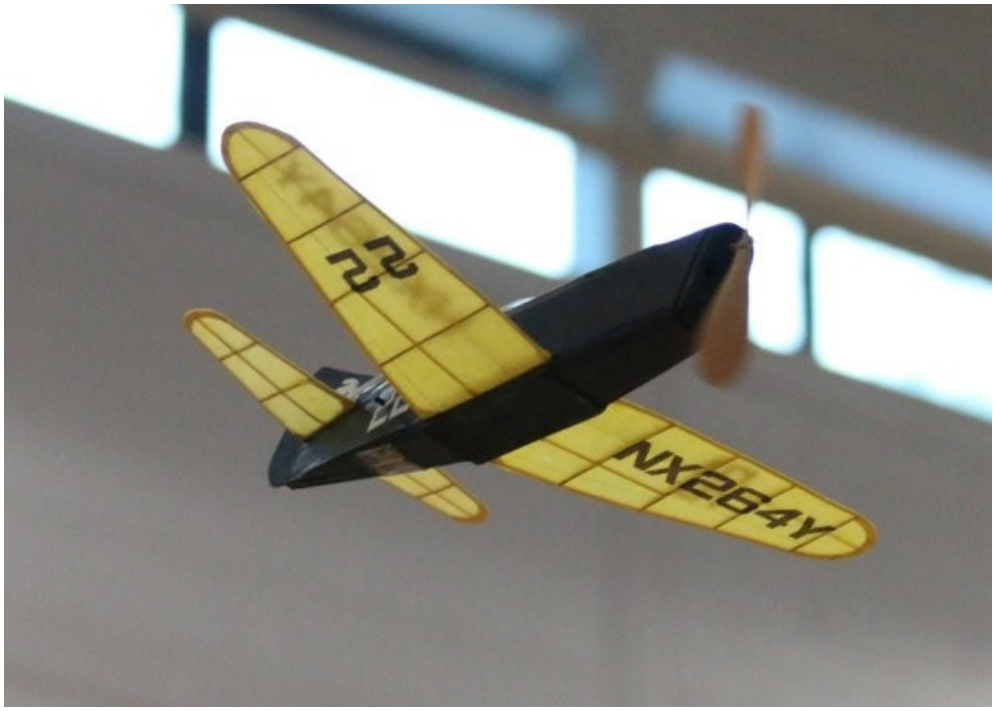
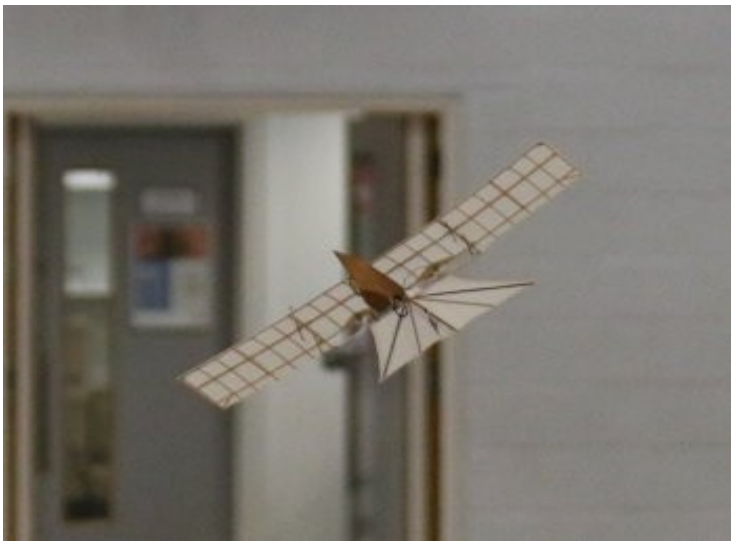
Trinity Newsletter – Issue Nº. 5, 2025

If wet, in church hall.



Dave King's Jackrabbit beating up the aerodrome
Photo – *Andy Blackburn*



Peter Smart's Henson Aerial Steam Carrriage
Photo – *Andy Blackburn*

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Calendar

2025

Date	Session	Event
April 12th	09:00 – 13:00	
May 17th		
June 14th		
July 12th		
August 16th		
September 13th		
October 11th		Unrestricted Bostonian CD – John Winfield
November 15th		Themed Scale. High Wing Monoplane Postponed until Jan '26.
December 13th		Christmas Keil Kraft Elf CD – Volunteer requested.

If a session date changes an e-mail message will be sent to everyone on the distribution list as soon as possible.

2026 - Provisional

Date	Session	Event
January 10th	09:00 – 13:00	Themed Scale. High Wing Monoplane. Postponed from Nov.
February 14th		
March 15th		Single Design. Bostonian Knight CD – John Winfield
April 18th		
May 17th		
June 14th		
July 12th		
August 16th		
September 13th		
October 11th		Keil Kraftlet CD - Lurk
November 15th		Trinity Tanner Scale. CD – Lurk
December 13th		Christmas Elf CD – Tony Calvert (?)

These dates may change and will not be confirmed until October at the earliest.

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Parish Notices

Flying at Trinity

When you arrive, please try and fill-in the corners and short edges of the hall first so as to leave the largest possible unobstructed area for flying.

The meetings are, mostly, sport-oriented; just turn up, pay and fly. However, there will sometimes be an informal, “just for fun” event which will be fitted-in around the sport flying so that it doesn’t disturb anyone who isn’t taking part.

FF & RC models are allocated half-hour slots, FF starting on the hour. FF models may be flown during the RC session, but you do so at your own risk.

