

Preparing a Pro-boat Recoil 17 for Wacky Racing

Introduction

To encourage more competitors and competition in Wacky Races I take a look at a commercial Almost Ready to Run boat that can easily be tweaked for racing.

Boat

Pro-boat Recoil 17 - These boats & spares are available new from a number of model shops at around £170 e.g. Al's Hobbies & Wheelspin Models but prices vary, so it is worth shopping around. This one was bought cheap as a non-working model with no batteries.

ESC

The ESC was not working and was replaced with a Turnigy Marine ESC 30A. A proven performer in the club's F600Bs at about £28.

Safety Loop fitting (recommended)

Two 3.5mm diameter gold plated connector sockets were mounted flush with the foredeck. Glued to the deck with a backing strip to strengthen the deck & fixing. The loop was made from a piece of 14 AWG silicone insulated wire and two 3.5mm gold plated plugs soldered to the ends.



A safety loop or "kill switch" provides the ability to isolate the battery from the ESC & motor from outside the boat. It also acts as a convenient on/off switch without the need to un-tape and remove the hatch cover.

Rudder modifications

These boats are designed to be very manoeuvrable and as such are provided with a large rudder and left & right turn fins. A race boat doesn't need to be particularly manoeuvrable and only needs to turn to the right. To calm down the turn response, reduce unwanted drag and weight, the width of the rudder was reduced by 2mm. The blunt leading edge was sharpened and the throw reduced by one hole on the servo arm. The left turn fin was removed entirely.



Buoyancy

Spare space in the bow and hull were filled with pieces of Noodle swimming floatation aid. In the event of a crash or the hatch cover coming off the boat can fill with water so it is important to make sure the boat and hatch cover have positive buoyancy.

Motor & ESC Cooling water circuit modifications

Fast Electric racing is quite demanding of the Motor and ESC because the boat is run pretty much flat out for the race duration so it is important that the cooling is operating effectively. On this boat there were a few problems that could effect the cooling and create unnecessary drag.

The cooling water circuit was checked for obstructions by trying to pass a 2mm diameter drill through the water pick up point underneath the hull. It went in a few mm and then met an obstruction. A quick twist of the drill cleared the problem. (I suspect it was a bit of flashing left over from the moulding process.) The thickness of the material of the pick up allowed for an increase in the diameter of the hole with a 2.2mm drill. The rest of the circuit seemed clear apart from where the outlet tube exited the hull. There were two problems here. The first was the pinching of the tube which reduced the internal diameter to 1.4mm and the other was 5mm of the tube protruding from the side of the hull which will create unnecessary drag in the water. A flush fitting aluminium outlet solved both issues. A short piece of aluminium or brass tubing with an internal diameter of at least 2.5mm glued in place would do the job just as well keeping it flush to the hull.



Own R/C gear

There was nothing wrong with the supplied radio gear with a pistol grip Tx but I prefer my own twin stick.

Batteries

The instructions suggested 11.1volt 3S 1400mAh but 3S 1600mAh were available to me and fitted fine. Testing will determine if they will last a full race time of 5 minutes.

Tape

Green & yellow insulation tape was used to cover the removable superstructure (hatch cover) as a means of identification while racing. The same tape will also be used to carefully tape up the hatch/deck joint each time before launch. (If this proves to be a satisfactory method of identification for Lap Counting and Buoy Judging the rules may be changed as current race number boards upset the self righting capabilities of smaller boats like these).

Maintenance

As a matter of good practice the prop shaft was cleaned & lubricated with GT85. The motor bearings were lubricated with 3 in 1 oil.



Testing

The ESC was set up to suit the motor and R/C gear all as per the instructions.

2 of the motor connections needed to be swapped to get the motor rotating in the right direction.

Fail Safe operation on loss of signal was tested.

A Range Test was performed at the lakeside.

The rudder throw was set at +/- 75% on the end point adjustment of the Tx.

Racing

Two Wacky Races were completed successfully with the boat running at, or near, full throttle throughout the 5 minute duration. After the race the Motor and ESC were not too hot. The batteries had about 30% charge left in them so with that, and the Wacky Race rules allowing for 1800mAh 3S batteries, there is considerable scope for improving performance.

See you lake side
Dave Parker