WLAMC Newsletter March 2017

Editor – Andy Blackburn

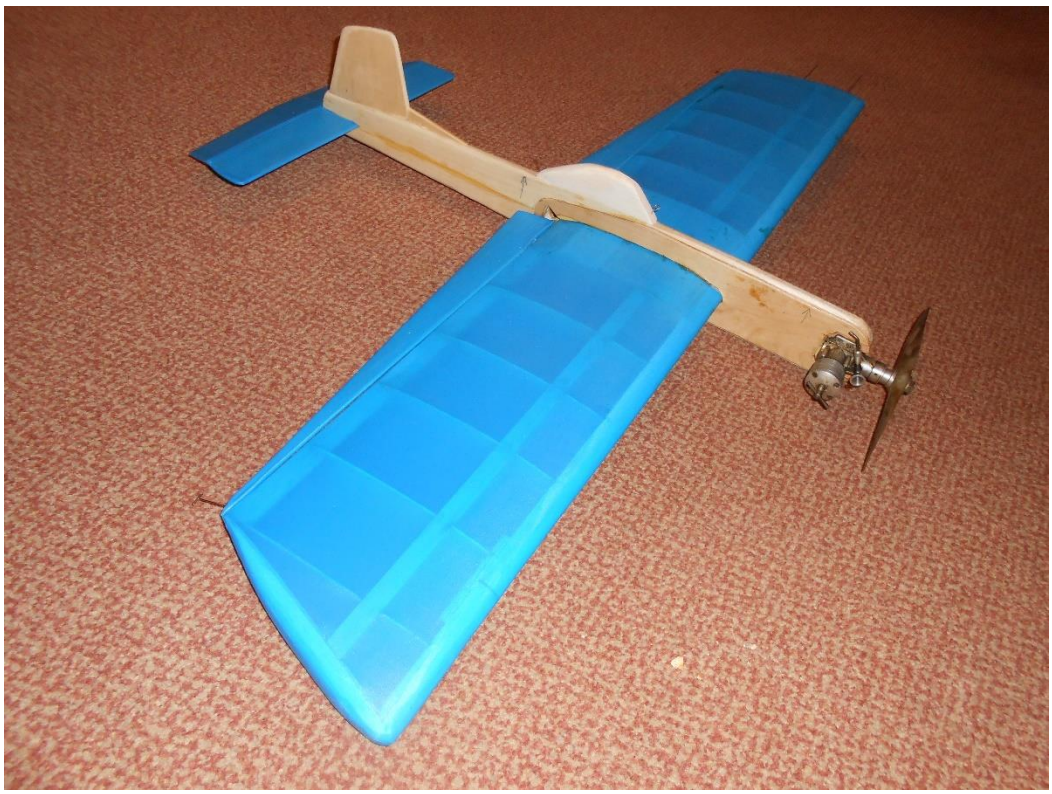
Peter Murphy's own-design replica of the De Havilland DH.89 Dragon Rapide operated by the Clacton Aero Club. The wing span is 96 inches, weight is a little under 16lbs and is powered by two OS 52 four stroke engines. The model has 8 servos, working landing lights and flaps, fibreglass nacelles and spats and the undercarriage is sprung [Photo by Mike Sullivan].

Editorial

I've just looked out of the window and I can see sunlight, with light winds! Spring must be here, time to see which models have survived the ravages of winter – most of mine are in the garage and it's a bit damp, so black-wire rot can be a problem. And I bet some of the batteries won't hold a charge, either.

We have a bumper edition this month but I'm always looking for content for the newsletter and will be taking my camera to the patch this year in the hopes of recording a really good picture, such as this month's excellent header picture of Pete Murphy's De Havilland (ah!) Dragon Rapide, taken by the late Mike Sullivan; it was scanned from an original print, but it's cleaned-up nicely. Many thanks also to contributors Dave Chinery and Lloyd Ressler who have taken the time and effort to write things for other members to read - much appreciated.

Second Childhood Project? – Dave Chinery



New Knight Errant model nearly complete with Solartex on horizontal surfaces [Dave Chinery Photo].