> **If you are flying a FF model during the RC half hour please make <u>absolutely</u> sure that you don’t obstruct an RC flier’s view of his or her model. Especially when the RC model is being launched.**

Trinity Dimensions & Model Suitability

The hall’s limiting dimensions are, roughly; 7m to bottom of the rafters and approximately 13m between the basketball nets and about 15m maximum.

For FF scale models a span of 17”-18” is a “safe” maximum, but models of up to 20” with a low wing loading have been flown successfully. As a rule of thumb, given the size of the hall, a model with a wing loading of about 10g/dm^2 or lower (without motor) is very likely to survive a session. Duration models usually have such a low wing loading that more or less anything of that sort can be flown, the limit being the rafters. RC models up to 24” span are regularly flown successfully.

Contributors

My thanks to Andy Blackburn, Chris Brainwood, Richard Preston, Paul Masterman & John Whatmore.

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Online Resource Hub.

For back issues and plans point your browser at

www.trinityindoor.uk

If you've got any material you wanted added to the site, contact John Whatmore who set it up and maintains it for us.

Free Stuff.

If you've got stuff you want to hand on for free please send Lurk an e-mail a week to a few days before the meeting and the details will be added to the usual reminder message that goes out shortly before the meeting.

Newsletter Schedule

Planned Issue Dates

- January
- March
- May
- July
- September
- November

The newsletter will usually be sent out towards the end of the week following the Trinity meeting.

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Other Indoor Meetings

Peterborough MFC

https://peterboroughmfc.org/events

Date	Session
2025	10 o'clock 'til 2 o'clock The March '26 meetings may run until 4 o'clock.
Sunday Oct 19th	
Saturday Nov 29th	
2026	
Saturday Jan 10th	
Sunday March 1st	
Sunday March 29th	

OFMAC

Abbey Sports Centre, Berinsfield, OX10 7NR
FF Rubber, CO_2 & Electric
Contact: Ian Melville ofmac@redkite.aero or 0754 515 8177

Date	Session
2025	9 o'clock 'til 3 o'clock
Sunday Oct 5th	
Sunday Nov 2nd	
Sunday Dec 7th	
2026	
Sunday Jan 4th	
Sunday Feb 1st	
Sunday April 12th	
Sunday May 10th	

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August

The echo was good this month. Where were you all? Never mind, lots of free air for those of us who turned up.

August's Models

Laurie Kirby

A natty looking Frogwell Flyer from Laurie. The trick to achieving this look is to print your tissue with a partially clogged print head. Serendipity is a wonderful thing.

Frogwell Flyer
Photo: Staff

In Flight
Photo: Andy Blackburn

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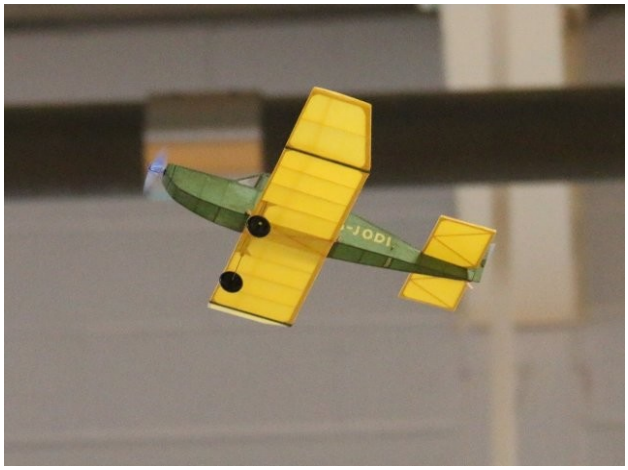
Richard Preston

Another month, another new design. Where does Richard get the time, come to that where does he get the *energy*? This one is inspired by the Jodel and has a very pleasing 1930s air taxi feel to it.

Jodi
Photo: Staff



In fight
Photo: Andy Blackburn

Steve Haines

Steve obviously likes a challenge. He's taken a Moorhouse Peanut Currie Wot, put it through a boil wash and been rewarded with a Pistachio version. The initial test glides and flights were promising.

Moorhouse-Haines Pistachio Currie Wot
Photos: Staff

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Tony Calvert

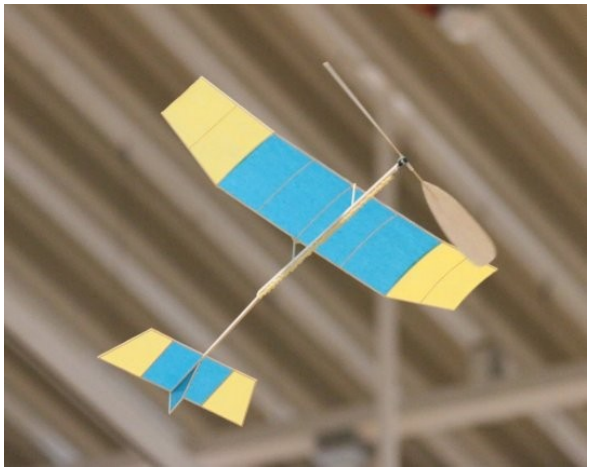
Tony does like his Bostonians. He's got at least 3, or is it 4? I lose count. This is his Bostonian Pup which he'd dug out of the loft after a very long lay-off. Flew nicely.

Bostonian Pup:
Photos: Staff

Nick Peppiatt

No photographs of any his scale stuff, but his Gyminnie Cricket was flying beautifully as was the much less familiar Midson Supa-Lounger which flies very much in keeping with its name.

