



From the point of view of model flyers the New Year has not got off to the best of starts. At the time of writing it looks as though restrictions on flying may continue on into March, and based on what has gone before it seems likely that when we do get clearance to resume flying it will be limited numbers at least to start with.

When we finally do get the chance to fly at TVF again you will find that the solar charging installation has been significantly upgraded, thanks to the efforts of Dave Reynolds, Matt Doel and Richard Bristow.

Here is a handy guide for use, put together by Dave Reynolds.

The club solar charger uses 4x 100w solar panels in a 2x parallel by 2x series configuration delivering a theoretical maximum of approx 40v 16A into an Epever Tracer2210AN charger controller.

The charge controller uses MPPT (Maximum power point tracking) to maximise the solar array output regardless of the available sunlight level and perform DC to DC conversion to charge (@ 24v) and manage a lead acid battery array, it also features temperature compensated charging via a probe in the battery compartment.

4 in no high capacity SLA (sealed lead acid) batteries are configured in a 2x parallel by 2x series array to supply both 12v & 24v output to the distribution panel in the charging station, this maximises storage capacity and redundancy and feeds the distribution panel via independent Victron energy BP-100A battery protectors that cut off supply when

the batteries reach a minimum discharge voltage, an issue that has previously caused us to damage the batteries irreparably (typically 10v per battery is when guarantees are considered void and they will no longer recover)

All wiring is 6mm² copper stranded core with an approx. 60A maximum rating and so this is the maximum that should be drawn via either the 12v or 24v supply points, with 24v available from female XT60 connectors and 12v via 3mm banana plug outlets as this matches most chargers; where possible 24v is to be used as the current draw is likely to be lower, more efficient and less likely to tax the system overall although this configuration should withstand all foreseeable usage scenarios.

<https://www.epsolarpv.com/product/3.html>

https://www.victronenergy.com/battery_protect/battery-protect

SUMMARY

- **Use the 24V supply whenever possible**
- **The 24V supply has female XT60 connectors**
- **The 12V supply has 3mm banana plug outlets**
- **Max current draw from either supply is 60A**

Membership

There are a few members who have not nominated WCA as their club, or as one of them, on the BMFA membership area. If you haven't, please could you go on to the BMFA Azolve membership site (where you renew your BMFA membership) and nominate us as a club to which you belong.

Increasingly club member management requires access to your BMFA membership and registration status in order for us to check all is correct without having to ask you to provide printed documents.

Whilst on the subject of the BMFA website, please note that if you are using an Achievement Certificate for Registration of Competency, it is a legal requirement that you make the declaration confirming that you have read and understood the Article 16 Authorisation.



Our thanks to Pete Sanders for contributing the following. Many of us have seen versions of this model being flown by Kevin Howard, Dave Reynolds and Paul Warren and been impressed by its spectacular performance and smooth aerobatics. Why not spend a little of the time you would normally spend flying to build one of these? This one will get the adrenaline flowing when we are allowed out to play again.

HOWARD METCALFE MODELS XFIRE

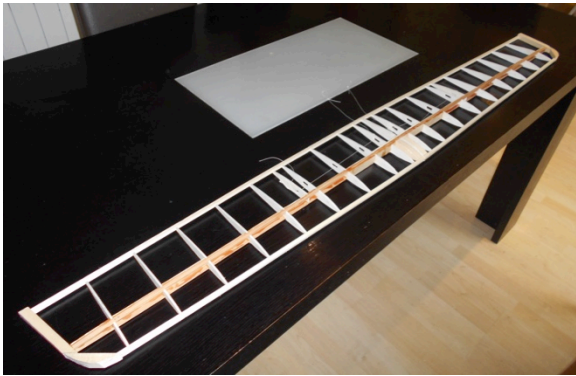


Want a high performance, lively aerobatic electric model of medium size, that will fit easily in the car in one piece? Well the Howard Metcalfe Models Xfire (Cross Fire) fits the bill! Although it is an early electric design, with a modern power train, the lightweight, simple construction produces a very modern model, with a ballistic performance.

The construction photographs are of an example, still flying, which I built for Dave Reynolds about five years ago. The upgraded air frame was produced from ideas by myself and the late Steve Warren and tested out, using Steve's original wings, from one of HMM's early kits. That XFire is still regularly flown by Paul Warren.



Commence the Xfire by building the basic wings. It is vital to use spruce main spars. Make sure you cut holes in the inner ribs to pull through the servo extension wires.



Join the wings and add the centre ply brace. Glue the 1 mm ply doublers onto fuselage side. Tape draw strings for the servo extension wires into the wing. Add webbing to BOTH sides of the main spars.



