



# Newsletter

August 2019

What a strange month this has been. The weather has hardly been conducive to flying model aircraft. It's been (apart from a very few days), atrocious. Elvington LMA show is now moved to the 12<sup>th</sup> - 13<sup>th</sup> October.

The news that the fields either side of the track are to sold off has been a little disturbing and how this will ultimately affect our Club remains to be seen. As you know, the committee are currently looking into our position.

My newly acquired Seagull Decathlon is now ready for flight. I thoroughly overhauled the electrics, soldered in a new XT60 to the speed controller and installed a new Turnigy 3536/8 1000kv 30 amp motor, added an Frsky receiver and got all the controls working as they should. I installed a pilot and finally polished the coverings. It looks great.

I fitted a 10" x 5" APCe prop - this combination will almost certainly be overpowered because it weighs in at just over 2lbs with a 3s 2200 LiPo installed. It's all very pretty and I look forward to seeing it in the air. The previous owner of this model had replaced the undercarriage with a much sturdier glass fibre one which not only looks better but is really needed - the stock undercarriage which Seagull supply is a crappy wire affair - it never looked good and was a weak point to an otherwise nice model.

Many of the blogs I've seen on the Net have complained about the boxy structure acting like a soundboard, making for a noisy motor sound. Mine doesn't seem to have that problem but I will only find out for sure, when it's actually flying.

The moment of truth arrived today - an old flying buddy of mine phoned and invited me down to the local field. Judy stayed in the car whilst I rigged the model. The grass at this field is a bit long and it took three attempts to get the model to actually leave the ground. It needed a lot of UP and I had to dial in nearly all the available 'right' with the digital trim, to achieve level flight. I brought it round for an immediate landing. We had a talk about what was happening and decided it needed a very much more rearward C of G position. We added 10 grammes to the tail area and I took off again - much better this time. It was now very stable but was still not very sensitive to the elevator. Another landing, this time a real greaser and another 10 grammes on the tail.

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This time it was beautiful - very responsive in Roll but I still think I'll be moving that C of G a bit further back to make it more responsive to the elevator.

It isn't noisy in the air and that motor produces just the right amount of power to be able to do large loops without struggling. It's all I dreamed of and more - it's also pretty viceless - I tried out a stall and it just nodded it's head but didn't drop a wing.



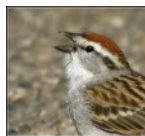
*I really must find a way to tidy up all those wires.*



*My friend Carl flying this miniscule but highly aerobatic model.*

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



One Sunday, in the latter half of the flaming month of July, I was enjoying the usual Sunday afternoon aviation when, out of the corner of my eye, I noticed a rather nice little electric WW2 fighter make its way from the car park, accompanied by its owner. Cocking an ear I learnt that the model had been acquired at something called a swap meet and had been refettled to look like an almost-new home-built model. We don't see many home-built models about these days so we "watchers in the hedge" are always more than a little curious to see how they perform. As we all know, ARTF models are mostly idiot-proof when it comes to test flying – they are very light for their size and, providing that the instructions have been followed they are bound to fly (who's he kidding! WOO). Home-built models, however, can be more of an unknown quantity. I could almost sense the little plastic pilot tightening his little plastic straps prior to take off. All went well... until, suddenly, it didn't and the model did a few wild gyrations before plunging, nose first, into the dreaded rape. It didn't seem that far away but the rape was chest high and denser than most other dense things; the model's camouflage scheme would also prove very effective against the rape's sombre backdrop.

