October 2015

Newsletter

The 2015 Scale and Airshow Contest

The day was just about perfect, sunshine and very little wind - a good day to fly.

The Scale Trophy this year was won by Andy Harrison with his Hurricane. Andy told me that it is not an easy model to fly - it can drop a wing very easily.

Second place was shared equally between John Higgins flying his Corby Starlet and Jason Reid who flew the Waco.

Low pass by Jason with his Waco.

The 2015 Scale and Airshow Contest

John Higgins won the the Airshow trophy. This time he was flying his electric Hangar 9 Inverza. This was the model featured in an article he wrote and published in the July Quiet and Electric Flight magazine.

Second went to Mark Conlin with his I.C. Powered Inverza with the 33cc Evolution motor.

Third was won by John Anderson with this pretty low winger.

The 2015 Scale and Airshow Contest

All of us who entered got a consolation prize which was very much appreciated. It was a very enjoyable day - light hearted as ever. Here are some more pictures:-

The 2015 Scale and Airshow Contest

Lancashire Invades Germany - Again

Or Our Second Trip to Jetpower

Article by Dave Swarbrick

Pictures by Jason Reid

They say time passes quickly when you are having fun, well we must have been ecstatic over the last twelve months as it seems like only yesterday that we were at the Jetpower event and here we are ready to go again for the 2015 show.

Paul, Jason, Jim and I set off in the taxi to Manchester Airport at 12.15pm and at 2.30pm we had only got to the Tickled Trout at Preston, you guessed it the motorway was blocked by an accident, and as usual when we got to the alleged crash site we saw nothing. The road started to clear and with a little encouragement the driver got his foot down and we arrived unscathed at the airport at 3.00pm.

This gave us time to visit one of the famous fast food outlets and get some sustenance. No further problems ensued and at 4.30 we were all tucked up on the Airbus A319 from German Wings. Jason, and Paul were holding Jim's hands and keeping him wedged in his seat as Jim is prone to go walkabout on the plane. We landed spot on time and made our way to the car rental firm, we were greeted by the same young ladies that we had met last year and persuaded them to give us a free upgrade car complete with Satnav.
After a very nice drive through the German countryside we arrived at the hotel and decided to eat at the adjacent restaurant. After this a walk around the local hostelries followed and plenty of nuts beer and cocktails were consumed.

We arrived at the show at 9.00am to be ushered into the disable badge car park, this is approx. 30 yards from the flight line and food outlets. As we sat and had our first cup of coffee and donuts Jason got a text saying. "We are watching you on the webcam. So stop getting fat." This was most disconcerting and almost put us off our second donut. I meandered over to the main trade tents, (I say tents but in reality they are approx. 100 metres long

JetPower 2015

Article by Dave Swarbrick

Pictures by Jason Reid

and 60 metres wide with proper floors) whilst the others decided to watch the flying. It took a while to reach the tents as you would not believe the number of British flyers at this event.

After what I thought had been about half an hour Jason came looking for me and said that they were getting ready for some lunch, Three hours had passed and I had only seen just over half of one of the main tents. Every main supplier was at the show selling everything from small clevises to fully finished models. The European modellers seem to be very loyal to their own manufacturers so you see very little far eastern products, although some were present like Kingtech who were selling a vast range of turbine engines from smallish turbo-prop/helicopter types to 50lbs thrust monsters for large jet models.

Money seems no problem to some of the buyers in fact one German model building company had some really fantastic jets for sale, An F86 Sabre at second hand (it was the owner of the company's own model) was sold at 21,000 euros a 1/3 scale Hawk at 21,000 euros and an L39 in McLaren colour scheme was 71,000 euros and that was

bought by a guy from Saudi Arabia.

