



# Newsletter

January/February 2016

So, here we are again at the start of another year and as I write this, it's already more than half way through February. The weather has been and continues to be, so very disappointing. It's cold and it's wet and when it isn't cold and wet it seems to just be cold. Not really what we want for enjoyable outdoor flying. I can only say, thank goodness we can still fly indoors.

When I started indoor flying, the only model I could reasonably fly was a very slow model with under-cambered wings. Even that one would either hit the walls, the hard floor or get tangled up in the roof steelwork. It was a long and painful learning curve. Eventually I came home really chuffed, because I had been able to fly 6 little LiPo's without any serious crash. It was at last payback time and that felt so good.

Things progressed to the bi-plane which I improved and improved until it became an aerobatic model which would really easily 3D - it does roll but they are relatively slow but all in all, a very satisfying model to fly. The biggest improvement was when I stopped using under-cambered wings and used a flat profile - that's when it really started to fly.

I had occasionally tried to fly one of the normal 3D models and had always found that I still didn't have the skill required until about 3 sessions ago. I had painted up a nice 3D Shockie design and put it away until I felt confident to fly it. Well, my trusty bi-plane got hit to the point that it wasn't worth repairing so I was forced to try out the Shockie. Jason checked it over, checked out the movements and C of G and pronounced it fit to fly. He launched it for me and amazingly, and at long last, I was able to fly the thing safely around - without crashing!! A milestone indeed.

I am very grateful to Jason for his help. Anyway, as I say, thank goodness for the opportunity to fly indoors.

I'll probably be rusty as hell when it comes to flying 'real' models again. I keep thinking that in just 6 weeks time, Spring will be here. It will be getting warm again and I've got a very cunning trick up my sleeve - I'm building a vintage model. Now those things fly themselves and it'll be a lovely way to ease myself back into flying in the skies instead of a nice quiet Sports Hall. The Junior 60 is coming along nicely - I've got an old Flair kit - no instructions - just a pile of balsa and a plan. You have to think everything you do through and that just adds to the enjoyment. The more of it you build the more you get to love the soft iconic lines of this early design.

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I found the Question and Answer session we had very interesting. Some of those questions showed what members really needed to know.

One of these questions concerned the YEP electronic speed controller. This is a well specified ESC marketed by HobbyKing at a very attractive price considering their specs. I'm using a YEP 60 amp in my Wiggo - it cost a smidgeon over £22.

YEP ESCs are built to last and can be programmed via optional programming card or by transmitter stick inputs.

