Electric Control Line Combat

The purpose of this and subsequent related articles is to share my thoughts and limited experience of electric control line combat and to establish if there is enough interest to produce a viable and flyable contest class.

I am secretary of the Combat Flyers association, a BMFA specialist group that organises control line combat activities in the UK and I think we are missing a trick with regard to electric power.

Combat in the UK is comparatively healthy. The Vintage class which features pre 1974 designs with diesel motors regularly attracts over 20 entries at competitions with probably 30 entries at the Nats. There are other classes which are less popular but competitions are still run throughout the season. This year the CFA have over 20 scheduled competitions at 4 different locations and 5 organised practice days at Buckminster. This proves there is a healthy level of interest in Combat. However, we are not noticeably swelling our numbers, due to a number of factors. Availability of the necessary gear being a major issue.

One thing we have been lacking for several years, is a true entry level class of combat. A class that could be run at club level by half a dozen flyers. Something easy to get into, with readily available, inexpensive equipment, something that a youngster might take interest in or someone who has never flown control line before but fancies a go.

I think the answer is electric power. It ticks all the boxes and comes with additional advantages. One additional advantage of electric power is that it is much quieter than the current combat classes. I reckon you could fly it in a park. Also, you don't need to learn about single cylinder diesel IC motors, which, on occasion, can be awkward little perishers. Additionally it's clean, no oil no smell and no infernal fuel tanks to make. Lastly, electric power is second nature to the majority of current aeromodellers.

My knowledge of all things electric a couple of months ago was zero, it looked a bit of a black art to me to be honest but I've made some progress and I'll lay out where I am currently at. I understand that there is a massive spectrum of electric power available, from tiny little indoor planes to massive RC planes boats and drones but I set some criteria when I started with this,

- All the necessary gear has to be easily available.
- It needs to be inexpensive.
- It needs to be simple as possible.
- Make it fun.
- Make it fair.

Flying control line combat is a lot of fun and the very best combat bouts, to fly and also to watch, are those where the two competitors have equal equipment. It is very disheartening for a first time competitor to turn up with gear that he believes to be competitive, only to find that he is a good margin behind in terms of airspeed and manoeuvrability. From what I have seen so far, electric motors do vary, but not by much at all. Plus there are only 2 setting. On, or Off.

So, with a clean sheet of paper in front of me, I made a start. I bought the gear, learned how to plug it all in and built a couple of prototype models and laid out a draft set of rules designed for electric powered models in club level competitions.

I tested the models recently and I think we have a really solid proposition. It all works very well.

I will give brief overview now and then go into more detail in my next article(s) and also lay out the rules and the thinking behind them.

Approximate Cost. The whole setup , motor/esc/battery, props, R/C Transmitter and receiver, lines, handle, can be bought for under £40.00. A suitable model, similar to the one in the pictures will cost less than £10 in raw materials. I'll do a plan in a forthcoming issue and. If you wanted to progress to flying combat, it would be best to have spare motor/esc/battery set(s) sub £20 a few props, 25p each and a few spare parts, pennies.

I expect some readers might think a timer would be more suitable but a transmitter and receiver give the ability to stop the motor immediately in the event of a crash, or flyaway

One important note, the motors need to be identical, that is the same spec motor from the same manufacturer, with the same dimensions and KV, the battery needs to be the same spec and the props need to be the same diameter and pitch. This way we can be 100% sure that everyone will have the same performance and events will not be dominated by one bloke with a quick motor.

As for models, please yourself, any design, any material, any size you like. As someone from the combat fraternity mine looks like an old balsa combat model, not very original but its cheap and quick to build and it flies really nicely. But there is a whole world of possibilities, balsa, foam, foamboard, corex etc. etc. I'll offer a few suggestions about the many possibilities in the next episode.

A quick mention of the models, prototypes are basic balsa construction rib'nspar models with a battery compartment instead of a fuel tank. Dimensions are 890 mm span, 216 mm wing chord , 36 mm wing max thickness and 316 mm hinge chord. all up weight ready to fly is 13.5 oz. With the suggested motor/battery combination they fly very well, give good line tension and a flight duration of 4 minutes leaves 28% charge in the battery.

The rules I am suggesting are different from current combat rules for any existing class. I've tried to make them fair, simple to apply so that the competitions should be attractive to enter and easy to organise competitions if required. I am hoping to run some at my own club in Lincolnshire.

There will be those who know nothing about electric power, please don't let that put you off. I will list everything that is required, produce a shopping list and where to get it and illustrate how it all goes together, it's very straightforward.

I'll leave it there for now. Thanks for reading this far.

Next month, the electrical gear and competition rules.