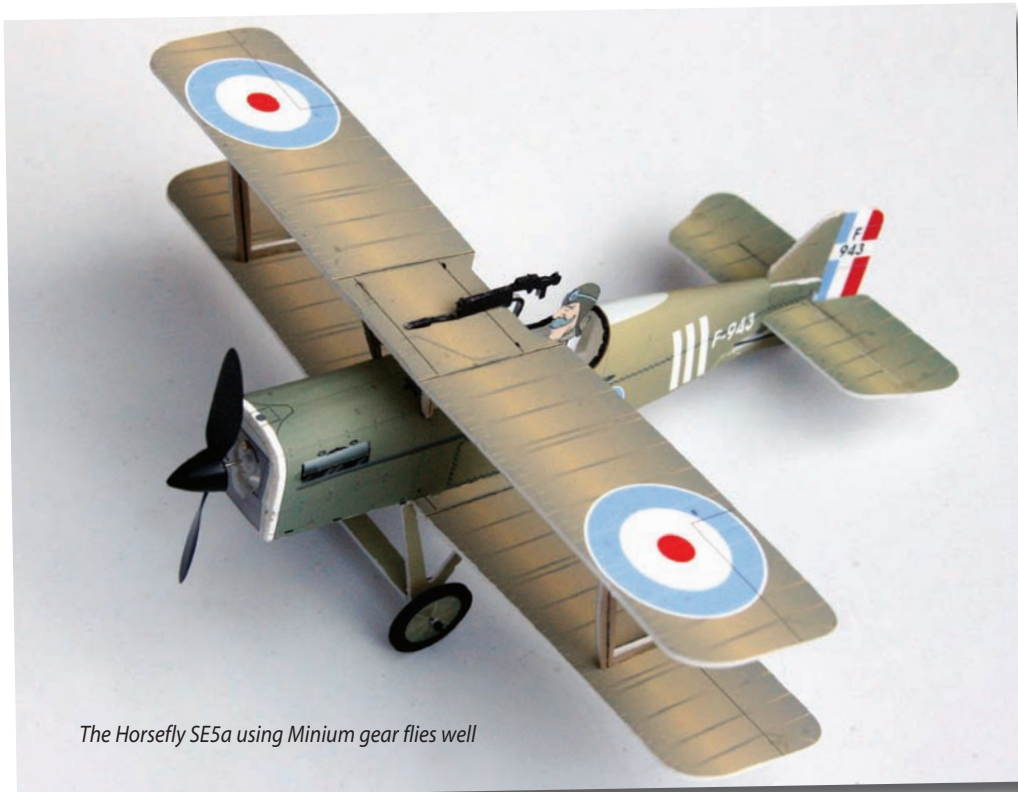


# Watts Under The Roof

John Stennard takes a look at a new Klik! model and a hot, new indoor brushless motor



The Horsefly SE5a using Minium gear flies well

Over the last few years, two classes of electric models in particular have been big growth areas due to the interest of modellers and the support of the model industry. The first of these is indoor models and the second is EDF models. Both of which I happen to write a lot about!

In my mind the arrival of the Kyosho Minima Cessna and later the Citabria brought a whole new look to the indoor scene. Suddenly small models capable of excellent performance in a small space, with no frequency issues, were readily available at a reasonable price. Add to this the fun that can be had utilising the 'spare' fuselage complete with all the R/C gear for less than a specialist micro receiver costs!

Now the ParkZone Vapor™ (Bind-N-Fly) takes everything a stage further by offering a ready to fly 375 mm (14.75") 12 g (0.4 oz) 3-channel model with its own Tx or ready to 'bind' to your own Spektrum Tx! This model can also be used with the Tx supplied with the E-Flight Blade's CX2. I was able to look at one at the Wings and Wheels show which, as usual, I thoroughly enjoyed both for the flying and the traders.

On the EDF scene the arrival of the swing wing Kyosho Vision is a real eye opener. Quite amazingly it only uses the tiny Kyosho 45 mm fan unit. This is quite a complex model and is a fantastic combination of the beautiful and the functional.

