit is in the boat.

Gently pry the little lock tabs up
Notice how I'm holding the wire. This allows me to pry and pull the wire at the same time.

That's pretty much it! Some tips to remember:

Be sure the rotor/prop always spins absolutely free! If it's got some friction, the unit won't start up correctly and have lower power.

ALWAYS pull the rotor/prop unit out after a running session and blow out and leave dry overnight with the rotor removed. The rotor and propeller sticks nicely to the motor housing thanks to the magnetic force. A great place to keep it so it won't get lost! See the picture below.
After the unit has dried out overnight, put a drop of oil on each bearing, re-assemble and run the thruster (out of the water). Now the model may be stored and is ready for its next run.

Nominally the thruster should draw ~3.2 amps at full power. NEVER use more voltage than a 1s Lipo cell!!!

You may use any brushless mini-micro ESC designed for 1s lipo, and 3 amps continuous power output minimum. Run the model at full power in the bath tub while holding the ESC between your fingers. It should get pretty warm but not hot.

Link to the ESC's I have used on these thrusters and recommend:
http://www.hobbyking.com/hobbyking/store/__10334__Turnigy_5A_1S_Brushless_ESC.html

Any problems or questions please email via my website:
www.scalemodelcastings.com