



Trevor Boundy <trevor@boundy39.com>

FW: 131 Waco SRE - LiPo Battery Management with No Kill Switch

1 message

Tandy Walker <rdb435021@icloud.com>

Tue, .

To: "Robert J. Galler" <meccanom@msn.com>, Trevor Boundy <jtboundy@dcsi.net.au>

From: Tandy Walker [mailto:aerotan1503@outlook.com]**Sent:** Sunday, September 28, 2014 1:55 PM**To:** aerotan1503@outlook.com**Subject:** 131 Waco SRE - LiPo Battery Management with No Kill Switch**Web Site:** [Tandy's Model Aircraft](#)*Waco SRE**September 28, 2014*

When I set up the electric power train for the Waco, I did not include a kill switch as I planned the THROTTLE-CUT function on my Futaba 7C transmitter to inhibit accidental motor start up suggestion of Kirk Massey who owns New Creations R/C. However, I made the unfortunate mistake of actually checking this function out to see how it worked. Without a lot of discussion, let me just try out this function yesterday, it did not inhibit accidental motor start up.

I called Jay Burkart, but he was not familiar with the eRC 25A speed control I am using. Then James Lollar up in Ada, Oklahoma. We came up with the idea of simply having the transmitter inhibit eRC's 25A speed control when installing or removing the LiPo battery from the Waco's power train, but this would have to be investigated. However, eRC's speed control instructions say to switch off the transmitter when the battery is connected as shown by the red arrow below. H

- Switch your Transmitter ON and ensure the throttle stick is in the minimum position before connecting the battery pack.
- • Never switch your transmitter **OFF** while the battery is connected to your ESC.
- Only connect your battery pack just before flying and do not leave your battery pack connected after flying.
- Handle your model with care once the battery pack is connected and keep away from the propeller at all times.
- Do not immerse the ESC underwater or allow it to get wet while powered up.

Trouble Shooting

Trouble	Possible Reason	Action
Motor doesn't run, but there are audible tones after powering up	The ESC throttle calibration has not been set up	Set up the ESC throttle calibration

Well I decided to check this approach out for myself anyway, with the prop off of course. This happened:

1. I plugged in the Waco's LiPo battery with the transmitter off, the ESC did not arm and the motor did not come.
2. I turned on the transmitter, the ESC armed, and when I advanced the throttle the motor started.
3. I moved the throttle to the off position and the motor stopped (good so far).
4. I turned off the transmitter and the motor immediately started up again at some intermediate throttle position (%\$#@& (not good).

So I called Kirk Massey and discussed this situation with him. Fortunately, Kirk knew exactly how to resolve the motor restart problem. He instructed me to first put the throttle in the off position, then I moved the throttle trim down to the full off position. Then go through the standard binding procedure and re-bind the 2.4 GHz receiver to the transmitter. The receiver now remembers the throttle and trim positions. That should solve the problem.

5. After re-binding the receiver to the transmitter, I repeated steps 1 through 3 above.
6. Then I turned off the transmitter and sure enough the motor did not start. :O)
7. When I turned the transmitter back on, the ESC did not arm and the motor did not start.
8. However, when the throttle was advanced, the motor started up, which meant that the ESC armed when the transmitter was turned off in step 6. I tried this procedure several times, transmitter off ~ 15 minutes and it worked every time.

I now have a manageable procedure for handling the LiPo battery installation. After a flight, I turn off the transmitter. Even though the ESC is still armed, the motor will not start unless the transmitter is turned back on and throttle advanced, which of course I will not do. I now have plenty of time to change out the LiPo battery for another flight or just remove the expended battery and go home without the fear of the motor accidentally starting up.....Tandy