Newsletter

June 2014

This month has absolutely flown by. Surely, we cannot complain that the weather has let us down - it's been beautiful nearly all the month. It's been a very busy month starting with Cleveleys Car Show. Our static display attracted a very healthy number of visitors. Some of our lighter models had to be held down with large stones taped to their undercarriages because there was a fair old wind blowing for most of that day.

I'm not quite sure where Scott has got his hand but she looks pleased!

Scott and Arran brought their 3D helis and carried out some superb flying which, when you consider the very stiff breeze, was outstanding. I had only brought my standard zoom lens so couldn't get any proper flying shots - sorry.

Paul Maynard MP shaking hands with Paul.

Paul got to meet up with the local MP Paul Maynard.

John Prothero and lee Connor got us an absolutely prime spot - thanks guys - you did us proud.

Well done guys. It was a great day - as to whether we will actually get any new members remains to be seen but you can only try.

June 2014

More Pictures at the Car Show

Paul, Andy and Tank Dave - those guys worked hard all day chatting to people

I think Paul's fly must have been undone - quickly spotted by JP - the offending part covered by a very small piece of paper

Cleveleys Car Show

This was early in the morning just as we had set up and before the crowds.

It was a day to remember - well done to all you gentlemen who took part. A few of us looked like beetroots by the end of the day - that sun was HOT.

Club Matters

Club Membership Fees Direct Debit Payments.

Some of the members have asked us to look into the possibility of being able to pay their club fees by Direct Debit. Our Treasurer contacted the bank and put the request. Unfortunately, the bank are **unable** to offer to the club this service.

Recovery of Models from the Surrounding Fields

You will have noticed as you drive down to the field that the fields are densely cropped - there are Broad Beans on your left hand side. These are very easily damaged. Great care must be exercised when recovering a model from this field (or indeed any cropped field). Take great care not to cause damage to these crops.

Club Secretary

Our current Secretary, Phil Leach is standing down this year as the Club Secretary. Anyone wishing to put themselves forward for this post could contact our current secretary.

All committee positions are of course 'up for grabs' - anyone wishing to put themselves forward for any of the posts are welcome to do so.

Two Interesting Models

By John Smith

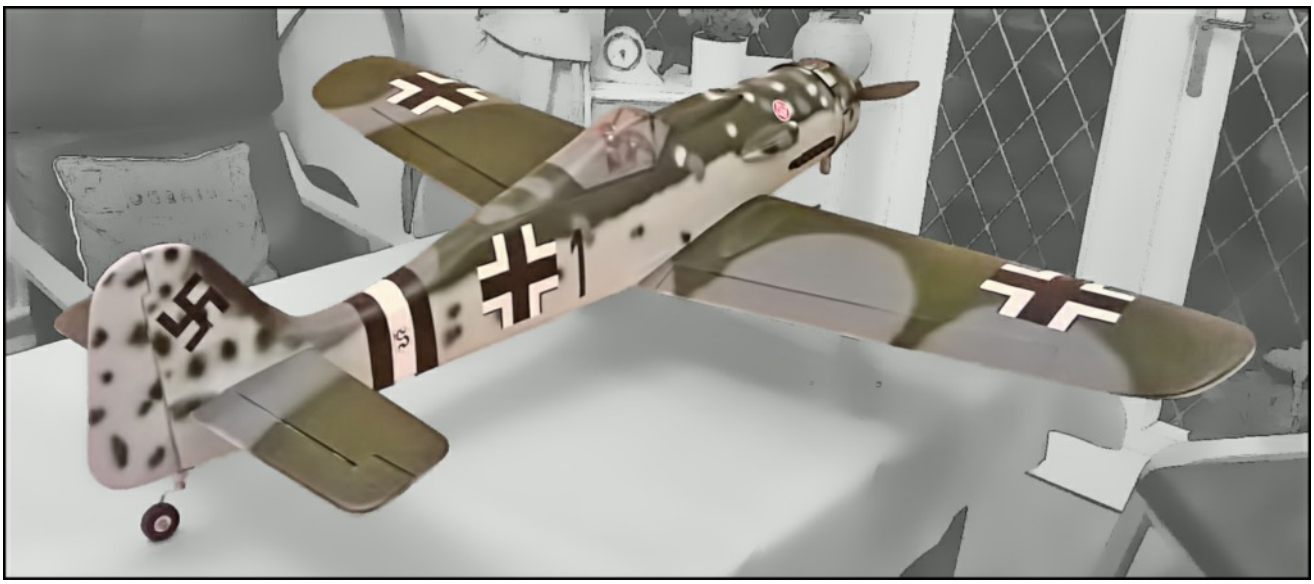
The models featured are Seans latest added to his growing fleet.

