Flying or Frying?

Hi, just thought it worth passing on my experience of two electric flight 2.4 GHz crashes I had recently and the cause.

Case 1:
The first was with my Edge 240 equipped with a 700 watt motor also running 3 gyroscopes on rudder ailerons and elevator. Radio was a new Hitec optima 7rx and 2.4 GHz tx module.

Using a 60amp Hi-Model ESC (Electronic Speed Controller) with a 'Bec' (Battery Eliminator Circuit) I didn't expect a problem.

With Ted switching in the gyro's one by one we were seeing the results quite promising it seemed, with the plane able to go hands off for quite a long way before requiring a correctional control. However as the last gyro was switched in all control was lost and a death spiral ensued albeit at a fairly low rate of descent. Ted switched all the gyros out well before impact but control was not regained.

Immediate radio check showed no servo response.

Case 2:
Then I had a flight with my other model, four servos, 4 LiPo's, Spektrum Rx and suffered another total loss of control for a few seconds result: a tree landing Neil would be proud of!

Later dissection of the 'Bec' showed that the 5-volt servo supply was simply three paralleled linear regulators whose specification showed that they shut down when overheated! This will lead to a cascade effect one shut down will overload the others and they will all shut down result no servo's!

I was running the ESC on 6 LiPo's giving a nominal 22 volts. If my setup was drawing 3 amps at 5 volts for the gyros and servos, then the linear regulator was dropping 17 volts (22 – 5) through it at 3 amps and that's a whopping 51 watts!

No wonder it gave up, so the moral of this story is if using more than 3 servos and more than 3 LiPo's use a switching BEC. This can supply about 3 amps nominal 5 amps peak with no heating no problem.

Even a momentary interruption of power supply can cause the new 2.4GHz Rx's to brown out and take several seconds to reacquire the signal, as was the case with the Spektrum Rx.

The Hitec wasn't to blame as a total loss of power from the ESC was the cause. Hope this helps to prevent further mishaps of this type.

Bill G.