Over the years, I have had many designs and articles published in modelling magazines, and wrote my regular "Flying Sparks" column in RCM&E for about 15 years. Clearing out some old papers recently, I came across an issue of Model Aircraft magazine for May 1964 containing my first published plan, for a 1 metre span control-liner, the "Knight Errant". The original flew well with a Rivers 2.5cc Silver Streak and lasted well until a "friend" tried a bunt from about 6ft up!! The model featured a new interlocking construction to avoid the then-common problem of wing/fuselage joints loosening after a few heavy landings and fuel soakage.

Detail of bell-crank installation during sheeting of the centre-section. Pushrod is shown here linked to a dummy flap horn to allow the correct line-up for the exit hole when the sheeting is completed [Dave Chinery Photo].

A few years ago, I "inherited" a Rivers 2.5 from a deceased clubmate and this spurred me on to build a new "Knight Errant". Having blown up the plan image from the magazine I drew a new full-size plan and started to build. The structure is now almost complete and partly covered. The Rivers is unsilenced so I won't be able to fly it at Springwell Lane but I have a possible site in mind. I have been able to find a usable "stunt" fuel tank but it is rather too large, so does anyone have an old KeilKraft stunt tank they are not using?

Pictures from Club Meetings

Indoor Flying roll call in January, The Quads and Planes flew great. Roger Darvell's box didn't [Mat Dawson Photo].

Club night 9th Feb - Roger Darvell, with his 100cc H9 "Beast" [Mat Dawson Photo].

Club night 9th Feb - Charman Mat's Tony Nijhuis P-51 B/C Mustang [Mat Dawson Photo].

Club night 9th Feb – Magnatilla with Laser Twin. [Mat Dawson Photo].

Club night 9th Feb - Dave Chinery with new Knight Errant [Mat Dawson Photo].

Club night 9th Feb – Roger's topless model [Mat Dawson Photo & caption].

[I'm very grateful to Lloyd for digging out the original text for this article which was first published in – I think – the spring 1988 edition of Radio Control Scale Aircraft Quarterly, and then in the June 1991 issue of RCM. If you look carefully, you can see that the photographs have been sourced from a printed magazine because after so many years the originals were not available - Ed]

Triumphs and Heartbreaks with a Cessna 310 G - Lloyd Ressler

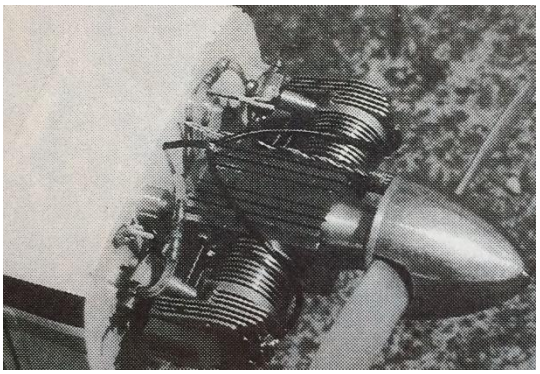
For some years, I fancied building a large, twin-engined model airplane, complete with flaps and retracts, but never got down to it until I noticed a classified advertisement for a 10' Cessna 310 Bud Nosen kit. I bought the kit and put it away but every few months, I took it out and looked at the drawings and the masses of balsa wood. Each time I looked at it, I gained more courage to start it. The kit consisted of very basic plans and all the wood to build the plane. The model is of built-up construction and planked with balsa sheet. The landing gear on the plane is 3/16" music wire and looks very spindly. There is no detail for flaps or retracts on the plans at all. However, the big problem was what engines to use. I thought if I was to build this model I would need super engines and they had to be twin cylinder ones to reduce vibration. It would need at least 20cc 4-stroke twins and … you know the prices!

The retracts I wanted were the ¼ scale Robart types, as they have a side brace which is needed on a model of this size, but they are also every expensive, so I put the kit away again.