A thorough search was initiated but the little model refused to yield its position and the search had to be abandoned for the day. Now, modellers are a determined lot and not given to abandoning a poor model to a fate worse than death (Can you imagine being combined?). It was with this mind-set that, on a following day, extra bodies were drafted in for the search: the search proved futile. Extra methods needed to be deployed. A thermal imaging drone was sent forth to survey the crop for signs of life but, by this time, anything that might have been warm in the model had, long since, cooled down. Things were not looking good. A model was sent up to replicate the flight-path of the stricken fighter (minus the end bit, obviously!) so as to give the searchers a bit more of a fix on the model's final position. Miracle of miracles it worked! Minutes later an intrepid member emerged carrying the model. The modeller had seen that the plane was flying just a little bit further out than was thought to be the case with the fighter; he took a few more steps and there the little rascal was, nose down at the base of the rape. The model seemed to be completely undamaged apart from a steamed-up cockpit canopy. This was one lucky Fokker!

I overheard much discussion taking place between members regarding location devices (always good to be wise after the event). The Wise Old Owl tells me that there are various types available. Some emit loud bleeps when signal is lost; others also flash a bright light (Don't search 'til darkness falls?). Others activate when no movement is detected for a set period and these are often self-powered. Alternatives use radio location tags and have a range of several hundred feet. There are even devices that work via a mobile phone app using something called "Bluetooth". The ultimate model-finder is one that uses GPS and is used to track hunting dogs in wild forests, lost falcons in trees and missing David Attenboroughs just about anywhere. If a modeller has a radio system with telemetry the aerial can be pointed to discover the minimum signal strength and thus



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## **A VIEW FROM THE HEDGE** Continued/.....

the line to the model. My best advice is not to fly over the rape unless you are high enough to get back to the strip, should your engine conk out or your lipo fail.

A few days later I nearly fell off my twig laughing: a modeller who has one of these location devices forgot to install the tag in his model but left it in his car. Fortunately, he did not have to suffer the irony, not to mention disgrace, of landing in the rape. There are many things in aviation that are singularly useless: the amount of sky above you, the length of runway behind you... and the loc8tor tag you've left in the car!

We are now in the wettest month of the year, August (it's a fact). Luckily, there should still be time to get plenty of flying in before winter appears, icy shroud in hand. I will always be on hand to view you all from the hedge. Go on, give a bird a laugh!

WS



*Lee Connor's Beast*

# In the Beginning

August 2019

*Article by John Prothero*

"What got you into model aeroplanes?" I am often asked. It all started for me when I was about 8 years old and someone showed me a solid none flying balsa model that they had made, I can remember that it was some sort of twin engine aircraft.

Then I started to make paper aeroplanes that were in Author Mees Encyclopaedia, they were very simple but they flew, they used a paper clip for nose weight I remember. I lived in a grocers shop and one day a rep came in, he had seen me messing with the paper aeroplanes and he gave me a balsa chuck glider that he had made. This was a proper model it really flew and with the simple instructions on how to trim it with Plasticine that he had left me, I had a lot of fun.

I was walking in Oldham town centre with my mother when I saw a shop called Gilberts Radio; they repaired and sold the valve radios of the time. But in the corner of the shop window where some boxes with models on them, one that caught my eye was a Spitfire; it said 3/9" (3 shillings and 9 pence) on the corner of the box.

So I started collecting milk bottles to get the pennies back on them, I soon had enough and headed "up town". I walked into Gilberts and bought the Spitfire along with a tube of balsa cement. I got home and opened the box and looked in amazement at its contents, sheets of printed balsa, strips of balsa and a very complicated plan, plus a few sheets of tissue paper. I was too scared to even touch it, so I put it away safely. I saved some more money by collecting milk bottles and pop bottles whenever I could and returned to Gilberts with my hard earned cash. I said I had no idea how to build the Spitfire, Mr Gilbert said "do you want to swap it" I said "no I will build it later, what do you suggest I build?"

Then another customer said "the Keil Kraft Sportster is easy to build and fly's quite well". He also told me about the Oldham Model Aircraft Club and where they met. So I headed home with a Keil Kraft Sportster. This looked a lot easier it was all pre-cut and had printed balsa parts, so following the instructions I soon had it stuck together. I thought I would see how fast the propeller went round so I put a few winds on the elastic band and to my amazement it flew off the table and hit the cat!