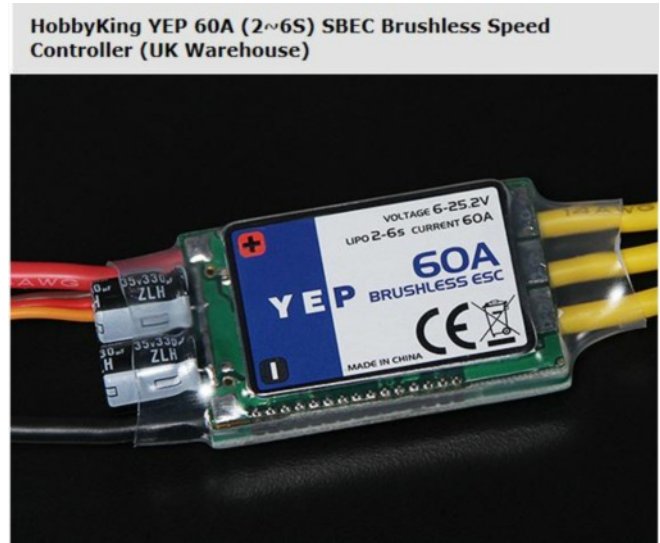
**Features:**

- Powerful 5.5V/6A Switching BEC
- Optional programming card for convenient setup
- Super fine throttle resolution provides first-rate and highly accurate linearity
- Super smooth adjustable start-up mode
- Constant RPM mode (governor mode)
- Adjustable F3A brake.
- 3 steps adjustable normal EMF brake
- High anti-interference capability
- Low voltage cut-off protection with automatic adjustment for NiCd/NiMH/Li-Ion /LiPo/LiFePO4
- Soft cut-off option at low voltage, slows motor RPM gradual rather than hard cutoff (LVC)
- Low voltage cut-off can be disabled
- Variable cut-off voltage / cell
- Active free-wheeling circuit allows for unlimited "partial load" capability
- LED status display
- Adjustable motor timing from 0° to 30°
- Blocked rotation protection (senses a jammed motor and stops motor rotation)
- Motor reversing from ESC (no need to change ESC/motor wires)
- Over-temperature protection and overload alarm
- Throttle signal lose protection. If the signal is lost for 3 seconds, the power will automatically cut-off.
- Safe power-on. (Motor will not start until throttle is returned to lowest position)

**Specification:**

Max Cont Current: **60A**  
 Max Burst Current: **80A for 10 seconds**  
 Input Voltage: **2-6 cells li-XX or 6-16 Ni-MH/Ni-Cd battery**  
 BEC: **5.5V/6A Switching BEC**  
 PWM: **8~16 KHz**  
 Max RPM: **240,000rpm for 2 Poles Brushless Motor**  
 PCB Size: **50x32x12mm**  
 Weight: **63g (including wires)**

**\*\*Programming card is required to change setting**



Any electric flyer, looking at that specification cannot fail to be justifiably impressed and confident of his/her choice.

This is the ESC I also used in my Fun Cub when I replaced the motor. The thing is, this ESC comes to you all programmed for helicopters not aircraft. So the throttle works in Slo-Mo - you open the throttle and it very slowly winds up the revs - not what you want for an aircraft. I bought the programming card and watched various You Tube videos explaining what steps to take to re programme it. I found some of the advice quite confusing - so did the member who sent in his question.

The settings I finally used on my Fun Cub seem to have worked very well so here is what I did.

I put BRAKE to OFF. Motor Timing to AUTO. START UP SPEED to PLANE MIDDLE

Making sure that your digital trim for the throttle is at it's mid point, you can set the STOP position and FULL SPEED position and that's it.



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I have been very happy with the way it all works set up like this.

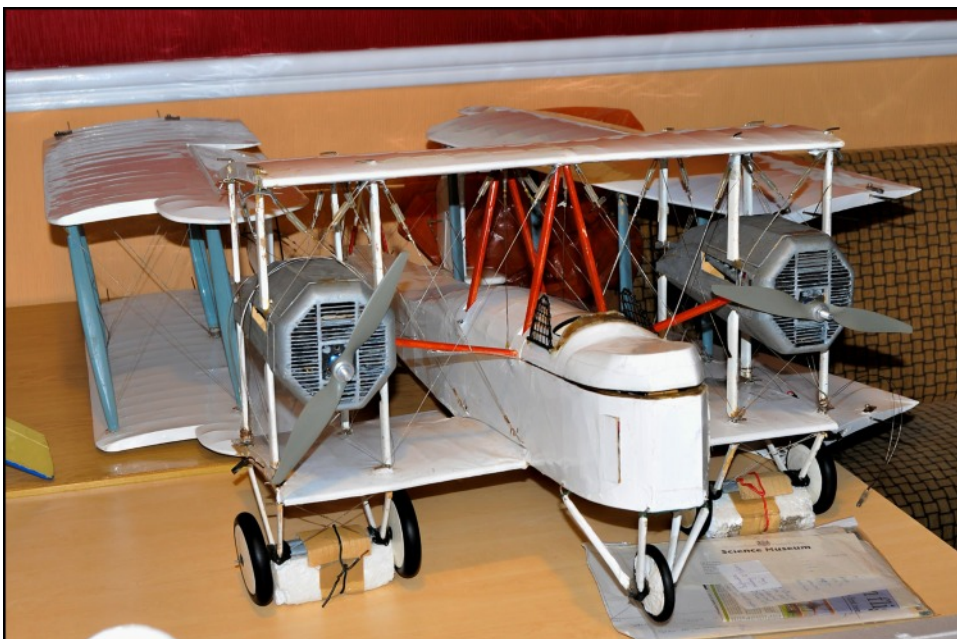
The Auction evening was a success. I was lucky enough to get the Eflite Mini Pulse. I've stripped it down - all the servos have been taken out and tested - all connections to the extension leads made secure with heat shrink where necessary.