About this time, Neil Tidey, the designer of the Laser engine, gave a talk on 4-strokes at our monthly club meeting. After the meeting I asked Neil about the feasibility of my building (with his help and advice) a four cylinder 4-stroke inline engine of some 40cc, the engine was needed

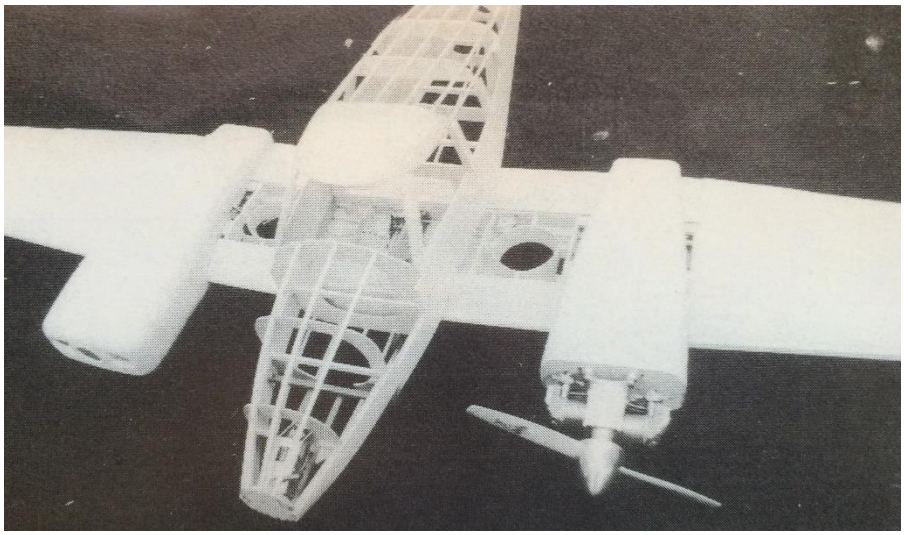
for a ¼ scale Tiger Moth I was building. He seemed to think that it was a good idea and at a later date we met and went into further detail and I started to construct the four cylinder engine. I made the one piece four throw crankshaft, the crankcase and four split connecting rods.

I now started thinking about the Cessna again and realised that it would be much easier to build an opposed twin using Laser heads and cylinders. I would also use the cam gears and, already having the connecting rods ready, I was on my way.



As you know, the Laser is a very advanced and powerful engine. This is achieved by virtue of its heavy bar stock construction, close manufacturing tolerances and the wonderful design of its cylinder head with its inclined valves. All I had to do was to design the crankshaft, crank case, gear box, etc and put it all together. I must admit that Neil helped me enormously and I have lost track of how many times I phoned him with "Neil how do I … etc, etc, etc". He was most patient and helpful and gave me so much useful advice. I had only owned a lathe for some three years and had just acquired a milling machine, so there was lots I had to learn.

The Laser 75 engine was just coming out and I elected to use the 75 heads, giving me a 25cc engine. The two throw crankshaft is heavily made and machined out of one piece of steel. It is supported on three large diameter ball bearings. Twin Super Tigre carbs were used with a separate pickup in the fuel tank for each carburettor. When the engine was completed I rushed over to Neil's and he checked it over and then started it up. To our utter amazement and joy, it ran very smooth with very fast acceleration. I had a Quadra powered ¼ scale Eindecker and decided to use this as a test bed for the engine. Out went the Quadra and in went the twin – the Eindecker flew just as well!



I then decided to make another engine exactly the same and, of course, to build the Cessna. I really did not realise how large a project I had started and several times I stopped building – only to return again later. The model is so large that I had to figure out how to get it in my car, which is not exactly small. The inside width of my station wagon is 48" and the tail plane is 52", so the tail had to be made removable. Then the centre section, the heart of the model, had

to be much modified to take the win engines, flaps and Robart retracts. I finally worked it all out and had only to sheet the plane to finish it.

I was always very concerned about its final weight, but I knew I had to have a super finish and so used K & B polyester resin and .6 oz glass cloth. By applying the resin very thinly and sanding most of it off, I was able to keep the weight down and two coats of primer, rubbed off, and just enough white top coat of cellulose car paint to cover did the trick. An undiluted coat of clear fuel-proof paint polished with 1200 wet and dry finished it off.

I went to Denham Airport to see if there were any 310's about and located G-BHEH. After obtaining the owner's permission to photograph it, I took about 50 pictures and was thus able to add sufficient scale detail to make the model look interesting. G-BHEH's colour scheme was very good and I decided to copy the airplane exactly.