The flying was again superb with all the different companies having a slot to themselves and as is usual if they say Hawk jets at 2.30pm that is when they do the slot. The flying was from 9.00am until 6.00pm all three days, I was talking to Winnie Olgart the organiser of the show and he said that on the first day they had done 170 take offs and landings. I think the main theme of the show this year was the amount of models using

JetPower 2015

Article by Dave Swarbrick

Pictures by Jason Reid

Gyros, the show stoppers for me were three F 86 Sabres, at quarter scale they are approx. 3 mtrs long and 3 mtrs wing-span they all took off together and all landed together. They only weighed 19 kgs without fuel and used standard size 170 newton engines (approx.. 36lbs. thrust) The speed and sit in the air of these models was the best flying I have ever seen anywhere.

The three days went so fast we never got chance to see everything, the food was again fantastic the German people made everyone welcome and apart from one Hitler youth throwback that worked for Powerbox we never had a cross word with anyone. Most of the traders sold their stock as on the Sunday morning all you saw was people carrying large cardboard boxes to cars and vans.

We managed to keep Jim off the Sourcroat fritters so we had no unwanted smells to deal with. Our favourite bar in the town kept us happy with beer for me and Jay and cocktails for Jim and Paul. You could tell they remembered us because as we walked through the door we heard them say “The crazy Englanders are back”

The flight home was uneventful except for customs when I tried to get 6 undercarriage legs through, and Jim and Paul some other sharp implements they had bought, Jason acted like he was not with us and kept a fair distance away. On the scanner my undercarriage did look like a few Glok semi-automatic hand guns, but the young lady was very pleasant as when she saw them out of my bag and I explained what they were she said “You have been to Jetpower, my boyfriend is also there, no problem” By this time Jason and Jim were in hysterics trying to hide around the corner.

CHANGES AT WREN TURBINES

October 2015

Dear Club Member

Now that the dust is settling after the recent changes in the company, we would like to re-assure customers & club members that we are continuing to manufacture engines & carry out servicing/repairs/upgrades on existing Wren engines.

CHANGES

The company name is now: WREN POWER SYSTEMS LTD
The address is still in Barnsley – as below
The telephone number remains: +44 (0)1709 877 439
E.mail address: info@wrenpowersystems.com
Website: www.wrenpowersystems.com
Twitter: https://twitter.com/WRENPWR
Facebook: https://www.facebook.com/wren.turbines

Wren is now an all British company, the USA branch closed in July 2015, on the retirement of Ron Ballard. We will deal direct with all USA customers.

The Wren Power Systems' staff is the same as those that formed Wren Turbines – headed by Mike Murphy MD & Wren engine designer.

Wren Power Systems will be dealing directly with customers in the UK, EU & worldwide. We are happy to contact customers to discuss their project/engine choice.

ENGINES

The engine range will be:

Wren 44i Gold, 44i Helicopter & 44i Turbo Prop engines.
Wren 100i, Wren 100DCi engines
Wren 80DCi engine

The Wren 80i & Wren 180i engines will be discontinued after current orders are completed. We will continue to offer servicing/repairs to these engines for the long term future.

Please do not hesitate to contact us if wish to speak to us about the changes or any other engine related matter.

Wren Power Systems Ltd (01709 877 439)
Unit 1, Mitchell Industrial Centre, Bradberry Balk Lane, Wombwell, Barnsley, S73 8HR

A VIEW FROM THE HEDGE. (By Will Sparrow)

Although autumn is definitely here we have been experiencing a good bit of summer-like weather of late. The last weekend in September was a case in point, enjoying sunshine, light winds and balmy temperatures so, as you can imagine, I was looking forward to watching some interesting flying. I had heard (we sparrows are notorious eavesdroppers) that this particular weekend was scheduled to host your annual competition day on the Sunday, so the prospect of witnessing a feast of weekend model flying action made it difficult for me to get to sleep on the Friday night; snoring hedge-mates don't help, either!