The Chipmunk being taxied out for it's maiden flight.

The Chipmunk is a Blackhorse kit, something he has fancied since seeing Ian's and Andy's models. The build is straight forward if you have had building experience, one item puzzled him was the closed loop system for the rudder having never built a model with this. A quick guide and explanation and he mastered it. Fitting the servo,s was soon sorted, the next step was to source an engine, this he decided after discussion was to be a JEN 57 with a Pitts exhaust to try to keep the clean line of the cowl. Low and behold his very good lady said she would buy it him for Christmas, lucky lad. The engine was fitted and the cowl was cut to accommodate the 2 exhaust stubs, he also cut holes in the bottom of the cowl for cooling then stuck mesh across and painted it to match, all the servos were connected and the throws checked for calm flying.

We now await a decent day for Wing Commander Higgins BFRCMS to test fly the model which I am sure will be fine. (*That day arrived just last Sunday*)

The next model was more testing, it is a FW 190 purchased at the auction of Alan Wormwell's equipment. When he saw it he decided he had to have it, luckily his bid was successful.

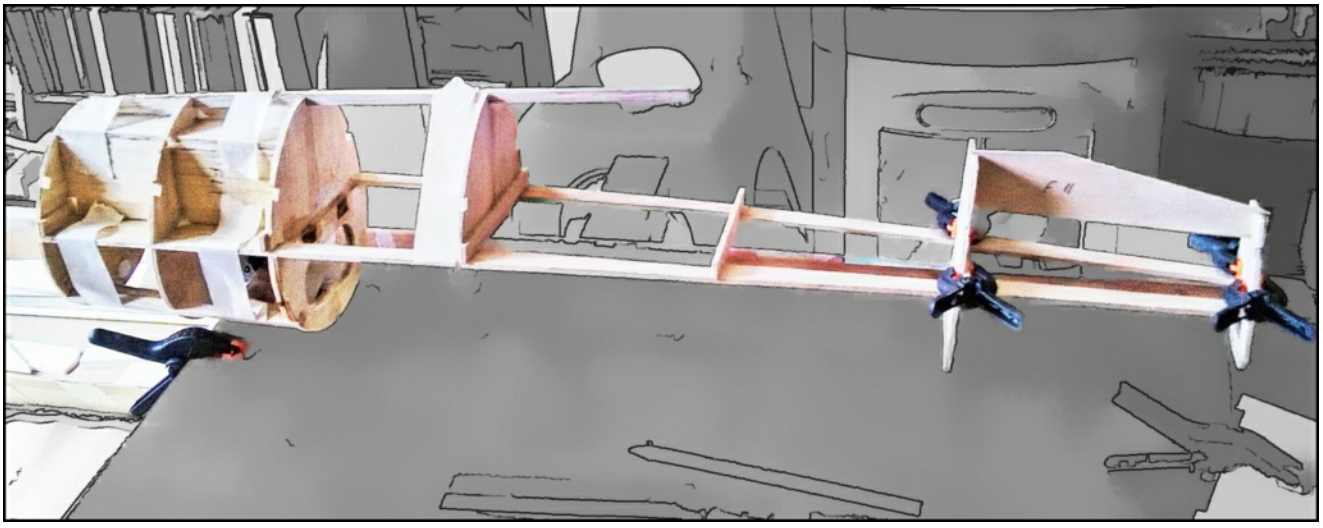


Now the fun began.

Job Nº 1 was to check the contents of the battered box which we discovered had been bought in Seattle when Alan was based there, as it turned out all the contents were intact which was surprising when you saw the state of the box.