The model has a receiver battery backer setup, using two 1200 battery packs, so if one fails the other automatically switches on. Since the plane came out tail heavy these batteries came in useful, way up in the nose. I still had to put in about 12 oz of lead up front. It's maddening to think that in order to keep the weight down I hollowed out every balsa block in the plane and then had to add all that lead, but that's the game of model building.

I used Futaba servos, of varying sizes, two on ailerons, two on flaps, one on rudder, one on nose wheel, one on each engine, one for retracts and two mechanically linked on elevators (if one fails the other will give half movement).

Another interesting feature on the Cessna 310 is the Jomar twin engine sync system. This system synchronises the rpm of the engines from 1500 rpm upwards. On each engine's spinner back-plate are two magnets, and one each engine there is a Hall-effect sensor connected to the Jomar black box. Since each engine has its own servo, their throttles can be individually controlled – one engine is chosen as the "Slave" and the other the "Master". The "Slave" must be the better engine so it can do anything the "Master" can do. The system works very well, using receiver battery power and, if either engine quits, the running engine is still fully controllable. So far it has worked perfectly, keeping the speed of the engines very close throughout the whole rpm range.

The Robart retracts are air actuated and use a 1 ½ litre Pepsi Cola bottle (which is very light and strong) as it's air reservoir. I pump it up to 100 lbs pressure, but I am told it will take 200 psi. The retracts have worked perfectly so far and have taken the weight of the model on landing with no problems. The retract doors work smoothly after much fiddling to get them right.

When the plane was finished it weighed, to my surprise, only 30.5 lbs. After adding the lead ballast, seats, pilot, instrument panel and some bits and pieces, it increased to approximately 32 lbs. Now came the problem of checking the Centre of Gravity of the plane.

The Cessna is too big to pick up on one's fingertips and to support it underneath the wing on some sort of rack it would damage the skin. My good friend Dennis Tapsfield had the solution and he was kind enough to come over and help me. We took a length of aluminium tubing (from a vacuum cleaner) and with heavy tape attached it to the model so that it was above and parallel to the fuselage, we were then able to suspend the model from a hook in the ceiling with a cord attached to the aluminium tubing.

By sliding the cord attached to the ceiling along the aluminium tubing we were able to accurately balance the model. A plum-bob gave us the exact location of the CG. Adding weight to the nose enabled us to move the balance point to the CG location shown on the plans. Full marks to Dennis.

When the plane was finished, Terry Bridle, who had agreed to test fly the Cessna, came over. Terry is a great R/C modeller and also a professional model builder. He was one of the team that built the models for the Bond film "The Living Daylights", David Putnam's "Memphis Belle" and many others. Terry was chosen to test fly many of the models and flew them when they made the films.

We tethered the Cessna and ran up the engines with 16 x 8 props, the rpm showed 8000. We richened them up to about 7600 and with a spring scale we had 16 lbs of static thrust.

We were now ready to test fly the Cessna, but had to wait six days for decent weather. On Saturday 16 May, Terry, Dennis and I set out for Enstone Airfield, near Oxford. It was a beautiful day and we decided to test fly without cowls and not use the flaps and retracts. The model tracked straight down the runway and Terry lifted the Cessna off with no problem. He flew several circuits and we listened to the lovely beat of the twin cylinder engines. He then made a perfect landing straight down the runway, my heart stopped pounding and suddenly all the work of 2 ½ years seemed worthwhile. The next flight we used the retracts and they had no effect on the aircraft's trim.

On the third flight the cowls were put on and my worry about the engines overheating was unnecessary, they never missed a beat; in fact, Terry never used full throttle, even for take-off.

On Sunday 17 May we took the Cessna to Old Warden, a grass airport 50 miles north of London, which houses the Shuttleworth Collection of full-size vintage aircraft, many of them kept in flying condition. There was a large scale model meeting there. We had one successful flight, but then had to pack up as the rain set in.

Terry and I took the Cessna to the meeting at the Aerospace Museum at Cosford on the 5 July 1987. We prepared the model, checked everything: fuel, engine, retracts and radio, and then waited for our special time to fly. There was a full size flying display of jets and aerobatic planes and we were to fly immediately after, on our own. This time and date will be burned in my memory for a long, long time. The engines started instantly and Terry took the model off in a beautiful straight line, made a long low climb out, retracted the wheels and started to turn back. The model suddenly glitched and then started to climb steeply, stalled and then dived down. It disappeared beyond the hangars. Terry was still holding full up on the stick. We were all shocked and amazed that the Cessna went out of control. It was its fifth flight.