I will tart up the covering or maybe recover the fuselage, set up all the control movements and set the C of G. I look forward to flying it but to be honest, whilst it's still cold, I will be remaining in hibernation!! I keep telling myself that Spring is only a very few weeks away.



When I stripped it down I discovered an AXI 2808 up front and that's a quality motor. I'm really pleased with it. The model should give many hours of fun.

The model which we are still looking for a good home for is the Vickers Vimy. This work of art must have taken years of building and researching - a beautiful model. If any of you are interested, please let us know.



We are very grateful to John Roberts for donating all this equipment and models to the Club.

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## A VIEW FROM THE HEDGE. (By Will Sparrow)



It's that time of the year again; the time when all small birds hunker down and try to make sure that we last long enough to be able to observe the new flying season. Life really is tough in the hedge.

The tail end of 2015 brought with it what seemed like never-ending bad weather with barely a glimpse of a decent day. The last flyable Sunday in December, however, was a perfectly good day for doing what you like doing best (and I like watching best). The wind was almost non-existent, the sky was blue... and the pitch was very wet. Notwithstanding, five members turned up and one of them actually flew his model whilst the others test-flew the seats in the club hut! When the conditions are as wet as they were on this day, having the right model for the job is essential. Small and light is what is needed – something that will sit on top of the surface rather than dig in. Oh, and while you're at it, you'll need a decent pair of wellies.

As 2015 came to an end, with members recovering from the turkey-induced sofa coma that is the festive season, we were lashed by storms Desmond, Eva and Frank. Needless to say, it was rather miserable in the hedge and there was nothing at all to be seen in the way of flying activity. I explained to my mate, Jim Sparrow, that this is the time of year when modellers everywhere are starting to get stuck into their winter projects, sharpening their modelling knives and sniffing their glue. A fortunate few might be perusing a modelling-related Christmas present from a loved one (or themselves!), whilst others could be contemplating the best way to fix a particularly demanding sticker to yet another instant aeroplane or checking over their existing fleet in preparation for the new flying season. Winter may be the fallow season but, for the true modeller, it presents just another aspect of your wonderful hobby.

As many of you will know, February 14<sup>th</sup> is the day that we birds choose our mates (I've heard that there is a similar custom amongst humans too). Anyway, to cut a long story short, Jim Sparrow and I were visiting a not too distant hedge on this day with a view to... Well, you can guess. As a result we missed some of the action on the field on what was quite a good flying day; a Sunday, too. Luckily, our hedge is full of nosey sparrows, some of whom share my delight in model aviation, so it wasn't long before we were properly briefed on the day's action. The morning period was a bit "thin", from a flying point of view, with but a single flier and a couple of observers. As the day ripened, however, more folk arrived and the field groaned under the weight of a good half dozen modellers! Large, high-winged sport and scale types were particularly in evidence performing low and slow type flying. All very pretty to watch. Now, as I explained to Jim, slow flying is not without its own particular hazards. If the model flies too slowly then the dreaded stall is there to bite – not a problem, just a sharp lesson, if the model is high in the sky. If the model is very low, near the stall, and is then pulled into a sharp turn, the lesson sharpens still further as the model flicks into the ground. I'm sure, given the skills of you modellers,

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## A VIEW FROM THE HEDGE continued/.....

that the large, scale model will be repaired in no time at all. As an aside, one of our hens, noted for her particularly acute hearing, said that she overheard a beginner remark, "If that's how the experts do it, what chance have I got!" We have all made mistakes (I've had a few bent beaks and broken feathers in my time) but we try to learn from them: if we can learn from other people's mistakes as well then so much the better.

We are now well into the New Year and the named storms are approaching the middle of the alphabet. The eighth storm of the year was called – no prizes for guessing – Henry and, no sooner had he finished with us than his sibling, Imogen, arrived to drive away any prospect of model flying and to make sure that we hedge-dwellers remained in a permanently damp state! At least the first signs of a nascent spring are beginning to show. On my travels (mind you, I don't travel very far) I've spied the odd clump of snowdrops and even a few early daffodils, so the end of winter is, perhaps, in sight. Once February is out of the way we can all look forward to... the March gales! At least the wind, twinned with the increasing day length, should see the flying field drying out and firming up.