Midson Supa-Lounger
Photo: Staff



Gyminnie Cricket floating by
Photo: Andy Blackburn

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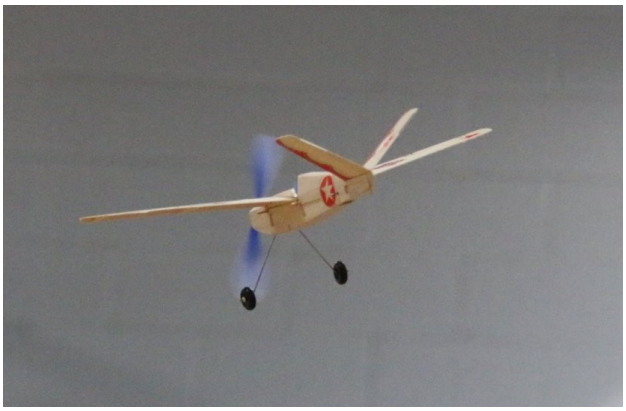
John Holman

John's pursuing the all sheet theme with a will. This month it's a FROG Widgeon.



FROG Widgeon
Photo: Andy Blackburn

Peter Brown

What's to say? Another a very smartly turned out model. This one's a Bostonian Knight for next March's single design event. No, the scheme isn't authentic, but who cares?

Bostonian Knight
Photos: Staff

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Peter Smart

Two ends of the spectrum this month. A “Minimum RC”, cartoon(ish) scale Twin Otter and a much more detailed VMC Lysander with a CO_2 motor. Peter is adamant that the Lysander is will only ever be flown out of doors.

dH Twin Otter
Photo: Staff

VMC Westland Lysander
Photo: Staff

Ray Goodenough

Ray’s VMC Cessna 140. I was hoping to see it in action as I’ve got an unbuilt one sitting on my shelf of shame, but Ray’s not that happy with it so it remained unflown.

VMC Cessna 140
Photos: Staff

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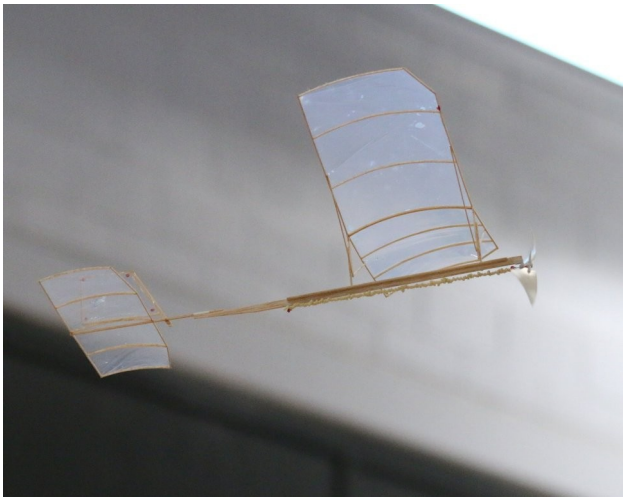
Rob Funnell

I’m not sure how anyone manages to build and fly such delicate models, but Rob seems to have the trick of it. This is his Ikara Bulldog.



Ikara Bulldog:
Photo: Andy Blackburn

Andy Blackburn

We’ve seen Andy’s Euler D VI before, but it’s a photogenic wee beastie so here it is again.

Euler D VI
Photo: Andy Blackburn

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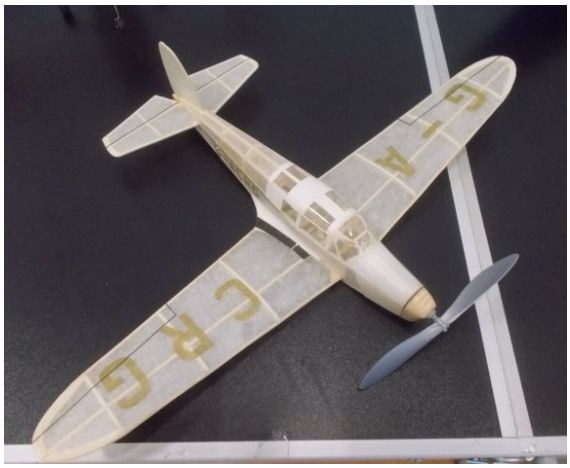
September

Another quiet-ish month as various regulars tried to cram in outdoor activities before the long, cold, miserable dark settles in. Quite a few Bostonians in the air in advance of next month's comp. as well as two or three reduced sized KK sport cabin models. There was also noticeably more scale activity this month and Peter Smart lived up to his reputation as a provider of out of the way scale subjects with a not quite "Minimum RC" Henson Aerial Steam Carriage which actually flew!

September's Models

Andy Blackburn

Andy has changed the motor & prop. on his OD BA Eagle. This meant he spent some time re-trimming from scratch. He didn't get it done completely, but it was heading in the right direction by the end of the session.



BA Eagle I
Photos: Staff

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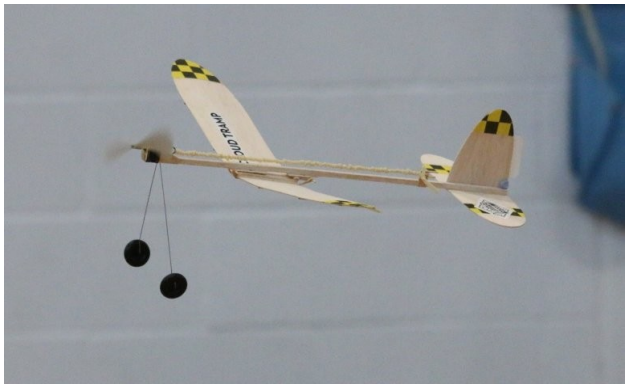
John Holman

John's making the very best of the sheet only construction available to him these days. This month he turned up with a VMC Cloud Tramp. He did get it flying, but he did say he thought it was best reserved for use outside.