My mate Dave also built one and we flew them in Coalshaw Green Park, we ended up climbing trees to recover the Sportsters on many occasions that summer.

So we never forgot our Sportsters and as some of you have seen I now have an RC version that Dave built and gave to me, it fly's brilliantly!

# In the Beginning Continued/.....

August 2019  
*Article by John Prothero*

We flew the Sportsters in the park behind my home, then Dave and I went up to the Oldham flying field at Copis near Oldham, we had to catch two buses to get there! The sight that met us came as a shock, they had real engines in some models, but typical of the Oldham club they helped and showed us how to get the best out of the Sportsters, by introducing under camber into the wings by using balsa cement to warp the wood. The model really flew well now; we were even given some proper rubber and made a rubber motor lubricated with soap.

I next built a Keil Kraft Elf this was the first model that I had to cover with tissue and dope, I got it hopelessly wrong and the wings warped. I told them at the Oldham club what had happened and they suggested that I get a sheet of 1/16 balsa and a couple of 1/8<sup>th</sup> stripes and they would help me make and cover a new wing. This was done and the model flew very well, for curiosity I put my warped wing on and tried it, needless to say it didn't fly at all. After this came the Ajax, Playboy, and the best of the lot the Dolphin glider.



So then when I was about 11 I saved and saved and got my first engine an E.D. BEE 1cc I then saved and got a Keil Kraft Champ control line trainer. The Champ was great I was taught to fly it at Oldham and had many happy hours just flying in circles, I still have the E.D. Bee to this day and it still runs! Then came a real classic a Phantom Mite, it was a very good combination with an E.D. Bee, because the Phantom Mite had elliptical wings, I thought it looked a bit like a Spitfire so I camouflaged it and put R.A.F roundels on it.



# In the Beginning Continued/.....

August 2019

Article by John Prothero

Time ticked on and models came and went, another stand out model was the Keil Kraft Gazelle, I was given a D.C. Sabre 1.5 cc for my main Christmas present and built a Gazelle. The model felt ballistic compared with the Champ, it was very much faster and was very sensitive and would loop .



I would fly whenever I could and also joined Whitfield club, the main interest at the Whitfield club was control line combat. But we had a real expert in free flight in John O'Donnell who was always on hand to give help and advice.

I started work at 15 for Ferranti Limited as an apprentice engineer; a number of larger control line models came and went the Mercury Cobra powered by a Johnson 35 Stunt Supreme was a fantastic combination.

Finally when I was 17, I got into Radio Control I had an ABC single channel set with an Elmic Conquest rubber driven escapement. This is how it worked you pushed the button on the transmitter and the escapement turned a shaft connected to the rudder by a quarter turn, this gave right rudder, release the button the escapement turned a quarter turn again to give neutral, so to get left rudder you had to give two quick pulses to miss out the neutral, BUT you always got a dose of right rudder first!! Whilst all of this was going on you were trying to decide what you wanted the model to do next. To be honest the best policy was to do nothing until the engine stopped and the model was on the glide. The model was trimmed to fly in gentle left hand circuits under power and more or less straight on the glide. The model was a Veron Robot, this model would make a very good sedate flyer today with light weight radio fitted, I used my D.C. Sabre (which I also still have) in this model which powered it with ease.



I then got into to Multi reeds and trained on a Super Sixty and a Veron Concord modified with a Taurus wing. Reeds where really difficult to keep on top of any



## In the Beginning Continued/.....

August 2019

Article by John Prothero

vibration could cause havoc and you were continually re-tuning the reeds. My main model was now an Uproar built from the Aero Modeller Plans Service covered in nylon powered by a Merco twin plug 49. The Uproar would still make a very good rugged advanced trainer.



Below is a typical Reed set with servos, two servos on the elevator one centring and one none centring were linked together to give you trim by adjusting the none centring servo.