Be of good cheer, modellers all. The end is in sight and you will soon be able to enjoy what you like doing best. For my part, I'm just looking forward to all the pleasure I get from merely watching you enjoying yourselves.

WS

Well Mr Sparrow bird, here is one of the models you are going to see very soon cavorting around your skies. So keep your head down and be impressed.



*This is Dave's - he fell in love with the design at Jet Power - I can see why!*



# Tactic TTX650 Radio

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*Article by Brian Holdsworth*

When considering the purchase of an item from a range with varying capabilities, it is often useful to identify those capabilities actually needed. It can seem simpler to go for a top-of-range item in the hope that it will do all that is needed but this can be optimistic! For the anticipated usage, 6 channels were considered sufficient, but the full range of sets from the main brands



was considered - their downloaded manuals are poor, but suggested that none adequately met the identified requirements :-

## Essential

- \* 2 position flaperon
- \* 3 position flap/flaperon with each position definable
- \* Elevator compensation for above
- \* Rudder-Aileron mixing
- \* Free mixers after above setup
- \* Timer switched by throttle position

## Preferred

- \* Flap/Flaperon/Elevator setup on a single screen
- \* Switched aileron differential
- \* Compact, single-unit receiver
- \* No telemetry
- \* Power switch and programming protected from inadvertent operation
- \* Clear display and logical user interface

The flaperon requirement was surprisingly difficult to meet, with most sets requiring the cumbersome use of several free mixers which often left Rudder-Aileron mixing



## Tactic TTX650 Radio Continued/....

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unachievable. Telemetry was not required and often reduces receiver performance.

The inclusion of the last two items is an indication of how poor some sets are! User interfaces are down to personal opinion, but most displays are considered cluttered, often with obscure glyphs, and most menu mix rarely used items with those wanted and often require several separate menus to be accessed to achieve the required results. Hitec Aurora 9X, Futaba 8J and 10J have their power switch adjacent to the trims making it vulnerable to switch-off in flight, so that some users have added a cover over the switch after incidents. Touch screens, and Touch Sensors such as used by Futaba 14SG, are vulnerable to inadvertent operation with potential for changes in flight. The Graupner HOTT MZ series seem to have good functionality, but their programming interfaces are such that setting up would be a challenge. The FrSky Taranis is considered similar, not helped by several correcting updates of its Open Source software.

When the TTX650 was found and its manual downloaded, it seemed to meet the requirements. It is a 6 channel radio using the SLT protocol (FHSS), and is competitively priced with the transmitter at £100 and receiver at £17. Even better, while advertised as transmitter only, it was delivered as a combo with receiver! Its manual is better than most, though vague in some areas. Standard Helicopter functions are included, but were not examined. The Aircraft functions are considerable, but with some restrictions or errors.

The receiver should be installed with its short single aerial straight and near-vertical for maximum performance. Range checking is quoted at the usual 100 feet, but was still going over 200. Fail-safe drives the throttle channel to a user-defined position (generally low) and holds the other channels at their current positions. As usual, re-binding is needed if the throttle is reversed, as would be required for ESC operation.

The transmitter is compact and light with a horizontal power switch below the sticks which have adjustable tension. The battery box for 4 included AA dry cells is easily removed to fit a standard receiver NiMh charged via a side socket. The screen is clear, displaying model name, battery voltage, timer in a larger font and the trim positions with numeric indication; as for most, space is wasted with a large aircraft or helicopter glyph. Switches are assignable for any function - 2 three-position, 4 two-position and a two-position sprung for wireless Trainer. It is supplied as Mode 2, but the manual



## Tactic TTX650 Radio Continued/....

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describes changing to Mode 1 by moving the throttle ratchet and elevator spring onto the opposite sticks, aided by the case back having no attached wiring. The internal layout is tidy with suitably supported wiring.

Six buttons at the sides of the screen are used for programming. "Enter" selects menus or opens a value for editing. "+", "-" moves the cursor up/down or increments/decrements a value. "Esc" exits a menu or editing mode. "Clear" resets a value to its default. "Servo" displays channel positions graphically with numeric indication, and is available at any time, including during editing, so that the effects of changes may be observed without needing the receiver to be powered.