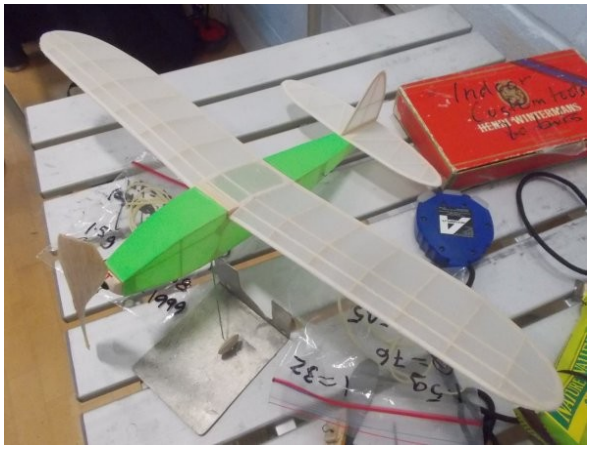
VMC Cloud Tramp
Photo: Staff



In Flight
Photo: Andy Blackburn

Paul Masterman

Paul is plugging away trying to turn his unofficial 61s for a Frogwell Flyer into an official time and has built a new one to that end. The new FF is a gramme lighter than his first and has a very nice wooden airscrew.



Preston Frogwell Flyer
Photos: Staff

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Gerard Moore

Gerard's using the restriction on his building activities to good effect by dusting off some his less frequently flown models. I had seen the Dornier Libelle, but his CO_2 powered version of the Lees Hobbies Siemen-Schuckert DIII was new to me. Keep ferreting around in the loft G, we want to see what else you've been hiding from us.

Dornier Libelle
Photos: Staff

Siemens-Shuckert D III
Photos: Staff

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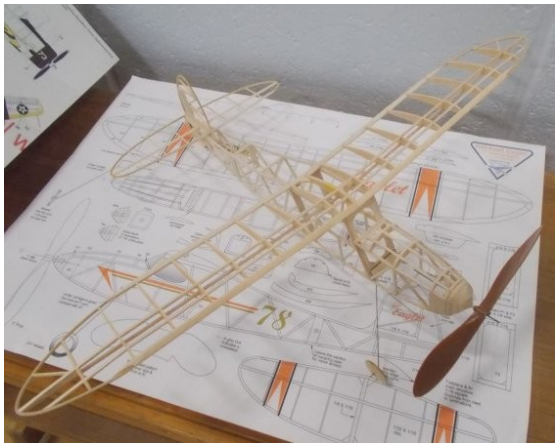
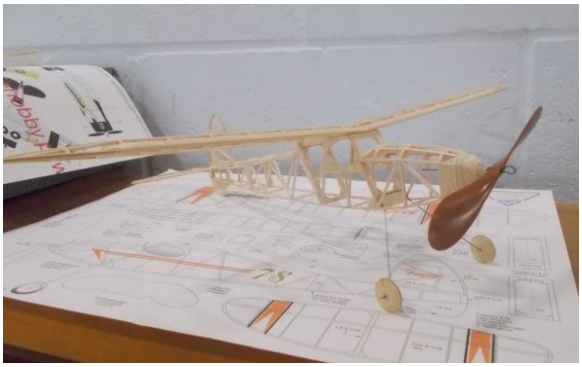
John Whatmore

John has finished his 16” KK Eaglet which we saw as an uncovered airframe back in August. The covering is up to John’s usual very high standard and it flies very well indeed.





August, WIP:
Photos: Staff

Ready to fly…
Photo: Staff

… and flying.
Photo: Andy Blackburn

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Peter Brown

Another 16” KK model from Peter Brown, this time a Pixie. And, of course, it too flies well. I think this is his second, third?, rescaling to 16”since next year’s scaled down KK comp. was proposed.

Being readied for flight…
Photo: Staff

… and in flight.
Photo: Andy Blackburn

Ray Goodenough

Ray was, mainly, retrimming his Bostonian Celtic which had to have quite a large section of fuselage rebuilt. All seems to be well, but it really should be wearing green & white hoops.

Celtic
Photos: Staff

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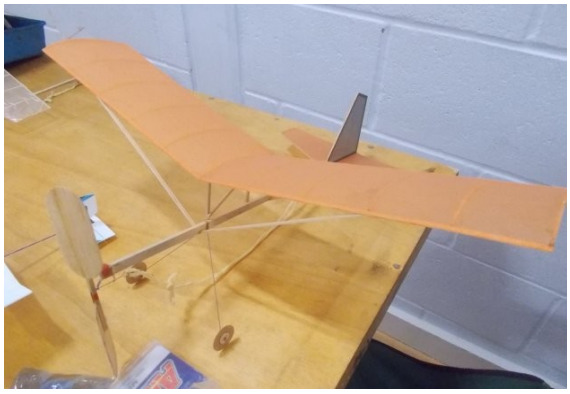
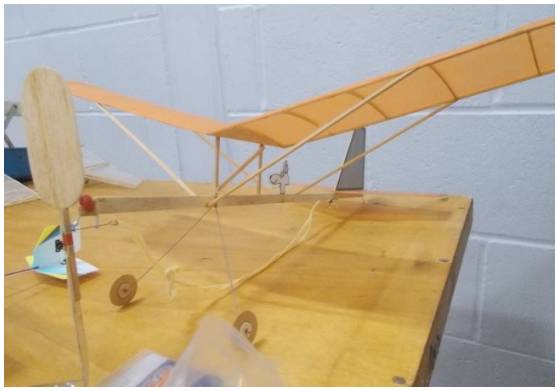
Nick Peppiatt

Surprisingly you don't see many Hangar Rats at Trinity, but Nick has one. Didn't see it flying though, but his Clutton FRED was cruising around quite nicely and there's footage of that in the September newsreel.

