Phoenix Model J3 Cub 84.6”

The full size J3 Cub had a wingspan of 35 feet 3 inches, so with a wingspan of 84.6 inches, your model is exactly 1/5 scale. The full size aircraft used a 72-inch propeller, so at 1.5 scale the model propeller would be 14 inches.

A 4-cell battery is usually a good one to go with for a plane of this size. Typically something in the 4000-5000mah range gives good flight times. At max weight of 1220 pounds with 2 people aboard and 65 HP (48,000 watts) of power available, the Real J3 Cub had a power loading of only 39 watts per pound! When flown solo with partial fuel, the power loading would go up, but would still be just 50 watts per pound.

If you got 100 watts per pound, that would be double the power level of the real aircraft, and gives great performance for a plane like the Cub. Based on that, a motor that produces 800-900 watts of power on 4 cells with a 14 inch prop will do very well in the aircraft. To get that kind of power from a 4-cell battery, you need the motor to pull between 54 and 61 amps of current.

Looking at the motors we have available, in our BadAss line, the BA-3520-790 motor, running on 4 cells and spinning an APC 14x6-E prop puts you right in the middle of the desired power range. At full throttle, this motor gives you the following performance numbers.

Volts – 14.8
Amps – 57.4
Watts – 849
RPM – 9390
Thrust – 133 ounces (8 pounds 5 ounces)
Speed – 54 MPH

This set-up would get you very good performance from an 8 to 8.5 pound Cub with good short field performance and climb capability. One of our BadAss wood 14x6 props would give similar performance with a very nice looking prop.

This motor is rated for up to 70 amps of current, so you would want to team it up with an 80-amp ESC, such as our BadAss Rebel V2 80-amp model.

For a battery, the BadAss 4-cell 5000mah pack would be a good size, and when flying most of the time in the 60-70% throttle range, where you usually fly a Cub, you could expect to get 10-11 minute flight times per charge. Below are links to all of the items listed above.

BadAss 3520-790 Motor: https://innov8tivedesigns.com/badass-3520-790kv-brushless-motor.html

BadAss 80-Amp Rebel V2 ESC: https://innov8tivedesigns.com/badass-rebel-v2-series-brushless-esc-80a.html

BadAss 4-cell 5000mah LiPo Battery: https://innov8tivedesigns.com/badass-45c-5000mah-4s-lipo-battery.html

APC 14x6-E Prop: https://innov8tivedesigns.com/apc-14x6e-propeller.html

BadAss 14x6 Wood Prop: https://innov8tivedesigns.com/badass-wood-electric-propeller-14x6.html

We also have aluminum spinner nuts available to dress up the end of the threaded motor shaft in both Black and Silver finishes. The BadAss motor has an M6x1.0mm thread on it, so you would want to use that size prop nut. These are available on our website at the following link.

Spinner Nuts: https://innov8tivedesigns.com/products/prop-adapters/spinner-nuts.html