Three menus handle the programming. "System Setup" is entered by holding "Enter" during power-up and contains rarely used functions such as stick mode and battery alarm voltage. "Model Setup" is entered by a long press of "Enter" and contains Model Select (20 models) and functions generally used only for initial model setup such as Model Management (Aircraft/Helicopter, Name, Copy, Reset), Wing and Tail Type. "Settings" is entered by a click of "Enter" and contains Servo Setting (Reverse, Travel and Sub-Trim), Rates/Exponential, Timer and the mixers. A second resettable continuously-running timer is included, perhaps to monitor dry cell life, but is only available in the Timer menu.

Four free switched mixers with Offset are available. Where servos are paired as in dual ailerons, V-Tail and Delta, one mixer drives both channels depending upon which slave servo is selected meaning that only one mixer is needed where some sets require two. For example with a V-Tail, mixing to the elevator channel controls both servos as elevator, while mixing to the rudder channel controls both as rudders. While a switch must be defined for a mixer, the meaning of the switch positions may be defined, for that mixer only, so that the mix is active in any or multiple switch positions.

Switched Throttle Curves are available with up to 4 user points each in addition to low/full with optional smoothing.

Flap Mixer defines aileron, flap and elevator values for up to three switch positions. A similar switched Airbrake function has one active position. These require a wing type with flap (AF or AAF), but the flap channel may still be used for other purposes such as dual elevator or retracts when, obviously, flap values should not be set.





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Aileron-Rudder and Rudder-Aileron mixers can be switched allowing 1, 2 or 3 values, with a common mixing value for left and right. In practice, this should not be a problem since the controlling throws should have been adjusted to produce equal authority each way, avoiding a major cause of differences, but a free mixer can be used to allow different values for each. Rudder-Elevator is similar but the resultant mix would give, for example, up elevator for left rudder and down elevator for right rudder which is unlikely to be appropriate, but a free mixer can be used.

An aerobatic model was quickly setup with rates/exponential, Rudder-Aileron mix and switched flaperons with elevator compensation and aileron differential. The four free mixers were still available allowing, for example, switched Elevator-Flaperon coupling taking effect only near full up/down elevator.

As an exercise, dual throttle channels were added with individual hold for single-engine operation and switched Rudder-Throttle coupling for ground steering. However, the receiver limitation of a single controlled channel for Failsafe means that such usage would be unsafe and not legal, so that dual throttle usage would require a Y-lead.

An electric glider was setup with rates/exponential, switched flaperons/flaps (reflex, normal and camber with aileron differential and elevator compensation), Aileron-Rudder, Airbrake providing switched Crow and a free mixer for Throttle-Elevator (above one-third throttle using Offset). The remaining three mixers could be used for variable Crow, including elevator compensation, using the Throttle stick switched between Throttle and Crow functions with Airbrake available for an additional flap mix.

So what could be improved? Not very much, even if being rather picky! Separate left/right values for the Aileron-Rudder, Rudder-Aileron and Rudder-Elevator mixers. The entry to "Model Setup" would be more robust if a longer press of "Enter" was needed. "Servo Setting" is in the "Settings" menu but would be better in "Model Setup" since its items, especially "Reverse", are only accessed during initial setup. Displaying the continuously-running timer on the main screen would make it more relevant. Omitting the irrelevant aircraft/helicopter glyph and using larger fonts for the important items, Model Name, Battery Voltage and Timer, would be helpful.



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In common with most sets, several errors have been identified; fortunately, they seem to be frustrating rather than significantly affecting usage. In the Timer menu when switched by throttle position, an offset display is, presumably, intended to indicate the threshold position but seems always zero. The manual implies that the "Airbrake" menu is available for the AA wing type but it is not visible in the menu - if the AAF wing type is set, the Airbrake may be setup and still functions if the wing type is changed to AA! The "Throttle Cut" menu operation can be erratic with the trigger point (defining the throttle position below which the cut becomes active) sometimes refusing to be changed - exiting and re-entering the menu seems to correct it!

The impressive capability, reasonably logical programming and low price make this set worth considering where 6 channels are sufficient (which would apply to most users). 8 channel TTX850 is also available with a brief manual adding slider switches on each shoulder and functions such as Pan, Tilt and Servo Slow intended for camera operation.

