Richmodel Lingcat 380

Based on the size and name of the plane, I would imagine that it was originally designed to use a brushed 380 style can motor and a 5-inch prop. Back in the brushed motor days, they also used rather heavy NiCad batteries to power the aircraft, so the use of more modern LiPo batteries in conjunction with the lighter brushless motors saves a fair amount of weight on these models.

The model can be viewed here: https://www.generalhobby.com/lingcat-bobcat-electric-pusher-airplane-p-35.html

The specs from the site are as follows:

SPECIFICATIONS:

- Wingspan: 31-1/2"
- Length: 37"
- Wing Area: 250 sq. in
- Flying weight: 26-1/2"
- Motor Required: 180-225W (not included)
- Wing Loading: 16.4 oz/ft

I am pretty sure that the flying weight is supposed to be 26.5 OUNCES not “26-1/2 Inches” as it is stated in the specs! I would guess that the finished weight would be under 24 ounces with the lighter battery and motor. They are calling for 180 to 225 watts of power, which based on the original weight is 110 to 135 watts per pound, which would be about right for this type of airplane.

Now we just need to look for a brushless motor that will make around 200 watts of power on 3 LiPo cells spinning a 5-inch prop. One of the most efficient 5-inch props available is the APC 5x4.6-E. This is a wider blade prop that is optimized for thrust and has a higher than normal efficiency. To get the kind of power that you are looking for, you need a motor with a Kv value of around 2000 RPM/volt or higher to spin the 5 inch prop fast enough on 3 LiPo cells.

The Cobra C-2213/12 motor has a Kv value of 2000 RPM/Volt and will give you the following full throttle performance values running on 3 cells with the APC 5x4.6-E prop.

Volts – 11.1

Amps – 17.6

Watts – 195

RPM – 18,849

Thrust – 23 ounces

Speed – 82 MPH

This would give you pretty good performance from the model with a good top speed, and decent, but not unlimited, vertical climb ability. If you do have room for a 6-inch prop, you could also run the APC 6x5.5-E prop and get these performance numbers

Volts – 11.1

Amps – 23.0

Watts – 255

RPM – 17,170

Thrust – 27 ounces

Speed – 89 MPH

If you wanted a bit more power, you could also use our slightly larger and higher Kv BadAss BA-2315-2300Kv motor. This one makes about 70% more power than the Cobra motor does, and will get you these full throttle performance numbers with the APC 5x4.6-E prop.

Volts – 11.1

Amps – 30.1

Watts – 334

RPM – 22,555

Thrust – 32 ounces

Speed – 98 MPH

Either of these two motors would work well in the plane, depending on the desired performance level. For the Cobra motor, you could get by with a 3-cell 1500 to 1800mah battery, depending on the desired flight time. For the BadAss motor, a 3-cell 2200mah battery would be best, due to the higher current draw of this motor. Below are links to the products for both of these power systems.

Cobra Power System

Cobra C-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

APC 5x4.6-E Prop: https://innov8tivedesigns.com/catalog/product/view/id/1416/s/apc-5x4-6-propeller-black/category/2/

APC 6x5.5-E Prop: https://innov8tivedesigns.com/apc-b6x5-5e-propeller.html

BadAss 3-cell 1500mah LiPo Battery: https://innov8tivedesigns.com/badass-45c-1500mah-3s-lipo-battery.html

BadAss Power System

BadAss BA-2315-2300 Motor: https://innov8tivedesigns.com/badass-2315-2300kv-brushless-motor.html

BadAss Rebel V2 50-amp ESC: https://innov8tivedesigns.com/badass-rebel-v2-series-brushless-esc-50a.html

APC 5x4.6-E Prop: https://innov8tivedesigns.com/catalog/product/view/id/1416/s/apc-5x4-6-propeller-black/category/2/

BadAss 3-cell 2200mah LiPo Battery: https://innov8tivedesigns.com/badass-45c-2200mah-3s-lipo-battery.html