Davey Systems Fly Baby

It is good to hear from you again. I looked online for info about that kit, and found one for sale on eBay that had a photo of the specs on the box, which I have included below. As you can see, this plane is no where near 3 pounds ready to fly. It was intended to fly on .049 to .074 glow power, or with an old brushed can 550 motor or Astro-flight 05 to 075 electric motor. Back then they used 6 and 7 cell Sub-C NiCad packs to fly electric planes, which weighed a ton! As you can see from the label below, as a glow powered plane with a couple servos for elevator and rudder, it only weighed about 18 ounces. With today's modern brushless motor and LiPo batteries, the power systems that make the same power as the old brushed motors and Nicad batteries only weigh about 1/3 as much.

I found a set of plans for the original plane online at the following link, and looking at those, with the plane held level on the gear, there is 6 inches of space from the centerline of the motor down to the ground, so you easily have room for an 8" prop with 2 inches of prop tip clearance. Having a prop diameter that is 1/5 the wingspan for sport planes is also a good rule of thumb, and with a 40-inch wingspan, 1/5 of that is 8 inches.

https://outerzone.co.uk/plan_details.asp?ID=7298

On a plane of this size, you could go either 2-cell or 3-cell with the LiPo batteries. A 2-cell 1500mah pack and a 3-cell 1000mah pack both have the same amount of total energy, about 12 watt-hours, and both have the same weight, around 3 ounces. You just have to match the Kv value of the motor to the battery voltage that you are going to use, and you would get similar performance. A 3-cell pack will spin a motor with a 1000Kv the same speed as a 2-cell pack will spin a motor with a 1500Kv using the same prop. By the time you figure in the weight of a motor, battery and ESC, you are most likely going to have a flying weight of around 22-23 ounces.

For a plane like this, you would get very good performance with a power system that produces 90-100 watts per pound, so with a flying weight of around 1.4 pounds, you would be looking for power system that makes between 125 and 140 watts of power on a 7 or 8-inch prop. In the past you have used our Cobra motors and our 2213 size motors would work very well in this size airplane.

If you wanted to go the 2-cell route, then the C-2213/12 2000Kv motor would do very well with a 7x5 prop. At full throttle you would get these performance numbers.

Volts – 7.4

Amps – 18.5

Watts – 137

RPM – 11,460

Thrust – 21 ounces

Speed – 54 MPH

A Cobra 33-amp ESC and a 2-cell 1500mah battery would round out this power system.

If you wanted to go the 3-cell route, then the C-2213/18, 1350Kv motor would give similar performance on the same 7x5-E prop. With this set-up, you would get these full throttle performance numbers.

Volts – 11.1

Amps – 13.2

Watts – 146

RPM – 11,790

Thrust – 22 ounces

Speed – 55 MPH

As you can see, you get virtually identical Motor RPM, Thrust and speed from either of these options. For this setup the Cobra 22-amp ESC would work well along with a 3-cell 1000mah battery.

Now since you are living in Wyoming, where the altitude is up around 6000 feet, you would lose about 20% of the power from these numbers because of the thinner air. To compensate for that, you can just run a higher pitched 7x6 prop, which will move 20% more air than the 7x5 prop does, and compensate for the 20% loss in power due to the high elevation.

Here are links to the items in these two power systems.

For the 2-cell battery set-up.

Cobra 2213/12 Motor: https://innov8tivedesigns.com/c-2213-12.html

Cobra 33-amp ESC: https://innov8tivedesigns.com/cobra-33a-esc-with-3a-switching-bec.html

BadAss 2-cell 1500mah LiPo Battery: https://innov8tivedesigns.com/badass-45c-1500mah-2s-lipo-battery.html

For the 3-cell Set-up.

Cobra 2213/18 Motor: https://innov8tivedesigns.com/c-2213-18.html

Cobra 22-amp ESC: https://innov8tivedesigns.com/cobra-22a-esc-with-2a-linear-bec.html

BadAss 3-cell 1000mah LiPo Battery: https://innov8tivedesigns.com/badass-45c-1000mah-3s-lipo-battery.html

Either set-up would use the APC 7x6-E prop available here: https://innov8tivedesigns.com/apc-b7x6e-propeller.html

That pretty much wraps up the power system recommendation, so you have a couple options, depending on whether you want to go 2-cell or 3-cell power.