I was up bright and early on Saturday – the dawn chorus may be over for the year but we birds still get up pretty early; if we lie a-twig all those worms go into stealth mode and are extremely difficult for a late bird to catch! The flying action was, it has to be said, a bit sparse and the fun was marred by the demise of a nice little glider that, for no apparent reason, went into a terminal death-spiral and attacked the rock-hard potato field. The wing seemed to be in a right mess but, who knows, we may see this model again. I know that some of you are skilled in the art of repairing models but I suspect that this model will need a little more than a dab of cyano and a wave of the filming iron.

Competition day dawned and, pretty soon, the carpark was busy with modellers. Early arrivals were even managing to get in a few quick flights before the appointed start time. The scale event was to be first on the menu and, following a brief pilots' briefing (!), rapidly entered its stride. The event was "flying only" and all but one of the entries were artfs. In order to give all the contestants a sporting chance, all the "B" cert flyers were to be handicapped (knobbled!) by having all their manoeuvres marked out of a maximum of 7.5 instead of 10. They were also obliged to wear boxing gloves whilst flying, or so I was told. I certainly enjoyed the spectacle and so, it would seem, did the participants. Club events should not be taken too seriously. The event was not entirely disaster free but all damage seemed, from my distant perch, to be repairable. The Aeroshow event was next, after the short lunch break. In this event a scale model was not a pre-requisite; any model could "pretend" to represent a full-size aeroplane; the model would then be displayed in the manner of the prototype as it would be displayed at a full-size airshow. As the event progressed I was taken with a pair of near-identical aerobatic monoplanes (from the same Chinese factory!). One made a lot of noise and the other one didn't; the flying styles were very different too. I felt sure that one

A VIEW FROM THE HEDGE.

of these models would win the event but, in the end, they were both pipped at the post by a low-wing sport model pretending to be an Extra and flown by an "A" cert flyer. See, if you fly your model well, you too can be in the winner's circle. At the end of the day all participants were awarded prizes and went home happy, with many vowing to have another go next year. It's events such as this that help to foster club spirit and, if you didn't turn up yourself you missed out on a great deal of fun.

On Sunday night, content and happy after the day's viewing, I was making my way to my sleeping twig but found the hedge alive with excited birds; a great change from the usual dozy specimens to be found at that hour. By all accounts the Wise Old Owl had passed the word that we were about to witness an unusual occurrence: an event that would not be repeated until 2033. At dead of night, in the wee small hours, we were to observe a triple-moon event. The Harvest moon was to coincide with a Super moon which, in turn, was to coincide with a Blood moon. I tell you it was worth staying up for! The sky was dark and clear and a shiver went through the hedge as the larger-than-usual moon turned coppery red. We all went to twig late that night and some of us slept in a little late on Monday morning. Once again I missed those stealthy, nourishing worms and had to make do with a geriatric spider and half a mouldy berry for breakfast. It's really tough being a sparrow!

WS

The PropGuy

Steve, who, as you all know trades under the name 'Prop Guy' now has trade accounts with Ripmax, Horizon and J Perkins. Steve has asked me to let you know that he can now supply almost anything. He will beat any boni fide advertised price from any other supplier. He also said that there would be no postage charge to Blackpool or fuel cost to collect from out of town model shop.

Sales enquiry hotline: 07949 274274

Gyros

Article by Brian Holdsworth

A gyro(scope) is a device which can detect angular deviations and they are used in navigation and flight control systems for full-size aircraft, though their complexity and cost limited other applications. The earliest usage in models was for helicopter tail rotors, although they were bulky and expensive with limited performance. Some were used in model aircraft, but the benefits were small for the considerable cost and complexity, though later gyro implementations became more effective. Recently, the MEMS (Micro Electro-Mechanical Sensor) has become available and is widely used in applications such as video game controllers and drones. It is, essentially, a gyro and accelerometer on a chip making it rugged and compact which, with impressive performance and low cost, has made model stabilization affordable and practicable.