## Klik!

At Wings and Wheels this year I was led to the RC Factory Klik!, after admiring a new 'hot' indoor brushless motor being used by a fellow indoor enthusiast. The motor led me to Richard Boyd's [www.expressfly.org.uk](http://www.expressfly.org.uk) online shop and this is where I saw the Klik!. However, as the motor is clearly an important new development and highly suitable for any 3-D model, not just the Klik! I'm taking a look at it first.

The motor is called the Vytas after the man who designed and hand builds them. They are built in Vilnius in Lithuania and have quickly established themselves as the motor of choice for many top world-class F3P/AM flyers. Expressfly are currently the sole

world agents for this motor and its popularity is high in the USA. Donatas Pauluolis uses Vytas motors in both his F39 and AM models.

Taking a close look at the motor the bell housing is hand turned from aircraft alloy and the 9 pole stators are wound using a higher than normal grade of wire that can withstand temperatures up to 120°C. Of course the motor should never be running at a temperature like this but this capability offers extra protection. The bearings are stainless steel and the shaft can be made from either steel or, an increasingly popular option, 3.1 mm carbon fibre.

The Vytas motor is similar in appearance to the C&K motor that, for many years, was top of its league. In fact at 17.3 g it is both lighter and more powerful than the C&K, which weighs 21.2 g. The bell housing is held in place by the power of the magnets. These are very powerful and provide a very pronounced 'compression' effect. The Vytas has the usual prop saver hub but uses far more practical wire holding hooks for the O-ring or rubber bands prop retainers. Fitting an O-ring on some of the retainers that use bolts can be very frustrating.

## Klik! Model

This high performance F3P aircraft has been developed over a four-year period and is produced by the RC Factory in the Czech Republic. It features some of the latest ideas for side thrust generating, stall inhibiting and drag inducing devices. You may wonder at the point of adding all these things but I can assure you that the difference between flying a



The Clik! includes all the latest 'gizmos' of a 3-D model



The high power Vytas motor

model equipped with these and for example one of the 'Fred' standard type models is very noticeable.

Models like the 'Shockies' started it all and lighter and more agile models like our local 'Fred' and 'Maurice' types moved things up a notch. Now by keeping the construction and AUV very light, adding a potent motor and including lots of aerodynamic wizardry, a very superior performance can be achieved.

I always aim for a weight of 140/160 g (4.9/5.6 oz) for my 3-D models and the ideal AUV for the Clik! is 125/145 g (4.4/5.0 oz). The Clik! also follows the current trend for short, stubby, 800 mm (31.5") wings combined with a long 910 mm (35.8") fuselage. Also following current thinking the large rudder is to the rear of the tailplane. Although not my favourite method both the rudder and elevator use closed loop control systems. However, I do recognise that this method provides a very positive, fast and

accurate degree of control. Also like most of this type of model the U/C is a very minimal affair. Although not essential I modified the U/C slightly by using a crossbar. This makes the U/C just a little more rigid.

The foam parts of the kit are all accurately cut and pre-coloured and the assembly process is quite simple. This means that the model can be built very quickly using foam friendly CA or/and UHU POR. While fitting the ailerons I made a mistake with the Blenderm™ tape, and, on removing the tape, found that all the colour came off with it! So a little extra care is needed when hinging or one ends up with a white model.

The closed loop system requires care to get the tension on the thread correct to give a smooth and accurate operation.

The Vytas motor has a very solid 12 mm stub shaft and is supplied with a special metal mount. I came across a minor problem fitting a prop as I thought that the hub was made for the popular GWS props.



The Kyosho Vision, a sign of the future

This is not the case and it requires the hub of the prop to be countersunk in order to fit the hub shape. Looking amongst my props I found that the yellow 8" x 3.8" Torque props were the correct hub shape to fit the Vytas motor without modification.

In order to keep the weight as low as possible many top flyers now use the Spektrum 6300 Rx and matching lightweight servos. In my case I'm continuing to use my Futaba FF9 37 MHz set for indoor work as I have a number of very small and light receivers like the Penta. I have also used my Spektrum Tx for all my EDF models so do not have many spare model memory spaces available.

The Clik! can be built and flown initially without adding any of the special gizmos. The wingtip side thrust generators can actually be fitted and detached as required as they slot in place and are held in position with tape. The drag plates fitted to the rear of the ailerons have to be glued in place when required.