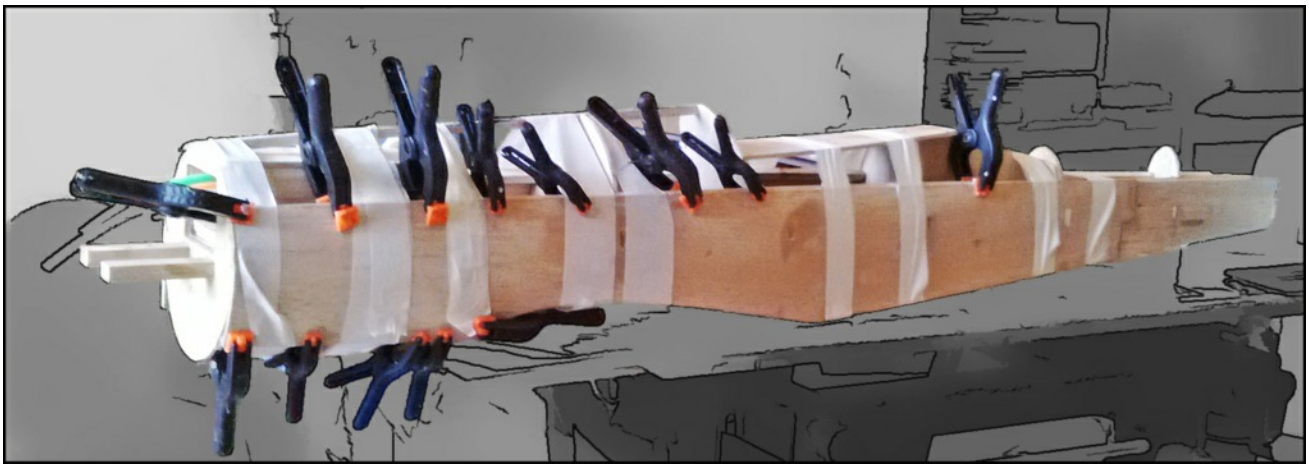
The FW190 kit in it's battered box.

Now Sean was itching to get building so the exploded diagram was used to identify the fuselage parts as nothing was marked when this was done they were all marked F1 F2, etc, now building could commence.

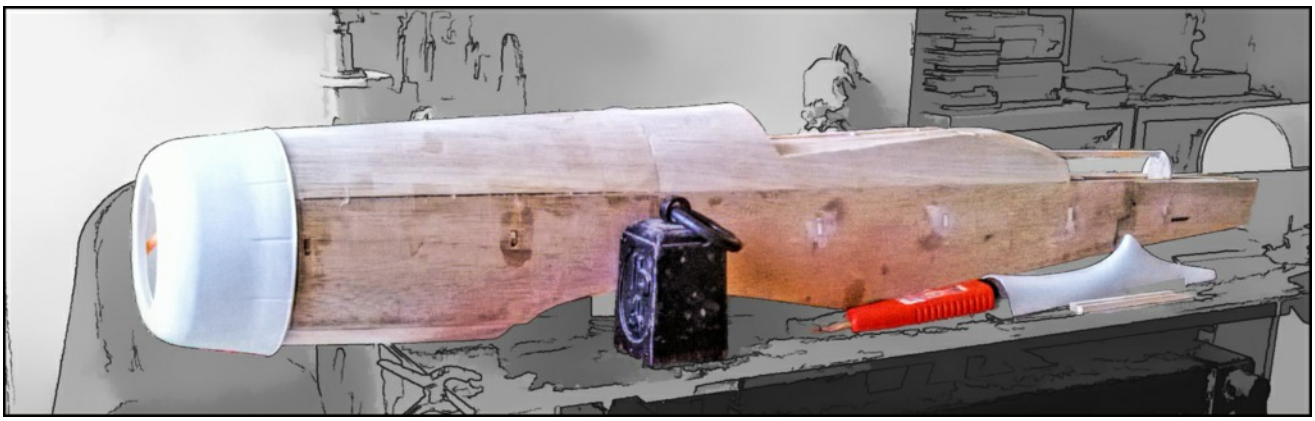


The fuselage starts to take shape

The model is designed to be self jigging so the 2 flat central balsa pieces were glued together weighted and allowed to set, the doubler for the fuse sides was glued into place followed by triangular pieces to the bottom of the fuse sides. next came the fitting of F1 followed by building the fuel tank bay then the fuse formers checking that all were



at right angle to the floor and sides. Without going into along description the build process can be seen from the photo,s that Sean took during build. the rest of the build went well, except, one morning when I arrive Sean was very pleased with himself having progressed as far as fitting the tail section and elevators, looking good, Hmmnow there's a thing," what", how are you going to work the elevators, with the push rod, only one? why, you have forgotten to join them before you fitted them to the hinges. Oh ~#=* etc. luckily the hinges were the thin type so they were cut and new ones fitted along with the joining rod, problem solved Sean now happier, O what a beautiful morning etc.