A detected deviation is used to generate a correction which is combined with pilot input to drive the appropriate servo, and hence the attached control surface to oppose the deviation. A means of reversing the correction is required so that it is in the appropriate sense. The sensitivity to the deviation is determined by the gain which defines the size of the resultant control surface deflection. The response to a deflection increases with airspeed so that the correcting effect may become excessive at higher airspeeds, resulting in overshooting of the desired result and producing visible oscillations in flight. There is thus the need to set the gain for each axis below that liable to produce oscillation at the intended maximum speed; switched gain levels may be convenient for different flying styles.

There are two main modes for gyro stabilization. Rate mode detects an angular rate in an axis and generates corrections to reduce that rate to zero; since some angular deviation will have occurred, the effect is reduced but not eliminated. Heading hold mode requires better gyro performance than for rate mode, and detects an angular change in an axis to generate corrections to restore the angle so eliminating the effect. Including the gyros within the receiver is more convenient than separate units, and simplifies the implementation of any response variation to optimize performance.

Rate mode reduces the effects of turbulence and axis coupling, makes attitude changes crisper and simplifies 3D flying. Take-off and landing is easier with reduced swinging or bouncing. A more aft CG can be used, which improves agility and gliding performance with obvious competitive benefits. It opposes pilot input, reducing effective control throws and softening responses.

Gyros Continued/….

Article by Brian Holdsworth

Heading hold mode would override pilot inputs which is not desirable! It needs to revert to rate mode when a pilot input is detected until it ends and the resultant attitude used as the new reference. Properly implemented, it has the potential to make precision aerobatics simple with few pilot corrections needed. Step changes in attitude such as point rolls, stall turns and spin recovery become essentially automatic and precise. Prop-hanging etc. in 3D flying becomes almost trivial! This would seem to defeat any aim of demonstrating pilot ability although the advantages are obvious, especially in competition and displays.

Gyro usage is controversial and banned for most competition classes, though scale is permitting use. The debate is whether model flying is about pilot input or equipment performance. It is difficult to detect concealed gyro capability, especially within the receiver, and there are indications that usage is more prevalent than it should be! There is the potential to reduce pilot workload and improve performance in all classes. Servo activity is increased, causing higher current consumption and heat together with wear in the gears and feedback potentiometer, though the effects are less for digital servos with their inherent dither. Any resultant overheating makes servo failure more likely, and there is some evidence suggesting that this could be a problem.

Scale usage, especially in heading hold mode, could make straight take-offs and landings simple and make precise positioning maneuvres easier. This suggests that the flight score contribution should be reduced against scale judging; banning heading hold mode while permitting rate mode would be ineffective since such distinctions could not be enforced.

Several triple axis units are available controlling pitch, roll and yaw, though most only support a single aileron output so that a Y lead would be needed for dual servos, making differential and flaperons unavailable. Some manuals suggest that dual servos could be used with only one routed through the unit, but the resultant differential effects would adversely affect performance - how significantly depends upon model characteristics and usage. These are not autopilots, but can reduce pilot workload. Other functions are evident in drone implementations and may be added, which could make most flying trivial! While better than the earlier gyro types, vibration sensitivity remains an issue so that resilient mounting may be needed for effective and reliable usage with engines, particularly petrol with their potential for vibration.

Gyros Continued/….

Article by Brian Holdsworth

Graupner have a HOTT receiver/gyro unit which should be very capable, but its manual is as poor as those for their transmitters so that usage would be a challenge!

Powerbox is the most expensive seen, with a standalone unit implementing rate and heading hold modes selected by a switched or variable channel allowing the gain for each mode to be adjusted in flight (all axes together). When pilot input is detected, heading hold mode reverts to rate mode which should give good performance. Dual ailerons and elevators are supported and a pc interface via a cable is available to allow delta, V-tail and fine tuning of gains etc. for each axis. An even more expensive unit includes GPS to reduce the gains with increasing ground speed to avoid oscillations; since airspeed is the actual concern, the effects of wind are ignored so that such capability would only be effective in light winds or for very fast models where wind has less effect.

