



*Always make sure the components you use have a good amount of headroom. Some use a figure of 20%.*

gives us the maximum power, whilst simultaneously keeping the current at a level within the limits of both the ESC and the motor.

#### **TAKING STOCK**

It's time to go shopping. Looking around the Internet, I have selected a suitable set of both i.c. and electrical components. The basic specification for these is shown in table 4.

This table also shows the weights of the various components that make up the two systems. It should be recalled at this stage that, in terms of power and endurance, these two systems are directly equivalent, each producing a full throttle maximum

power of around 850W with a flight time of 10 minutes.

In take-off condition the electrical power system is actually the lighter of the two by 82g, which may surprise some. Whilst, assuming that the i.c. system uses 80% of its fuel during the flight, it will be 142g (about 5oz) lighter than the electrical system on landing.

The point to be taken from this is that there is actually very little difference in weight between this electrical power system and its i.c. equivalent. Over a number of conversions I've found that this is very often the case, with the electric system weight often straddling the differing take-off and landing weights of the i.c. system. In fact I'd go so far as to say that if, when you work out the electric system weight, it is very different from the i.c. system then you're probably doing something wrong and your electrical system is either incorrect, i.e. it's not an equivalent, or it's very sub-optimum in some way.

Finally, an important point to note is that

the electric solution we have come up with here is by no means the only possible one. We could, for example, have opted for a 5S battery. This would have resulted in a different motor—because of the higher current and kV values that would be required due to the battery's lower nominal voltage. A different ESC would be used in order to handle the higher current and the prop would also probably have to be changed to extract the full 850W from the system. Although different it is likely this alternative solution would have been just as viable and potentially successful.

#### **IT'S A WRAP**

So that's it. Hopefully you found that fairly straightforward and feel confident to tackle that i.c. to electric conversion you've been thinking about. There are thousands of excellent plans, kits and ARTFs out there that are i.c. -only — well, not any more they're not! Just remember, as someone once said, the trick is to keep the smoke in the wires. Happy converting. →

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