The wings were uncovered foam cores that needed sheeting and the leading and trailing edges fitted. It was then discovered that the aileron section was too thick so by careful plane work and sanding, these were made to match the wing trailing edge.

Next came the discussion on what power unit to use, the kit recommended a KB40, how many know about these engines? We then remembered one was sold at the sale Alan must have also got that to fit to to model. Then it was remembered that Brian Holdsworth was selling a Jen 37 so contact made and the engine, as new, purchased with other useful items.

At this stage it was decided to deviate a little from the plan. The cowl was to be fitted with a back support, which was shaped to slide over the engine then screwed to the firewall, but would need butchering to fit a silencer, not nice. so we consulted the Jen website and discovered a silencer designed by Jen to fit upright 37s. Another problem solved, when the engine was fitted and the silencer added all that was required was a slot in the bottom of the cowl to allow it to slide into place and be located on 4 blocks with screws, this kept the lines of the model clean.

Now it was decision time of what to cover the model with, Sean decided that he would like to paint the model as per one of the pictures he had of various marks of 190s. Selection made, Solartex purchased, he then covered the model using Solartex for the first time. Next after consulting John Higgins as to which paint to use, off to B and Ms for some cheap primer, then to Martin Browns armed with the colour schemes. Here a very helpful assistant produced a hole wad of colours then helped to choose what has turned out to be an excellent matched scheme.

This is Sean's first effort at spray painting a model, and is without doubt an excellent job, he also painted a field box to match so when at the field don't fall over his camouflaged box. The photos show the start up and the finished model , a great result.

The Chipmunk Flies

The motor is run up and tuned - John Higgins waiting to take over the controls.

Superb maiden flight flares out for a smooth landing.

A VIEW FROM THE HEDGE. (By Will Sparrow)

Two modellers were on the field the other day, chatting, and one said to the other "Where did you get such a beautiful model?" (Notice that it is a sign of the times that phrases such as "How long did it take you to build such a beautiful model?" or "Did you design it yourself?" are never used…) The other replied that it was a long story; this is how he related it. "I was walking in the woods only the other day when this girl appeared, as if from nowhere, carrying this very model. She stopped in front of me and put the model carefully on the ground. She then proceeded to take off all her clothes and put them in a neat pile. As you can imagine, I was gob-smacked. I was even more gob-smacked when she opened her arms and said "Take whatever you want." I did just that, and that's how I came to have this model." "Good choice", replied the first modeller "the clothes would probably not have fitted anyway!" At this point I awoke from my dream; I know that I am a bit obsessive regarding you modellers and the antics that you get up to but dreaming about modellers and their antics is getting a bit silly. I have resolved to forego the extra worm before retiring to my twig; I hope that this does the trick… even if the price is waking up hungry.

Every now and again I enjoy a good beak-wag with the wise old owl who perches towards the end of our hedge and he told me of some recent research done by Professor Karen Pine from the University of Hertfordshire (which he said was some sort of super-school a long way off). It seems that when students sat mental ability tests wearing Superman T-shirts they scored an average of 72%, while those wearing plain T-shirts only averaged 64%. When wearing the Superman T-shirt, the students also rated themselves as more likeable, stronger and superior. It seems that people's mental processes can be affected by what their clothes symbolize. Now, this set me thinking: I know that some of you are practising hard to achieve your "A" or "B" certificates… Perhaps a large "S" on your chest is just what is needed to seal the deal? Who will be the first to test the theory?

Summer is now truly upon us; the sun is shining, the birds are singing (not us sparrows, of course) and the pollen is high, so you would think that the field would

be a hive of activity. This seems not to be the case, however. Many a time I gaze across from my twig and see not a soul or, at best, a few retired gentlemen taking their ease (and good luck to them, say I). Only the other day the scene was as I've just described, there was a bit of flying going on, just gentle soporific stuff, you understand, the drone of the insects barely punctuated by the hum of electric motors. All of a sudden there was a sort of *boof* noise and a Spitfire became instantly uncontrollable and destroyed itself as it hit the strip. I looked for a Hun in the sun but could see none. The model, however, did look as if it had taken a 20 mm round. This drama hardly disturbed the peace of one mature member as he sat back in his chair, sucked on his boiled sweet and revelled in the comfort afforded by his carpet slippers!