Shape the wing tips and sheet the wing, top and bottom. Fit the wing seats to the fuselage sides.



Fit the fuselage formers.



Join the fuselage sides to make a basic "box".



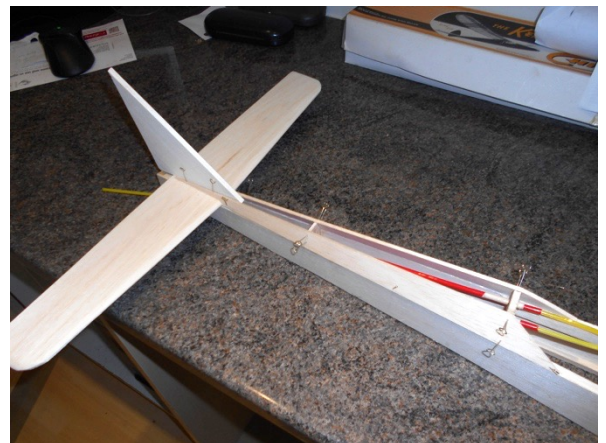
Fit hardwood blocks into the wing servo bays, check the servos fit before gluing.



Cut out and fit light ply servo covers. These are screwed to the hard blocks.



Fit snakes into the fuselage.



Glue the tail plane and fin into position and add fuselage top, side decking.



Add rear top deck, cowling sides and blocks.



Build the canopy/electrics cover. This item takes a good deal of care to fit properly, so take your time.



The finished airframe.

Fitting in the motor, power train and flying electrics is standard and straightforward for any experienced R/C flyer.

Plans and paper parts patterns available from Pete Sanders £15.00 inc. post and packing.

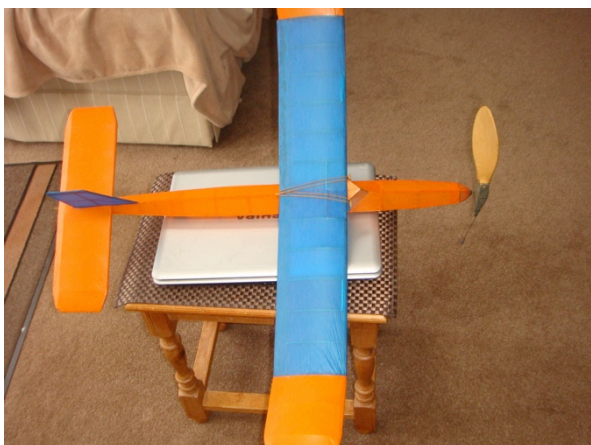


Members' Models

Graham Essery has used his lock-down time to make this rubber-powered F/F Mercury Mentor, a high-performance duration model of yesteryear.



This model has a home-made single-bladed folding propellor, probably the hardest part of the model to get right. Steve Warren made one of these once, making that prop led to some very strong language being used. Incidentally, Steve's model is still flown by Howard Metcalfe.

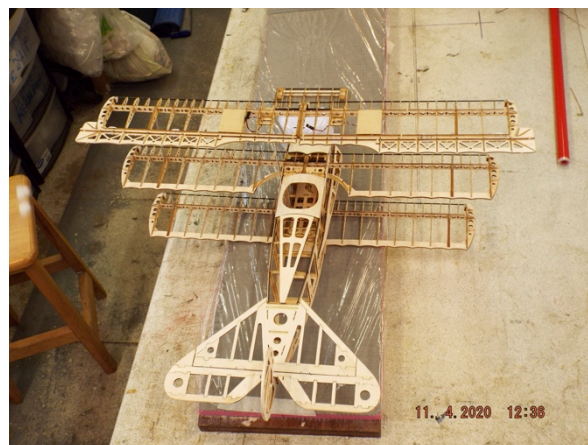


Another view of Graham's Mentor

Jim Hall built the very nice Fokker Dr 1 pictured below last year from a Hobby King laser-cut kit that looked to be of high quality. It uses an electric brushless motor for power, 77 cm span:



Jim reports that the kit went together very easily, all parts fitting well. Just a few minor modifications were made.



Very smart it looks too, and nice to see the Saito twin-powered Fournier in the background is almost completed. The Triplane is unflown as yet, we hope for a flight report in the next issue.