Orange is the cheapest with a standalone unit and receiver/gyro units for DSM2 (obsolete) and FASST (presumably erratic with upgraded Futaba transmitters). Rate mode is enabled by a switched channel. Potentiometers set the gain for each axis and switches select gyro sense and delta or V-tail mixing. Quality control has been an issue but setup should be straightforward, though the potentiometers are reported to be sensitive and non-linear.

Spektrum AS3X receivers are included in many RTF's and, configured by the factory, seem to work well in most cases. However, some are reported to be poorly setup, especially where the "SAFE" mode (effectively a self-leveling autopilot) is incorporated which seems to remove most control authority! The AR635 receiver requires digital servos, selecting two rate mode gains via a switched channel and with a rather obscure setting-up procedure without delta and V-tail support. The AR636 receiver is more capable, with rate and heading hold modes via a switched channel. Its manual mentions setting up with a mobile device or pc via a cable, though this seems to have been dropped for a simpler method using the transmitter via telemetry. This is outlined in the DX7 manual, referencing setting-up videos, and is expected to be added to DX9, DX18 and possibly DX6 via update; presumably, it automatically configures gyro sense, dual ailerons, delta, V-tail etc. when the AS3X option is enabled.

Gyros Continued/…

Article by Brian Holdsworth

The Multiplex standalone unit selects rate and heading hold modes via a switched channel. Jumpers select delta or V-tail and potentiometers set the gain for each axis with gyro sense selected by an input sequence. The manual is reasonable though with no advice for setting the gains.

Curiosity overcame prejudice, and a Multiplex unit was squeezed into a model particularly sensitive to turbulence, with a three position switch selecting the mode allowing the all-important off state. The rate mode behaved as expected, with noticeable smoothing in gusty winds, although the control throws had to be increased significantly with sluggish response to small changes, but crisper response when the input was removed. Heading hold mode was something else! It seems that pilot input is overridden until the authority limit, determined by the gain setting, is reached when the effects are cancelled resulting in a violent control response as the input takes effect, making the model almost uncontrollable. Cautious selection of the mode showed that, for example, inverted flight needed no down elevator suggesting that the mode was functioning as expected in that respect. After a few flights, catastrophic elevator servo failure with cooked output transistors - did it fall or was it pushed?

So, is gyro usage beneficial and appropriate? It can be beneficial, but "appropriate" depends on personal opinion in the debate of pilot input against equipment capability. Rate mode mainly reduces the effects of external factors such as turbulence and axis coupling. A properly implemented heading hold mode would remove the need for most pilot corrections, supporting the current position that usage should not be permitted for competitive activities, including assessments such as BMFA A/B certificates; the difficulty of identification means that any meaningful ban should exclude all modes.

To Bin or Not to Bin

Article and photos by John Higgins

Anyone who has been in this game for any length of time will have suffered the trauma of having a damaged model. It is the nature of our hobby that, no matter how good a pilot you are, sooner or later your number of take-offs will exceed your number of landings. The ace batsman, who has an average of over a hundred, does, just occasionally, get out for a duck! All batsmen aim to keep their batting average up and we try to keep our take-off to landing ratio as close to unity as our skills and experience will permit. Sooner or later, however, the inevitable will happen; some vital item will fail, or you will make a mistake, and your pride and joy will attack the planet. No amount of checking and strict adherence to safety procedures will guarantee your model's long-term future.

So, what are your thoughts as you walk towards the smouldering wreckage? (Actually, if the wreckage ***was*** smouldering you would, most likely, be running towards it!). It is a known fact that most piles of wreckage look, at first sight, far worse than they really are, so, rather than reaching for the shovel and bin bag, it might be worth considering the prospect of a repair rather than an expensive replacement. To bin, or not to bin?