My airframe weight ended up at 134 g (4.7 oz) and a FlightPower 2s 350 LiPo pack increased the AUV to 155 g (5.3 oz). This was slightly above the 'world champ' class ideal weight but still plenty low enough to guarantee a good performance.

I took the model into the school hall for its first flights and was immediately impressed.

It was rock solid in the hover requiring minimal inputs to keep it in place and reacted immediately to commands. The motor clearly had loads of power available and the combination of this and the quick reactions allows for very sharp movements at very low speeds.

Even in our low ceiling hall loops and bunts were easy to do although I found inverted flight to be a touch more demanding. As ever with models trimmed for a good hovering performance when inverted there can be a tendency for them to want to climb. For some reason holding up elevator rather than back stick when inverted seems a bit unnatural. After enjoying some excellent flying I returned to the hanger to fit the gizmos on the wings.

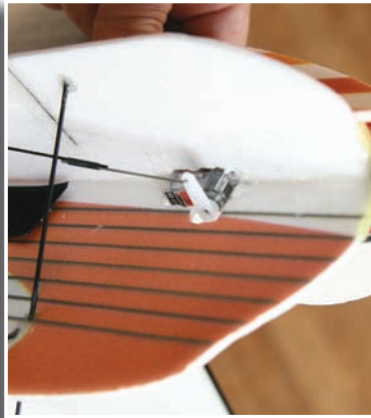
These really do make a difference but you have to use the throttle control even more than normal. The effect of the induced drag is obviously to slow the model and this has to be compensated for with the throttle. However, the effects are very marked and permit sharp manoeuvres at even slower speeds.

One thing I did find was that I had to watch the throttle when rolling. A touch of throttle was required to pull the model round the second part of a roll at the slower speeds. This is no problem once you know you need it.





The large rudder is behind the tailplane



The aileron servo is right up in the nose



The aileron mounted 'airbrakes'



The wingtip side thrust generators can be added and removed as required



School hall hovering was never this easy before!



The Clik is an interesting model from any angle



From this view the bracing is visible



The Profession Aero System four motor model

The knife-edge performance is quite amazing and I found that I could do a knife-edge circuit in half the hall instead of needing the full hall. With the extra gizmos the slow speed performance is superb and the Klik! can be kept in a very small space while executing extreme manoeuvres. You really do feel as though you are totally 'in touch' and control of the model as the combination of the motor and aerodynamics give it such a high performance.

To sum this model up I would say that although it might seem quite expensive at £49.99 it represents over four years of development and is a world-class machine. Relate this to any other model that offers this and the price is right.

Why do I with my limited skills need a world-class model? Well of course the ability of the aircraft to perform in the way it does immediately ups your

The parts are nicely formed and coloured



game and allows you to attempt manoeuvres that were probably beyond your previous 3-D indoor model. Assuming you are past the stage when regular crashes are the order of the day then this model is as tough as it needs to be. It may not be a good idea to fly it in crowded airspace but of course it would be perfect for 'small field, calm weather outdoor flying'.

Having flown both the Klik!

and the Afiel I would now not want to return to a 'standard' type of indoor 3-D. If you get a Klik! and power it with the amazing Vytas motor you will never look back. If a Vytas motor at £41 is a touch beyond your budget Richard also sells the super little Hacker A10-15S for £22.99 and one of these is doing a great job in my Afiel.