Things progressed and proportional came along my first proportional radio was a Sprengbrook, the case had a wooden finish to it and the charger was built into the transmitter. Sprengbrook was run by Doug Spreng an American and Harry Brooks of the UK.

So here is how I came to fly "mode 1" the clue is in the name here. Flying reeds, you had throttle on the right with aileron below it and elevator and rudder on the left, this was how it was set up. So it was only natural to retain throttle and aileron on the right and rudder and elevator on the left. I can also fly mode 2 but I find mode 1 more natural.



That really almost brings us up to date I moved to Blackpool in 1970 bringing with me a couple of models, a Mercury which was a high wing 8 foot model and a Kwik Fly.

I hope I haven't bored you but I have missed loads out, I hope this has given you an insight to my origins in model flying.

Oh nearly forgot, I never did build the Keil Kraft Spitfire, I still have the kit!







# Glider Set Up

August 2019

*Article by Brian Holdsworth*

When designing and building an electric-powered thermal soarer, there are numerous possible options with consequential compromises to be considered. Generally, bigger is better for performance but this comes with costs - financial and convenience of operation. The intent was to produce a model capable of single-handed launching to support the challenge of finding and exploiting thermal lift by visual means only - ie without using telemetry from Varios etc. Past experience with tow line/bungee/winch-launched gliders suggested that 100"+ span gliders can be difficult to hold at launch and vulnerable to catching a wing tip on landing with potential for damage.

2 metre span was chosen as a compromise using the BMFA height-limited 2M contest regulations as inspiration, though no contest activity was envisaged. A rounded fuselage looks better, but is awkward to hold for launching and the slight performance benefits were not considered sufficient to outweigh the constructional complexity. Consequently, a simple slab-sided fuselage was used with the additional advantage of its flat bottom helping to keep the wings level during the landing run. Unlike most contest designs, the fuselage is fairly bulky simplifying construction and installation - the slight additional drag has minimal effects for this purpose.

Several lightweight 2M designs have been produced with a target weight below 1 kilogramme (2 1/4 pounds). They were expected to have poor still-air performance, but this was considered an acceptable compromise, since electric power usage allows several climbs in a flight, if required, to extend the search for lift. An elderly 1000Kv 3536-sized motor (~105g) with a J.Perkins 50mm vented aluminium spinner and 10x6 folding propeller (~24A, 250W) is used for all designs, producing a near-vertical climb in about 15 seconds from a tired 3S2200 LiPo. 10+ climbs can be achieved, allowing several flights from a battery. A smaller motor and/or battery could have been used, saving some weight, but these were not available...!

The most recent design with ailerons and flaps, together with a V-Tail, is the example subject. The short wingspan means that a relatively low aspect ratio has advantages since a considerable deterioration in performance is evident for chords below about 8", even with specialized airfoil sections. A chord of 9" was chosen as a compromise using an untapered configuration (parallel chord) for greater wing area, giving a relatively low aspect ratio of under 9 to 1 and a relatively low wing loading of ~7 ounces per square foot. No washout (tip angle of attack less than

# Glider Set Up Continued/ .....

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*Article by Brian Holdsworth*

that of the root) is needed, simplifying construction. Ailerons and flaps have 2" chord, being ~22% wing chord.

Gliders generally suffer considerable adverse yaw from aileron usage, so ~50% differential is desirable giving down movement about half the up movement. Mechanical differential is used with transmitter settings available for any fine adjustments. Aileron-rudder mixing will also be used to couple aileron stick movements to the rudder. Film hinges are used for top-hinged ailerons, with relatively little down movement required - the maximum aileron up throw is determined by Crow usage. This seals the hinge, but leaves a gap underneath, disturbing the airflow and reducing performance - ideally, this gap should be covered with a sliding shroud, but such complexity seemed too much!