Brain Holdsworth

## Night Flying

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*Jason holding the Horizon Hobbies Night Vision.*

Jason gave us all a very entertaining talk about the models he flew at the Bonfire evening back in November. He also flew the very large WOT 4 XL all decked out with LEDs'.

He had again fitted fireworks to the wingtips and this year, both of them ignited. It was fascinating what he and Zak had done to control those lights. Great talk Jason.





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# Indoor Flying

*Photo by Jason.*

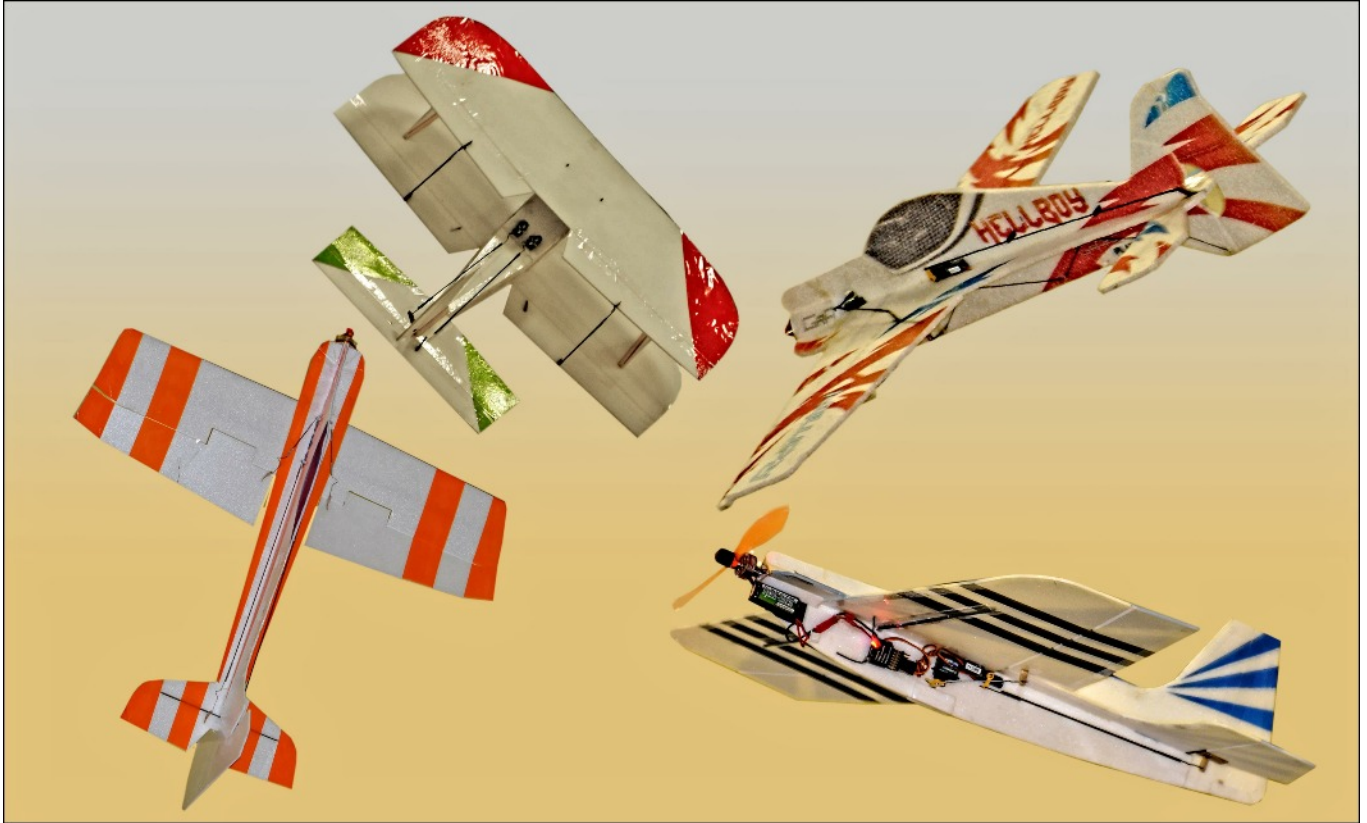


*Here is Pete Eyres holding his own design indoor - this model flies really well. Just in the background you see Steve Warburton preparing his model for another sortie.*