### DIY It

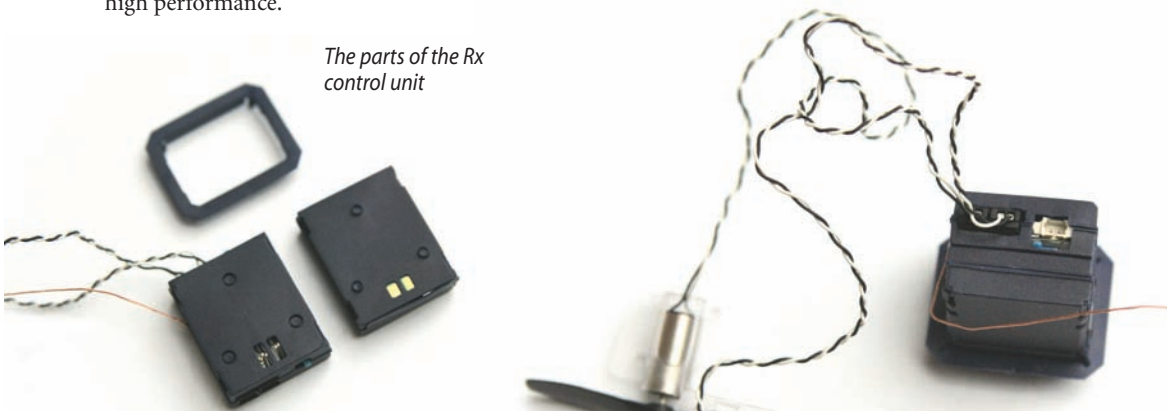
The Silverlit X-Twin DIY Aero System Professional Set is rather special as this is a four-engine model. Few modellers ever get around to building four engine models so here is an opportunity to assemble and fly a small one.

Of course by making this a DIY project Silverlit had added an extra dimension and simplified the packaging at the same time. As usual with all Silverlit models distributed by Flying Toys Ltd, the presentation and quality of the model are excellent.

The assembly is quite straightforward and uses some clever techniques to ensure an accurately finished model. From the design aspect the fin is very small but when the model has been flown the reason becomes apparent.

The 460 mm (18") 40 g (1.4 oz) AUW model flies very well in calm conditions and is extremely stable in flight. It climbs away steadily and the motors provide ample power. When it comes to the turn everything happens in slow motion. The profile fuselage obviously has an effect and the minimal amount of 'turning power' provided by proportional

The parts of the Rx control unit



The motors connect to the Rx unit



This is a very nice, 'different' looking model



motor steering results in a very large turning circle, hence the small fin.

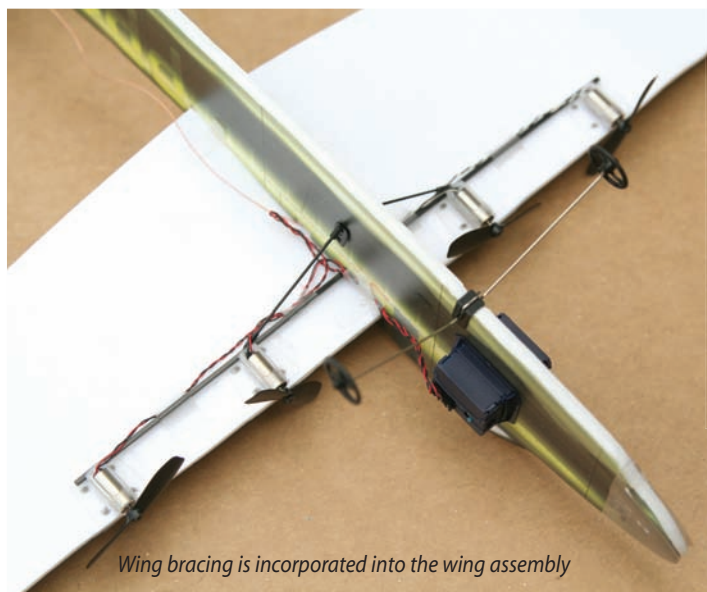
The result of a 'full rudder' input on the stick is a perfectly stable but wide turn. Allowance for this needs to be made when flying the model or you could run out of space. Even a very small amount of wind will have a noticeable affect on the ability to turn. The response to the throttle is very smooth and the model can be flown in a very smooth manner.

This aeroplane looks really attractive in the air and flying it will be an enjoyable experience for guys of any age or experience.

