



Power System Selection: *The Extreme-Flight Jeremy Chinn Yak* -55

- 1: Calculate the power required:** Because I want this airplane to do extreme 3D aerobatics. I choose a power level of 200 watts/LB. Likewise, I will need 850 watts into the motor (4.25LBS X 200Watts/LB)
- 2: Select number of lipo cells:** Here are the currents (Amps) required for each number of lipo cells:
 - 3-cell=77 Amps-too high
 - 4-cell=57 Amps
 - 5-cell=46 Amps.
 - 6-cell=38 Amps

For this application, a 5-cell battery seems like a good starting point.

- 3: Calculate K/V:** Because I want a slow-spinning prop (I will be flying 3D), I limit the RPM to 6500. To achieve that rpm, I choose a 380 K/V motor (7000RPM/18.5V)
- 4: Select ESC:** This is probably the easiest step. All I need is a brushless ESC that can handle 48 (or more) amps with a 5-cell lipo pack. I can choose to get a esc with a built-in BEC or solder a separate BEC on. The second method is usually cheaper.
- 5: Select Battery:** Because I will be using power for bursts (hovering, vertical, ect..) I want a battery that will be small in capacity but high in discharge current. So, because a 25C battery is pretty cheap nowadays, I start with a 1.92AH (1720MAH).

(43Amps/25C=1920MAH). However, I want a little headroom in the capacity for longer flight times and cooler operation, so I increase the capacity by 150% (2880MAH).

Final Setup:

- **Motor:** 850-Watt, 380 K/V

- **ESC:** 50-Amp Brushless, that will take a 5-cell lipo
- **Battery:** 2580MAH 25C 5-cell Lipo