The control horn length (measured from the hinge line) is set equal to the servo arm length to give ~40 degrees movement from centre. Positioning the aileron horn behind the hinge line by an amount equal to the horn length produces ~50% differential. Switched rates are used to reduce aileron throw via the aileron stick to 50%/70%. In practice, little control movement is needed so only low rates with less than half stick movement is used. Full aileron stick usage at 100% rate with full Crow would overdrive the servos with probable damage, and so should be avoided. No exponential is used since the (unwanted) wing twisting, when the ailerons are deflected, softens control response.

Film hinges are used for bottom-hinged flaps, with relatively little up movement required for Reflex, but considerable down for Crow. This seals the hinge, but leaves a small gap on the upper surface, when the flap is centred but a much larger gap when fully lowered in Crow, where the increased drag should be advantageous. Control horn length equal to servo arm length, with the horn behind the hinge line by an amount equal to the horn length, gives ~80 degrees total movement. The linkage is set for half flap position with the servo arm at right angles to the chord line. Since only six channels were available, both flap servos are driven from a single channel via a Y lead; the servos are installed with their servo arms towards the same wing tip to give the required throw directions to raise/lower the flaps in unison. Because Crow is produced via mixers from one side of the throttle stick movement



# Glider Set Up Continued/.....

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*Article by Brian Holdsworth*

(detailed later), the Flap Servo Offset is set to 80 with the servo arm centred, to provide sufficient flap movement.

A slope racer or aerobatic design would perform better with little pitch and roll stability, since it will generally be flown reasonably close to the flyer and improved control response is usually preferred at the expense of stability - compromise! For thermal soaring, some dihedral is required to provide sufficient lateral stability to allow unaided level flight in turbulent air, since it is hoped to reach considerable altitudes in thermal lift, where it would be difficult for the flyer to make suitable corrections due to the lack of visibility. ~3 degrees dihedral each side is used by setting each wing tip 2" above the root. Similarly, some pitch stability is needed and an incidence angle of ~3 degrees between the wing chord line and the tailplane with the CG (Centre of Gravity) at ~25% wing chord seemed suitable.

Some of the more exotic glider sections respond poorly to flap usage. The earlier rudder/elevator designs in the series used Eppler 205 but this one uses Eppler 193, since it is claimed to respond well to Camber/Reflex flap. For constructional simplicity, the slight undercamber was removed, since the benefits at this size are small for the intended operations. A straight line along the bottom of the wing to the underside of the tailplane gives the appropriate incidence angle.

Many full-size gliders use a T-tail to raise the tailplane to increase ground clearance, since considerable damage could result if the tail tips should contact the ground on landing etc. Scale effect makes such considerations even more important for models, where an all-moving T-tail or cross-tail (tailplane part way up the fin) is often used with the advantage of automatic adjustment of the required incidence angle. The earlier designs used a T-tail so this one uses a V-Tail to be different, though control effectiveness is generally poorer. It is more rugged, especially during ground handling, when a T-tail can be very vulnerable. A 120 degree angle is used - a rudder/elevator model with its greater dihedral would be better with 110 degrees to give proportionally greater fin area.

As for ailerons and flaps, the control horn length is set equal to the servo arm length to give ~40 degrees movement from centre, positioned so that the linkage is at





# Glider Set Up Continued/.....

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*Article by Brian Holdsworth*

right angles to the hinge line to produce symmetrical control throws. The servos are mounted at the rear giving short linkages, requiring a longer fuselage nose to balance their weight - a bit longer would have been better! Since elevator and rudder movements are combined on the control surfaces, the movements of each must be limited to about half the full control surface travel. This is achieved using the Dual Rates function with elevator at 30%/40% and rudder at 50%/60%, though only small stick movements at low rates are used in practice.