By the time you receive this unworthy missive, longest day will have been and gone. If you don't get your flying in soon, you will have missed your chance as the days shorten and the long, inevitable slide towards winter begins… Let's be seeing you on the field so that I've something new and interesting to view. The out-field has been cut for hay and the strip is in lovely condition, but be warned, if you lose your model in the bean crop you'd better have a radio tag fitted or know someone with a FPV quad-copter!

WS

Servo Performance

By Brian Holdsworth

An ideal servo follows its input demand exactly regardless of the applied load within the implemented limits of transit speed and maximum torque. In practice, the output position will differ from the input demand by a small error determined largely by the implementation characteristics.

A servo is implemented by an electric motor driving the output arm via reduction gearing with a feedback potentiometer driven by the output shaft defining its position to the amplifier, where any difference from the input demand is used to drive the motor to reduce that difference. As the difference approaches zero, the drive is reduced via a process known as damping so that the servo slows to a stop near zero error with practical constraints meaning that some difference will remain. If over-damped, the servo slows too soon and creeps towards the required position. If under-damped, the servo slows too late, overshoots and has to return towards the required position; several cycles may occur as the servo oscillates around that position resulting in jittery operation. Damping is a very complex implementation problem and analogue servos are usually slightly over-damped, minimising damaging oscillations, but resulting in a soft neutral which generally has limited practical effects; digital servos are inherently under-damped so that a small input change results in excessive output movement making controls over-sensitive to small inputs, often requiring the use of significant exponential to reduce the effects.

Physical limitations mean that motor performance differs little between brands for a given servo size, and reliability is generally very good. Coreless and brushless motors are available but offer few benefits for their significant cost and complexity.

The reduction gear ratio is a compromise between torque and speed with some servos available in high torque and high speed versions where the main difference is this gear ratio. The physical size of the motor and its consequent inertia means that the limiting transit speed for a standard servo (~45 grams) is about 0.25 seconds; mini servos (~18 grams) about 0.15 seconds; micro servos (~9 grams) about 0.12 seconds. Higher speeds result in jittery operation due to inadequate damping. Where gyros are used, the underlying requirements need a very fast servo response (< 0.1 seconds) for satisfactory operation and some small high speed servos are available for such

Servo Performance Continued/....

By Brian Holdsworth

applications, especially helicopter tail rotors, but have significantly lower torque ratings than a simple gear ratio comparison would indicate and are very jittery in operation. Servos intended for specialised applications such as retracts or sail winches have very high gear ratios giving high torque with transit speeds of several seconds.

Inevitably, smaller servos have smaller and weaker gear teeth which imposes an upper torque limit for a given size. They also have smaller, lower-torque motors with a higher winding resistance which has the useful effect of reducing maximum current. However, a large analogue servo will generally draw less current than a small servo at output torques within the capabilities of the small servo due to the greater efficiency of the larger motor; the difference is less for digital servos since consumption is dominated by their inherent dither. Typically, standard servos have up to 5 Kg.cm torque, mini servos up to 3 Kg.cm and micro servos up to 2 Kg.cm. Where a servo specifies significantly lower figures, it may be due to higher speed or the implementation may be sub-optimal. Metal gears are tougher and heavier than the cheaper plastic gears but their greater backlash increases the damping problems; they are also liable to wear which increases the backlash. Metal gears must have some backlash or they will lock when they expand at higher temperatures; plastic gears do not expand as much and their flexible nature means that they distort under pressure and so are less likely to lock even with little backlash. Cycling the servo while applying a load to the output arm can identify damaged gear teeth where the servo moves unevenly.

The feedback potentiometer is vulnerable to vibration and can wear quickly especially where the servo is under-damped with consequent oscillations or for digital servos with their inherent constant dither. This is an area where significant production cost reductions may be made by using lower quality components - high purchase price does not guarantee high quality! A simple check is to drive the servo slowly from one end to the other looking for jitter at a particular position; some servos are so poorly implemented that smooth operation does not occur from new and changes in the normal jitter identify a fault! Such jitter is likely to be caused by a dirty or damaged potentiometer track where the wiper is not making adequate contact. Problems are most likely around neutral since the servo spends most time there; a problem elsewhere may indicate flutter of the attached control surface. A few cycles may cause the symptom to disappear which is an indication of dirt; this likely to get worse since

Servo Performance Continued/....