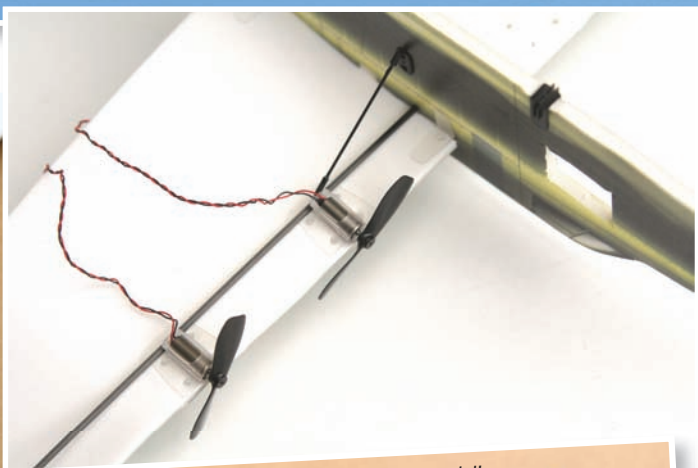


*In the air this model looks particularly attractive*

*Right: The motors clip onto wing*



*Wing bracing is incorporated into the wing assembly*



*The tiny Bill Lowe Nano Ghost is an amazing model!*



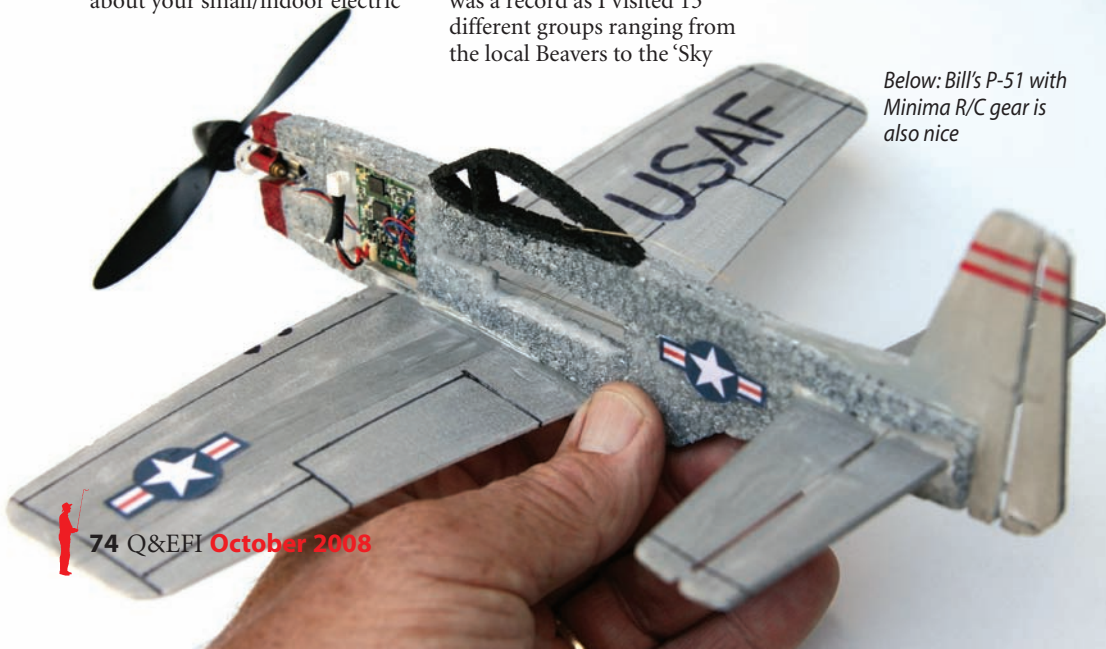
### Tailend

My Ghost biplane and 'Minima R/C gear' P-51 have both flown and are excellent performers, more about these super little models from Bill Lowe soon.

I'm always interested to hear about your small/indoor electric

projects and can be contacted via [john@stennard.orangehome.co.uk](mailto:john@stennard.orangehome.co.uk) – note the new email address, or the editor at Traplet. Photos are always welcome. I'm already booked for several 'Indoor R/C' talks as we enter the 'talk season'. The last season was a record as I visited 13 different groups ranging from the local Beavers to the 'Sky

*Below: Bill's P-51 with Minima R/C gear is also nice*



Tribe' Avon Hang Gliding and Paragliding Club.

Unfortunately, I do need to restrict talks/demos to clubs and groups within a 50 mile-ish range. Last season two clubs were able hire small halls and this enabled me to fly a wider variety of models. At the other end of the 'space scale' one was done in the Gliding Club bar (some advantages!).

The first F3P indoor contest will take place in December this year. This event is being organised by Andy and information is available on [www.3drc.info](http://www.3drc.info) **Q&EFI**