Five flight modes (Launch, Normal, Slow, Fast and Landing) are implemented, with elevator compensation available in each, adjusted from flight tests. The transmitter used does not have a Flight Mode option, but equivalent results are achieved by using a three-position switch to select flap positions for Reflex (Fast - flaps and ailerons part-raised) and Camber (Slow - flaps and ailerons part-lowered) with the centre position for Normal with the flaps and ailerons centred. A two-position switch transfers the Throttle stick between motor control (Launch) and Crow (Landing - flaps fully lowered and ailerons raised) allowing proportional control. This simplifies operation, especially during landing when it is desirable to retract the flaps just before touchdown to avoid damaging the flaps etc since they are very vulnerable to catching on the grass. Switched Crow operation, even with Servo Slow (if available in the transmitter), would be rather violent at such a critical phase.

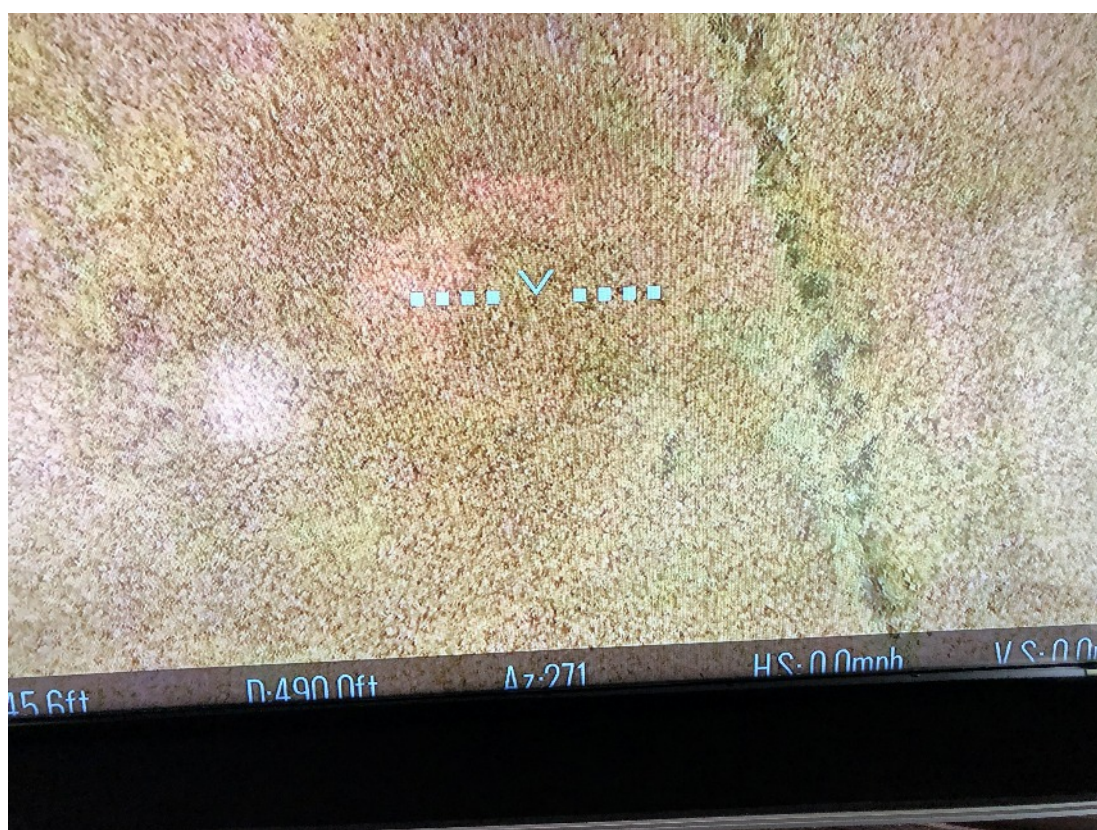
A fully-implemented Flight Mode transmitter option has the advantage that the effects selected in a mode would be isolated from those in the others - some implementations are so limited as to be of little use! The technique used has the limitation that Camber and Reflex settings are still functional in the Launch and Landing modes. Their small deflections, if selected, have limited effects, though it is preferable to select Normal mode before raising the throttle stick for motor control or Crow.