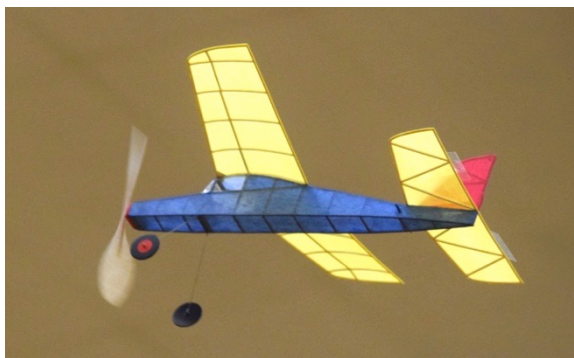
Indoor Flying An Introduction

By Alan Wallington

WCA held their first indoor flying event in November 2000. Unfortunately we were unable to celebrate the 20th anniversary of this event due to the coronavirus pandemic. Until the events were suspended in March of last year we were holding 30 events at Wickham Community Centre (10 each for

free-flight, R/C and FPV) each year, in addition to six events at Havant Leisure Centre.

Each type of event at Wickham has its enthusiasts within the club. Indoor free-flight models are trimmed to fly in a circular pattern within the constraints of the hall, motive power being rubber motor or electric power, although in previous years we have seen models powered by CO₂ motors in evidence. A few modellers also fly chuck gliders in the hall. We have actually had three UK duration records set at Wickham for different classes of indoor model in the past three years. The range of models flown at these events is very impressive, some models being of ultra-light construction flying way below walking pace, whilst some of the small scale models fly considerably faster.



The indoor R/C small models events at Wickham are suited to the smaller E-flite/Parkzone UMX models with a single-cell or 2 cell Li-Po battery, or equivalent models from various (mainly Chinese) suppliers. If First World War aircraft are your particular preference, then take a look at the Microaces website. The company produces a range of fully decorated models in kit form, basically foam with a printed finishing surface. Assembly is with Uhu-Por or equivalent, and the models use a single cell Li-Po with an integrated receiver with two

servos (available in a range of flavours – Spektrum, Futaba, FrSky and Flysky to suit your transmitter). Some of the models have now been enhanced to 4 channel control. There is also a range of sport model kits available. The 3 channel models have been flown very impressively at Wickham, so do not need a large hall to fly in.

The indoor FPV events at Wickham are intended for small drones with a maximum of a 2 cell Li-Po. Due to the limitations of the video equipment these models use it is not possible to fly more than four models simultaneously due to interference between the various bands and channels. Dave Reynolds has constructed a number of obstacles which are used in the course to be flown. Originally only brushed motor drones were used, but now small brushless motor drones are flown as well. Unfortunately battery capacity restricts flight time to four or five minutes. Some attendees at the FPV events fly drones without FPV equipment, meaning that some very cheap drones can be used to practice flying. Dave Reynolds is the drone guy to speak to if you need any advice on any aspect of drone use.

The events at Havant Leisure Centre use the main hall there, which is an eight badminton court sized hall, meaning that larger models than those flown at Wickham are very easily flown there. The big difference is the flying of shock flyers, foam models with two or three cell powered brushless motors. With large control surfaces and massive control surface deflections these models are capable of extremely tight manoeuvres, but still fly quite slowly. These are definitely models for the hooligan element amongst indoor fliers!

So what is the attraction of indoor flying? Indoor free-flight events have been held by many model aero clubs since the 60's, although its popularity has waxed and waned.



Since its introduction in this country in the late 90's, indoor R/C has become a discipline in its own right, and it does need some adjusting in technique compared with outdoors due to the constraints of four walls and a ceiling – more than one pilot has taken off and flown straight into the far wall! Once a pilot is used to the hall constraints, flying at either Wickham or Havant is quite straightforward provided a suitable model is chosen. Obviously the big benefit of flying indoors is a total lack of inclement weather once at the venue, and the knowledge that the flying conditions are the same in successive events. Flying indoors provides “stick time” when the weather outside is either unsuitable or disagreeable for flying. During balmy summer evenings towards dusk, when the air is flat calm or just the hint of a light breeze, indoor R/C models can be flown outdoors very successfully. I have done this on several occasions at TVF over the last 18 years.

There is a wide variety of model types and specific subjects in each model type to satisfy most modellers – some are ready to fly foam models, others are full kits or even plans. Conversions from indoor free flight scale

models can quite easily be undertaken given the availability of suitable hardware.

In a future article I will look at some of the aspects highlighted above for indoor R/C, including the radio equipment and motors/gearboxes available for models of your own construction, or even design. In the meantime, although indoor flying is currently suspended, once the government has relaxed the restrictions to permit indoor gatherings again, and the venues we use have re-opened, we will hopefully be able to re-start indoor flying meetings once the club committee has decided it is acceptable to do so.

WCA Newsletter

Please help to keep your newsletter flying high by sending us something to put in it. Anything goes. Pictures and/or descriptions of any new builds or recently acquired models would be most welcome, so too would anecdotes, musings, thoughts or tips with a vague connection to our activities.