I found myself faced with this dilemma very recently. I was flying my little "Hi-light" glider when, at low level, and at some distance, it went into a terminal death-spiral which ended in the potato field. Now, I am very fond of this little model, it is an artf and had its first flight in 2000 (the model is still on 35MHz which may (or may not!) account for the crash). The construction is very high tech – Eastern Europe's finest. The wings are extremely light and are constructed with carbon-capped spars which are then wrapped with Kevlar thread, the ribs are of 1/16th balsa capped with thin carbon strip, the trailing edge is carbon strip whilst the "D" box is a thin Kevlar shell with a carbon rod leading edge. The whole lot is covered in transparent Profilm and weighs next to nothing. This glider will stay airborne on the merest whiff of a thermal. At first sight, the pile of bits looked only fit for the bin but we dutifully collected up the debris, more in hope than expectation of resurrection. Back at home, the wreckage sat in the hangar for a week before I had the inclination to carry out an inspection. The left wing was almost undamaged, but the right wing was in a poor state: the wing joiner box had been ripped out of the spars, the TE had been broken in several places, several ribs had been destroyed and the dihedral joints had failed; the covering was totally trashed. The fuselage was almost unscathed but the "V" tail was now only half a "V".

To Bin or Not to Bin

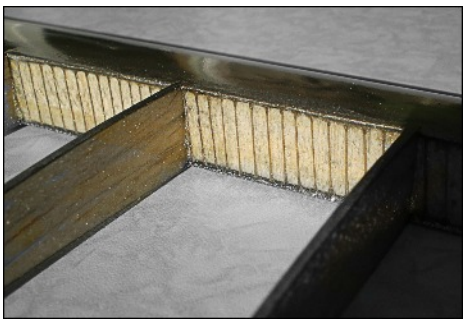
Article and photos by John Higgins

The problem with the "Hi-light" is that they are not available any more. If the model could not be mended then it would have to be replaced with something else – remember, I really like this model: it would have to be mended!

I ordered some carbon strips for replacement rib caps and trailing edge. The 1.5m long strips arrived the very next day coiled up in a pizza box! So, armed with these materials, cyano, epoxy and good old 1/16th balsa I made a start. The covering was stripped off, new ribs were made and carbon capped, the trailing edge had new pieces of carbon grafted in and reinforced. The joiner box was remade and the spar reinforced with carbon tape and epoxy. Once re-covered the wing looked good as new. All in all the repair took about a week and cost the princely sum of £7.04, including postage! The cost would have been higher had I not had spare Profilm in stock. This stuff costs about £7 per metre – and the "Hi-light" has three different colours on each wing panel. The tail repair was a simple "glue-together" job.

If tragedy does strike and you are left contemplating a heap of bits, give yourself a bit of thinking time to consider all the options. To bin, or not to bin? That really is the question, and one well worth pondering.

John Higgins



The Club's Social Calendar for 2015

4th November Flight Simulator night. We ran one of these evenings last year and it was a lot of fun. There will be competitions like we did last year and prizes to be won.

7th November Bonfire night. Bring some food with you and perhaps, a couple of fireworks.

2nd December AGM. Subs are due for the coming year.

16th December Hotpot and Quiz Night. Dave runs the quiz and it's laugh.

In Conclusion

I apologise to all members for my error contained in the letter I sent with the AGM information. I asked for any amendments to be put to me by 18th November **2014.**

This should have said **2015**!!

I hope you all had a good month flying because there were some lovely calm days. My month was taken up with a trip to Scotland to meet up with some old friends followed by a visit to London to look after our grand children following which I lost my voice completely and had the flu.

The thing I most miss is the indoor flying - it's 60 minutes of pure fun. At one time I used to get my kicks out of riding fast road bikes - it was exhilarating. Well so is indoor flying especially when you've got around 7 or 8 models whizzing around all at the same time - it's great.

I hope to see you at the Bonfire night assuming this flu has finally left me.

Mark Tomlinson sent this picture in taken from his drone - nice field!