# Spot The Model

August 2019

*Article by John Prothero*

The model is in the photograph to the right taken from a drone, (Clue just to the right of the track). this gives an idea of how difficult it is to find a model lost in this kind of crop, and the desert camouflage didn't exactly help.



As you can see the model apart from being a bit damp is relatively unscathed and will live to fly again, the dense crop was very effective in acting as a catch net.

So what went wrong? Crashes are usually induced by pilot error and in this case it was incorrect programming by me.

I had previously flown this very tricky model on J.R. without incident apart from the fact that it does not like being slowed down, it becomes very unstable and loses the will to live.





# Spot The Model Continued/...

August 2019

*Article by John Prothero*

I had transferred the settings from the J.R. radio to the Jeti system, with Jeti these settings they are about 30% more than J.R. I took off on low rate!

So this very sensitive model now had far too much deflection on all control surfaces and was unflyable, the slightest touch resulted in violent reactions with the inevitable results.

So lesson learned, always measure when transferring from one brand of Radio to another, the values may not be compatible – we live and learn.

Thanks to everyone who took part in the search, it showed great club spirit.

We also had four drones, one with a mapping program another with a thermal imaging camera and two others with very good cameras. None of the drones spotted it, you can see how difficult is by the above picture.

We may have a case for fitting model locators, I'm not the first and certainly won't be the last, apparently you can get a key locator called "Tile" from Amazon they are also in Curry's and Argos.

John P.



Tile Sport Key Finder, Phone Finder,  
Anything Finder - Graphite

★★★★☆ ~ 343

£19<sup>79</sup> £29.99





August 2019

## Club Instructors

Jason Reid, John Higgins, Chris Vernon, Mark Conlin, Brian Holdsworth, Jim Sheldon, Paul Cusworth, Andy Harrison, Justin Goldstone, John Prothero

## Events/Shows 2019

31<sup>st</sup> August - 1<sup>st</sup> September

LMA Much Marcle

12<sup>th</sup> - 13<sup>th</sup> October

LMA Elvington

## B&FRCMS Event

Sunday 22<sup>nd</sup> September Scale and Aero Show Trophy at the field

**Social Evenings** commencing 8pm at the Marton Institute, Oxford Square, Blackpool FY4 4DR

Wednesday 2<sup>nd</sup> October Swap Meet and Auction Night

Saturday 2<sup>nd</sup> November at the field Bonfire Night with fireworks & Spectacular Night Flying Display

Wednesday 6<sup>th</sup> November Mark's Futaba Night & Dave's Turbine Night

Wednesday 5<sup>th</sup> December Annual General Meeting

Thursday 19<sup>th</sup> December Quiz Night and Hot Pot Supper

August 2019

# In Conclusion

I say again very sincerely thank you to all of you who have given me such excellent articles to publish. A lot of work goes in by you who happily contribute and I so appreciate it.

Enjoy your flying guys but be safe. Please, any of you who are able to get down to Elvington, if you could let me have some pictures, I would be very grateful so that I can publish them next month. May the weather continue to be calm.

I have the rest of this page staring at me blankly. To any of you who are half interested in photography, I have for the first time, used a different setting on my camera which has proved very successful. I went to the local airfield - the morning was grey - no sunlight so you would believe that colours would be subdued. There were a few models there but one I had so wanted to photograph was Lee Connor's huge Beast powered by a dirty great flat twin petrol engine.

I decided to force the camera to take pictures at my own set shutter speed (1/320 second) and my own chosen aperture (f9). I had done many tests on that lens and it produces it's best resolution at anything between f8 and f11. So the only remaining joker was the ISO. So this was set to Auto ISO. After processing (I took them in RAW), the results were very satisfactory.



*Grey day,  
yes but look  
at the  
vibrant and  
realistic  
colours*