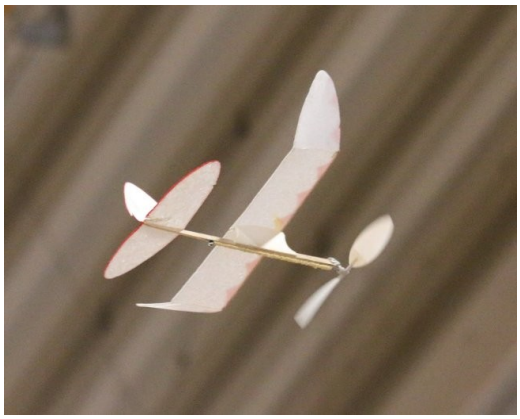




Hangar Rat
Photos: Staff

Richard Preston

A little bit of history and something bang up to the minute. The original Serene, living up to its name, and his Sonex Highwing, which is a rock solid flyer. A plan for the Highwing is being prepared for submission to AeroModeller.



MK I Serene
Photo: Andy Blackburn

Sonex Highwing
Photos: Andy Blackburn

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Steve Haines

As well as his Bostonian Knight and “Pistachio-ed” Moorhouse Currie Wot Steve had a brand new electric Vickers FB 5 Gunbus from the Watters plan. Workmanship, as always, to be envied.

Watters Vickers FB 5
Photos: Staff

Rob Smith

Rob was fettling his Sorta Senator in advance of next month’s Bostonian free for all.

Sorta Senator:
Photo: Staff

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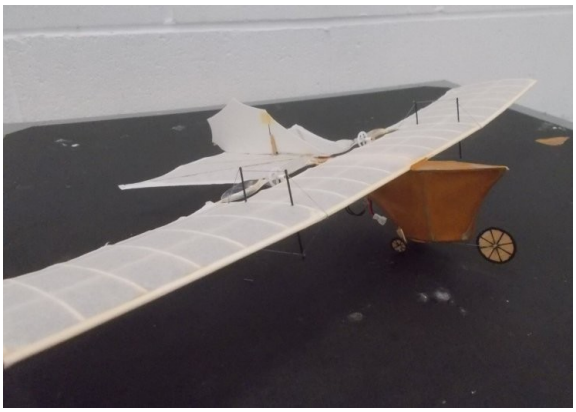
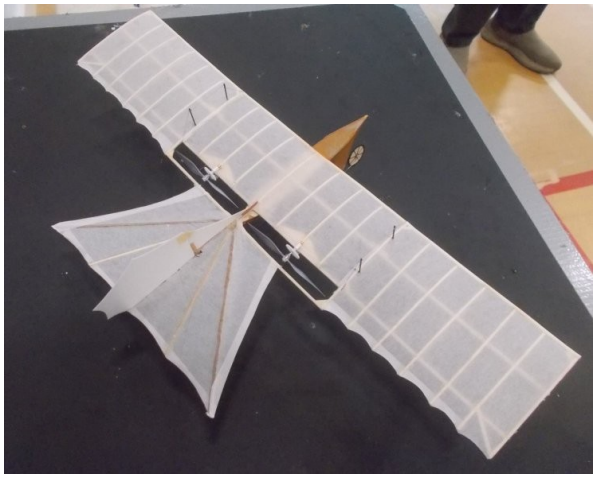
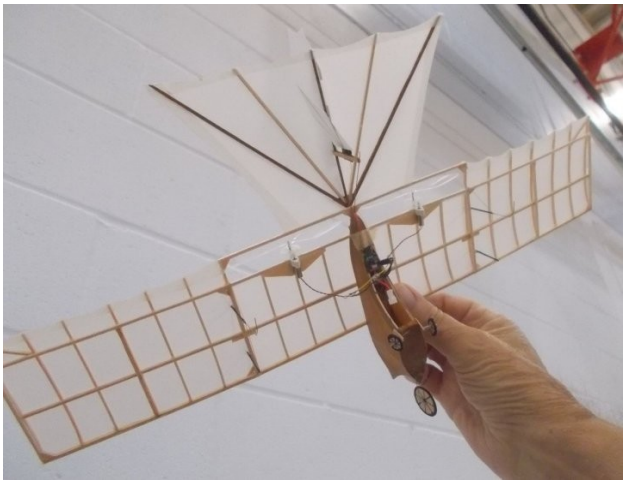
Peter Smart

There are things, taxes f'rinstance, that you can, famously and unfortunately, rely on. Thankfully you can also rely on Peter's inventiveness and eye for an out of the way scale subject. This month it gave us the only flying Henson Aerial Steam Carriage, albeit a very small RC one. As built the model flew, but was a little difficult to control so is back in the workshop for a few tweaks such as an increase in dihedral and perhaps a slightly larger rudder.