By Brian Holdworth

it suggests that carbon is being scraped off the surface which will eventually result in a hole in the track. If it does not disappear, the probable cause is a hole or crack which could lead to an extended open-circuit of the wiper contact causing the servo to drive hard one-way to its mechanical limit with obvious consequences; any such damage is likely to worsen rapidly.

The amplifier is highly stressed and prone to failure, especially where excessive power dissipation causes overheating; this is probably the least reliable part of a radio control system and so the cause of most failures in flight. One failure mode is where the servo drives to one extreme of its mechanical travel with a greater torque than normal operation; the resultant high current drain may cause a fire due to the generated heat and will drag down the supply voltage, possibly inhibiting operation of the other servos. Another failure mode removes all drive leaving the output position unchangeable with consequences determined by the control surface position; surface blow back or flutter may occur where the gears are driven in reverse by the airflow. Probably, the commonest failure mode is where the servo only drives one way with the resultant position likely to be near maximum throw since the flyer, inevitably, is likely to move the controls while attempting to identify the perceived problem. A significant number of failures occur at switch-on, so that the standard pre-flight check that all servos move both ways will identify many problems. Some failures only occur after the servo has been exercised for some time with consequent increased internal temperature; later, when it has cooled, the servo seems to operate normally, making detection somewhat difficult!

Problems with double centering can occur, where the neutral varies according to the last direction the servo was driven, and may only become evident after the servo has been exercised for some time. In-flight trimming difficulties would be apparent where repeatable straight flight cannot be achieved. A possible cause is a damaged potentiometer wiper. Periodic tests for such problems are recommended since the fault seems quite common even with expensive servos.

The above figures are quoted for 4.8 volts operation. A small number of servos are specified at 7.4 volts but few other servos are capable of satisfactory operation at 6 volts even where so specified. In most cases, at 6 volts, damping is reduced resulting

Servo Performance Continued/....

By Brian Holdsworth

in jittery operation; the technical difficulties involved in implementing an amplifier for a wide input voltage range are extreme. The 25% increase in supply voltage actually increases the applied motor voltage by about 30% due to the fixed voltage drop across the amplifier so that the maximum torque should also be increased by 30%. If the servo is optimised for 4.8 volts, the actual increase in torque and speed will be significantly less and be apparent in the specification; the reduced efficiency results in significantly more heat which is a major cause of servo failure. The plastic case of most servos insulates the contents so that it can be difficult to identify overheating; if the case should feel warm after use, it indicates that the interior is hot suggesting overheating; larger than standard size digital servos need metal cases to dissipate their heat and any with plastic cases are likely to overheat. Most JR servos are optimised for 4.8 volts and operation at 6 volts has been shown to cause overheating with consequent amplifier failure; after a number of incidents where physical inspection of failed units clearly showed damage (scorched insulation etc.), JR and the importers (Macgregor) have emphasised this limitation in their documentation.

Gobledegook

By Brian Holdsworth

If yuo can raed this, you hvae a sgtrane mnid too. Can you raed tihs? Olny 55 plepoe out of 100 can.

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Leisure Lakes Fly In

We had a great day out at the Leisure Lakes LMA this year. We went on the Saturday. It was organised by the Southport Model Flying Club. I saw some brilliant flying with a few 'interesting' aircraft. One of them looked like he'd found it after 50 years in his attic (well it looked old and not in the best condition. It looked like a very large Ugly Stik with the emphasis on the Ugly! The pilot flew it, even managed to make it prop hang - the laugh

Note the Port wing in tatters - it landed perfectly in spite of the missing covering.

was that when he finally landed, a lot of the film covering on one wing was in tatters.

A few really superb flights were made by a twin engined Sky Van model - it was doing aerobatics like a good pattern ship - he threw the thing around like a WOT 4.

Dave Swarbrick, Jason, Jake, Mark Conlin were there flying a variety of models. I was there to take photos and got some pictures for the newsletter.

Leisure Lakes Fly In

This was flown by Dave Johnson - sounded like a flat twin. It flew beautifully - Dave was able to make it almost hover in the air. Very short take off and landing - the Wilga. It belongs to Harold Dowbekin. That's a dazzling colour scheme!