When we got to the scene it was utter devastation. The Cessna had hit the paved road straight down full bore and was a complete write-off, engines, retracts, servos, everything smashed. I was in a state of shock and could not touch the model; however, I composed myself and took several pictures of the crash. I'm grateful to about five friends who helped dismantle the wreck and for salvaging the parts, such as retracts, engines, radio, etc and putting them in the car.

Of course, we then had a post-mortem. Some said there was a lot of interference about, others said the high temperature in the model's cabin could have changed the frequency of the receiver crystal, but the most common one was that the metal roof of the nearby hangar had blanketed or reflected the transmitter's signals. Someone, of course, could have switched on, on the same frequency. We really did not know the cause.

On Monday I could not touch the remains but on Tuesday I started to go through the wreck and noticed that the receiver aerial had broken off about one inch from the case. I looked for the

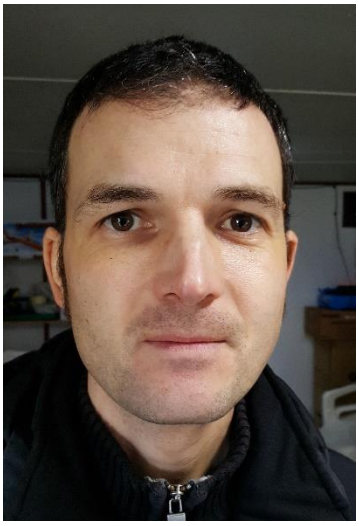
broken wire and when I found it, to my horror I realised what had happened. It was still coiled up in a neat bundle with a rubber band! Yes, I had not extended the aerial after assembling the model the previous week. I had been fitting out the cabin interior and had to remove the centre section from the fuselage and reassemble the model many times. The receiver aerial kept getting in the way, as the receiver was in the centre section and the aerial went into a plastic tube in the fuselage, so I coiled it up and tied it with a rubber band. With the receiver aerial coiled, the Cessna simply flew out of range and destroyed itself. It was all my fault. It's ironic to think that with all the safeguards I built into the plane that human error (mine) would lead to its demise.

The one thing we did not do at Cosford was a range check. This would have shown it up, but at these exhibitions the transmitter control is very strict and you cannot get your transmitter until the last moment and then you have to start your engine and take off, so range checks are rarely performed. I am sure there are some lessons to be learned here.

Yes, I am still very upset about losing the model, as I will never build another to match it and keep wondering how I missed the aerial. One thing I am thankful for is that the model didn't hit any buildings or any of the Museum's full size planes nearby and, more important, that it didn't hit or harm any people.

Moral of this story, check and double check all the time.

New Members



Tamas Garai has joined the club this year and can often be seen with the training crowd on Saturday morning – say hello if you see him.

Events

Date	Event	Location	Description
Friday, 20 January	Indoor Flying	Vyners School Gym Ickenham	Indoor Flying 7.30-9.30 pm
Thursday, 09 February	Club meeting	Battle of Britain Club	Winter projects/Bring and Buy
Friday, 17 February	Indoor Flying	Vyners School Gym Ickenham	Indoor Flying 7.30-9.30 pm
Thursday, 09 March	Club meeting	Battle of Britain Club	Talk by Dave Chinery
Friday, 17 March	Indoor Flying	Vyners School Gym Ickenham	Indoor Flying 7.30-9.30 pm
Thursday, 13 April	Club meeting	Battle of Britain Club	"Drone" racing
Thursday, 11 May	Club meeting	Battle of Britain Club	Chuck Glider competition
Saturday, 10 June	BMFA Scale Training	Flying Field	BMFA Scale flying training day - anyone can turn up and fly
Sunday, 11 June	BMFA Scale heat	Flying Field	Heat for BMFA scale flying competition. Flying approx 10:30 onwards
Wednesday, 14 June	Field meeting	Harefield	BBQ and Electric Flying
Sunday, 02 July	Family Fun Day	Harefield	Our Annual Scale Event
Sunday, 09 July	Reserve date only for scale event in case of bad weather	Harefield	Reserve date Family Fun Day