Henson Aerial Steam Carriage
Photos: Staff

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Events

Keil Kraftlet – Rules

Eligible Designs	A 16” span version of any Keil Kraft sport cabin model except the Elf. Span as measured on the plan.
Modifications	The structure may be modified if necessary to accommodate limitations imposed by a smaller airframe. The model must conform to the original’s outlines.
Motive Power	Rubber strip and any airscrew that suits the builder.
Scoring	• Total flight time for best three flights of unlimited. • Flight times rounded down to the nearest second. • Five (5) point bonus for ROG. • Flight scores to be submitted to CD by midday.
Prizes	Beer & confectionery for the top three. Confectionery for the “prettiest” model as selected by an independent judge “volunteered” by the CD.

OMFC Postals

The Oxford mob are a running a couple of postal events and both Berensfield & Trinity fliers are cordially invited to take part. There’s a postal Xmas Elf (you *cannot* keep a good idea down, take a bow Tony) and a kit scale postal. Details on the flyers that accompany this issue.

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Agro & Boomer – Richard Preston

Agro Evolution

In the late seventies I started drawing a range of scale plans under my Aerographics banner. These sold quite well but I wanted something a bit smaller that could fit on a sheet of A4 paper. I came up with the Speck at 14” span and the Agro at 17” span which was just about the largest that I could fit on a single sheet of A4. Both of these models were built using a combination of sheet fuselage and tail surfaces and a simple built up wing. The Speck turned out to be a high climber on a 6” propeller using 1/8” rubber but the glide was nothing to shout about. It was however, ideal for small field flying. The Agro on the other hand, having a bigger wing was more of a sedate floaty model that just circulated looking attractive. The original design was influenced by some of those US Navy carrier fighter/bomber aircraft of the 50s but most of my variants have been decorated to look like small airliners. Somehow its name doesn’t seem appropriate for my later versions but I suppose I am stuck with it now. Perhaps I should have called it the Presto Placid or something less aggressive but a lot of modellers know it as the Agro so I will keep it.

One of the construction features of the original Agro was the wing mounting which went through the sheet sides of the fuselage. This of course, meant that when it came to assembly, one wing tip had to be left off so that the centre section could be inserted through the fuselage. The remaining wing tip was then cemented on to the flat centre section and it was ready to go. This was not ideal and I modified it many years later. This version I now call the MK 1.

Moving on a few years (quite a few actually), I had started indoor flying in a sports hall which was a converted hangar at Melksham. Micro R/C was very expensive at that time so I returned to rubber power and built an Agro using Depron and wall paper lining foam similar to my Serene construction. As expected this version, which mirrored the original layout, flew well and I now refer to it as the MK 1A. It was eventually damaged beyond repair after a tricky retrieval from the roof girders.

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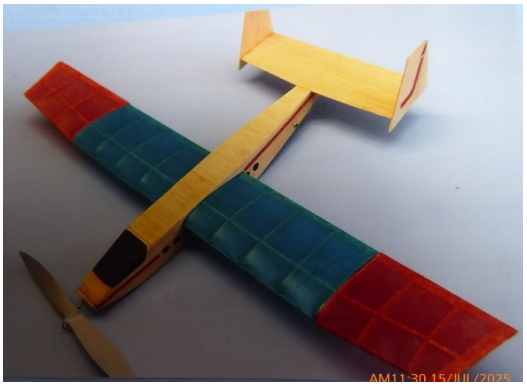

Agro MK I
Photo: Richard Preston

Moving on again, I had sold my Aerographics range of plans to George Waldridge of Sams Models who eventually kitted some of these plans. These were the Eastbourne Monoplane, Curtis Jenny, dH Chipmunk and Auster J4. The Vintage Model Company eventually acquired the Aerographics range and they now kit the Chipmunk and the Auster.

During the last few years I have been doing a lot more indoor flying with both R/C and rubber powered models and I was eventually drawn back to the Agro which had proved to be a very reliable and easy to trim model. I decided to use the standard stick and tissue open structure construction for the entire model and also modify it so that the wing was mounted semi flush with the top surface of the fuselage. I reckoned that as long as I kept the wing/tailplane incidence relationship the same then all would be well. Luckily I was right and this became the MK 2 version and I still fly this one quite a lot.

A development of this version was built using Depron so that I could experiment with a twin motor version using foam motor nacelles. It looked good but it was a bit of a problem child when it came to trimming so I converted it back to a single motor version which then became the MK 3 and this, thankfully, retained the good flying qualities of the standard MK 2. One of the motor nacelles eventually morphed into the Boomer which is an excellent little flyer.

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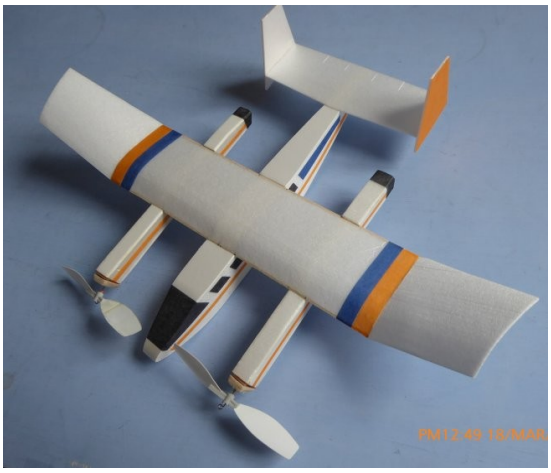
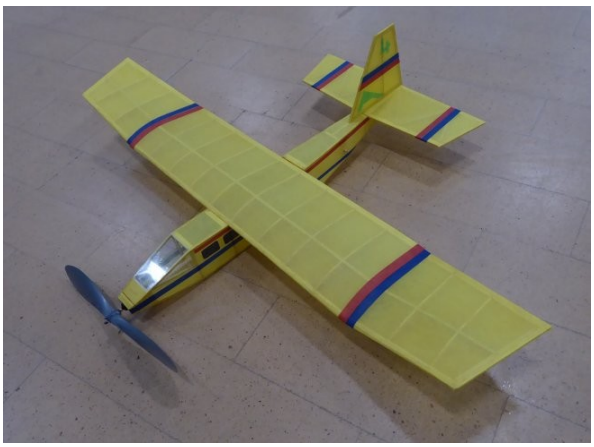
MK II
Photo: Richard Preston