Large scale ME109 just taking off - flown by Dave Johnson

Leisure Lakes Fly In

June 2014

A really nice PT17 - pity there is no pilot

Jason and Jake Flew this WOT 4

Leisure Lakes Fly In

June 2014

Dave Swarbrick with his Taurus climbing out.

The Beast - very powerful and very noisy.

Leisure Lakes Fly In

The weather was just about perfect. Jason had brought his Extra 300s, an Oxalys and the WOT 4, Mark had his Reaper and Dave brought the Taurus and the Tony Nijhus jet trainer.

Mark's Reaper

Dave's 2 jets.

Jason and Jake with their models

Indoor Flying

The indoor flying at Highfield Humanities College seems to go from strength to strength. The hall is really great - excellent lighting and it's massive. We now have 2 hours on a Monday from 7pm - 9pm. My preferred model is the Double Fun biplane which I've modified considerably but boy, does it fly. You get 2 hours of high adrenaline flying and best of all, even when you have a mid air, they are so simple to repair if indeed any repair is actually necessary.

I've never enjoyed any other type of flying more than this - it's very challenging but so satisfying.

June 2014

Shows/Events for 2014

LMA

RAF Cosford 19th - 20th July
Elvington - 9th - 10th August Much
Marcle - 6th - 7th September

Other Events/Shows

BMFA North West Area Scale Fly in RAF Shawbury - 9th September
BMFA Traplet Open Scale Competition 13th July at Bickershawe details fom Bickershawe MFC.

Scale and Aeroshow Event

The date for this event at our field will be either 31 August or 7th September all depending on the prevailing weather conditions.

Bonfire Night at the Field

Our annual Bonfire Night will be held 8th November. Guests will be welcome up to a maximum of four guests per family.

AGM

The AGM will be held on the evening of 3rd December at the South Shore Tennis Club commencing 8pm.

Christmas Quiz

This is to be held at the South Shore Tennis Club on the evening of 17th December

In Conclusion

Photos by Jason Reid

This month has for me been good. I'm so looking forward to upcoming LMA shows - the more shows I've been to, the better they seem to have become. I missed the Weston Park Show.

I've now flown the highly aerobatic MXS - what a model! I had been worried about the small wheels on the grass strip - it turned out to be absolutely no problem whatsoever. I am very grateful to Dave Swarbrick - he checked the model over with me before flight and stood with me throughout that first nerve wracking maiden flight.

I was particularly nervous of that first flight because John Prothero had already 'flown' it at the Fleetwood field. Due to an incorrectly set up transmitter the motor was only showing 83 watts (I only found that out later when I put the watt meter on it). It had gone down the runway 'quite' fast and he clawed it up into the air. It wobbled about a bit and he very skilfully dumped safely down into some long grass. He said it seemed tail heavy and almost uncontrollable - with only that amount of power for a model weighing just over 3lbs, it would be a bit uncontrollable!!

Lift off - notice that I'm not pulling any 'up'

Anyway, back to the Blackpool field, I now had a reading of 330 watts and it climbed out like a rocket after a run of only a couple of feet.

It is pretty in the air - that colour scheme is to my way of thinking, really beautiful. It's very very sensitive and will take a lot of getting used to. In a subsequent flight, I have tested out the stall - it doesn't stall - the nose just remains up and and mushes down very gently. I tried a spin - it too was surprisingly slow. It just doesn't deem to have any nasty surprises but it's definitely not a trainer!

At the moment, I'm flying with very reduced control movements which I will steadily increase as I become familiar with it. The landings are a sort of non event - it's as easy as a WOT 4 or Fun Cub.

Thanks to John Prothero, Dave Swarbrick for all the valuable advice - Dave tweaked my trims when we were trying to trim it out. Jason took some really good pictures. Would I recommend one of these - YES - and it was so cheap.

I guess that's it for another month. Thanks very sincerely to all you guys who have so kindly contributed to this newsletter. This is a very vibrant club and the quality of it's members really shines. You guys don't seem to mind sharing your valuable experiences and speaking for myself, I've learned so many things from you since rejoining.

I will be giving you lots more info next month about my MXS - I hope by then to have a released much more of it's potential.

See you at the field and may this beautiful weather keep on happening!