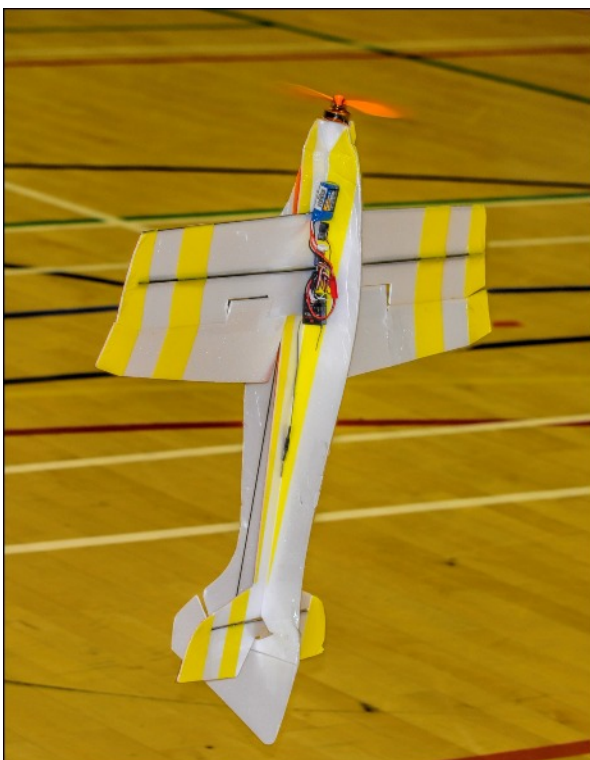


*Indoor quad flown by Lucy.*

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*A selection of different designs being flown by our members.*



When you get really good you can do rolling circles and 3D, gently touching the rudder on the court floor. These guys make it look so easy (but it's not).

I say it over and again, it's the best fun you can ever have and actually it improves your flying skills no matter what level you are at.





# Social Calendar/Shows for 2016

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## CLUB SOCIAL EVENINGS at the SS Tennis Club

### 2<sup>nd</sup> March

Micro Heli/quadcopter fun night. An obstacle course to be laid out for the pilots to fly around.

### 6<sup>th</sup> April

What you will be flying this season - members asked to bring their current models.

### 4<sup>th</sup> May

Jason to talk about flying safety.

## TRAINING NIGHTS

These will be every Wednesday evening from May 11th onwards till September at the field so if you wish to, either learn, or just brush up those skills prior to taking your 'A', (or 'B') - this is a good time to do it.

## SHOWS

18<sup>th</sup> June **Weston Park** International Model Airshow

25<sup>th</sup> - 26<sup>th</sup> June **Strathaven LMA**

18<sup>th</sup> - 19<sup>th</sup> July **Cosford LMA**

13<sup>th</sup> - 14<sup>th</sup> August **Elvington LMA**

## ITEMS FOR SALE - Brian Holdsworth wishes to sell the following:-Futaba

6EX with Charger and 2 RX - £30

Futaba 7C with Charger and 2 RX - £50

52" O/D aerobatic slope soarer with Battery, Switch and 4 Hitec 81 servos - £50

Contact at the field (Mon, Wed, Fri afternoons)





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# In Conclusion

It has for me been a very interesting month. Right now I have the Pulse on my table at last ready for it's final set up with the radio - the control movements and finally setting that all important failsafe. I'll then just fettle the C of G but that seems pretty close to where they say it's supposed to balance.

Something which Jason said at the Q&A session hit home with me and that concerned electric flying. He stressed the need for using restraints for the model in the pits - I will be doing so in future.

The other thing was stressed by Dave and that was the importance to have the model carried/wheeled out (whether it is an I.C. powered model or Electric) whilst the pilot carries his transmitter. It could save injury to yourself or others if for instance you tripped - these things can happen and the results can be so serious.

I've done quite a lot photography this month (of model aircraft). John Higgins has been working hard on his lovely CriCri and it's looking magnificent and it is that model which I've been photographing. We'll surely see it at the field very soon and I for one, can't wait!

That's it for this month - happy and safe flying.