MK III
Photo: Richard Preston

Back to the drawing board once again, but this time I wanted a version that was lighter, had a slimmer fuselage, a slightly broader wing and a single fin. This would become the MK 4.



MK IV
Photo: Richard Preston

The reason I chose the single fin was because VMC now had the copyright of the original version with its twin fin layout and secondly, this new version was a potential submission to Aeromodeller for publication if I can find the time.

I did make a bit of a boo-boo when I was trimming it initially. I just couldn't get it to turn either way reliably which caused a bit of head scratching. It wasn't until I got home and unpacked my models that I noticed that the wing tip dihedral was a lot less than my Mk 3. I then realised what I had done. When building the wing, I had made up a couple of wing tip rib dihedral templates so that I could set the tip inner ribs to the correct angle. I reckon that I had positioned this little triangular template incorrectly up against the ribs and, as all the angles of this triangle were different, sods law crept in (bugger) and I had used the wrong angle. The only remedy was to carefully cut away the wing tips with surgical precision and rejig the inner rib. This was after removing all the tissue first and it turned out to be a longer job than I expected. Never mind, a lesson learnt. What a difference this alteration made and it was soon flying as well as all the other versions and I'm sure that I can fine tune it for even better performance.

Is this the end of the line for Agro development I ask myself, probably, but never say never? In fact, it was whilst rooting through my old plans the other day that I came across a plan and text of a 20" version of the Mk 1 that was published in Aeromodeller many years ago and I had completely forgotten about it. Should I build a lightweight version for indoors? Perhaps not as I have too many projects on my plate at the moment.

Boomers

Some time ago some of you may remember that I was playing around with a rubber powered twin that Lurk called the 'Wandering Twin'. This was built with Depron but the wing was a bit too flexible and I was constantly trying to trim it. If I know that I have a bit of a duffer I usually bin it fairly quickly after saving some of the more useful parts.

I didn't give up on twins and I soon came up with another version that used the standard Agro fuselage made from Depron once again. It retained the twin fin layout which I thought would be better for a twin but I made sure that I could convert it back to the original single motor configuration. I also made two motor nacelles to house the rubber.

This version was just as bad as the as the first one so that one had to go as well. I then made a standard wing and flew it as a normal Agro. I was then left with a couple of spare Depron motor nacelles which got the old grey matter working and I came up with a twin boom layout which I called Boomer A lot of you have seen it flying at Trinity where it seems to be happy circulating up near the ceiling girders. It was very easy to trim and it was soon performing much better than I expected.

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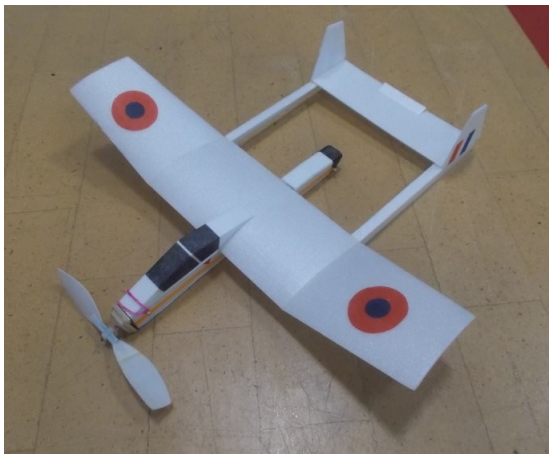
If wet, in church hall.

Fast forward past a couple of other models that I have since built and my furtive mind was drawn back to the little Boomer. I decided to enlarge this foamy from 12" span to a 16"balsa/tissue version using the same proportions of the original. I was pleased with the outcome and within a couple of trimming flights this one was also circulating the hall very nicely.

As an upgrade, the only name I could think of was 'Sonic Boomer' which I think matches its 50s jet fighter look. I suppose that I could have called it 'Boomerang' but it doesn't always come back to me. As John Whatmore kindly said, "Another good ‘un Rich".



Boomer
Photo: Staff

Sonic Boomer
Photo: Staff

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If wet, in church hall.

How Many Turns? – Paul Masterman

About half a century ago, the Brits were among the first to develop a systematic method of gauging how best to obtain optimum performance when flying indoor duration models in competition. Chief among the theoreticians was F1D (world class competition) flyer Bernard Hunt, who developed a program which remains unequalled today. Its benefit is that it cuts through the perceived intricacies to focus on the fundamental, which is: how much rubber do I need?; what size should the rubber be?: how do I wind it up? Among the intricacies we hear too often are questions like, 'How many strands have you got in that motor?" The regular (and useless) reply is something like "Eight strands of eighth".

By focusing on the fundamental rather than confusing everybody with irrelevant details, Bernard pointed out that all that was needed to start with was the weight of the selected piece of rubber. Regardless of the physical dimensions of the selected piece, the total energy which could be stored in the piece was always the same. Dimensions; thickness, density, width, length, were simply details. The task is to optimise these details for the best flight time.

For international – and some national – class indoor model designs - F1D, F1L; F1M; Limited Pennyplane, etc., where the maximum weight of rubber is specified in the rules, this reduces the task to, "What cross-section motor will I need to make the model climb and how long will the motor be?" These two parameters cover all that's needed for the preferred outcome. The motor cross section defines the power which will be available; then given the known weight, the motor length is defined. For this the number of turns can be calculated.

It seemed worthwhile to use this 'energy-related' concept to calculate the maximum torque and turns of any motor for both outdoor and indoor aircraft. Bernard's original program was developed to display the overall vertical flight plan for any given motor. Since, for indoor aircraft, there was a ceiling to consider, the difference between the theoretical maximum height calculated and the actual ceiling height allowed the flyer to reduce the launch torque by a sufficient amount to avoid hitting the ceiling. For outdoor free flight of course, this restriction doesn't apply, so the numbers calculated by the program simply provide information of value on motor run time, for example, but also how many turns the motor will take!

The only constraint I have accepted is that rubber may vary batch to batch in how much energy is available. To fix this, a 'fudge factor' can be specified in the program which can be adjusted, in the light of experience, for a given batch of strip.

For a single loop (two strand) motor the arithmetic is quite straight-forward.

$$unitLength = \frac{weight}{loop\,length}$$

$$motor\,turns = energyFactor \times \frac{torque \times weight}{\sqrt{unitLength}}$$

Where, *following current indoor practice*,

weight	In grammes
loop length	In centimetres
torque	In centimetre-grammes. *Inch-oz to cm-g* $t = t_{ozi}/2.54.28.35$
energyFactor	The "fudge" factor for the batch of rubber being used. I'm using 9.35 which was worked out some years ago and still seems to be reliable for modern rubber.

It's fairly straight-forward to convert this to a program, I adapted Bernard's original for my Hewlett Packard HP 41CV – copies of which may be had for the asking, but as long as you know the energy factor for the rubber you're using all you really need is a cheap pocket calculator (or even the calculator embedded in your portable telephone) and the back of an envelope.

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Wood Selection – Lurk

Or, everything you wanted to know about Young's Modulus but were afraid to ask.

Anyone who builds rubber powered models, especially small ones, knows the mantra, "Keep the back end light." and careful builders choose the lightest (least dense) wood they have for the tail plane, fin/rudder and other bits aft of the CG. Although density is useful for initial selection you still need the sticks and sheet to be stiff as well as light otherwise your aft flying surfaces will deform or break too easily. So, there you are with two bits of 6lb/cu. ft balsa. Which bit should you cut for tail-plane strip for your latest peanut model?

About forty years ago Hewitt Phillips worked up a method of determining balsa stiffness using Young's modulus of elasticity (E), a concept which will be familiar to anyone who did physics at Highers or A level. Some years later in 1995 Bernard Hunt & John Taylor did some more work on this but their approach required quite a bit of kit. Bernard Hunt updated this "kit heavy" solution in 1998 with a simpler method. What follows is a brief, and non-technical, outline of the 1998 approach.

Young's Modulus?

Young's modulus expresses the resistance of a material to deformation as the amount of stress (pressure) required to cause elastic (non-permanent) deformation. From the Young's modulus it's possible to determine how stiff the selected material is.

Mr. Hunt used Euler's buckling, or critical bending, load rule for determining E. There are various equations relating E to the buckling pressure or stress, including one for columns. And a balsa sheet is nothing more than a column; albeit an oddly proportioned one.

The column equation can, in the best hobby tradition, be used with relatively simple kit; a set of digital kitchen scales, a vernier caliper and the back of an envelope for the sums.

The Euler Buckling Load (force) for a column is given by

$$buckling\,load = \frac{\pi^2 E\ Imin}{(KL)^2} N$$

$$Imin = \frac{width \times thickness^3}{12}$$

Where

E – Young's modulus of elasticity	Measured as stress (Pascals, N/m^2).
K – Effective length	The proportion of the column that undergoes bending. We expect bending from each end of the sheet to give a uniform bow shape so this is 1. See later notes on sheet size.
L – Length of column	In metres.
I_{min}	The *minimum* second moment of area for the rectangle forming the base of the column. There are two moments of area for a column. Look it up.
Width, thickness	The other dimensions of the sheet in metres.

And as we're interested in the modulus we substitute for I_{min}, assume a K of 1 and rearrange for E

$$E = \frac{12 \times buckling\,load \times L^2}{\pi^2 \times width \times thickness^3} \quad N/m^2 \text{ or Pa}$$

The density of the wood is simply weight over volume and the bending stiffness is given by.

$$SC = \frac{E}{density^2}$$

We'll gloss over the units. They're really very odd and not that important for what we want. What is important is that we have a way of knowing which of the two bits of 6lb/cu. ft wood we were contemplating earlier is the stiffest and by how much.

So, *how* do we do this? First, determine the buckling load of the wood by holding the sheet vertically on a digital scale and pressing it down until the sheet bows (buckles) sideways. This gives the buckling load as a weight. To convert it to a force we use another basic bit of physics, F = ma (force = mass x acceleration). What's the acceleration though? Gravity old bean, gravity; which, in SI units is 9.81 m/s^2. Being really picky we should subtract the weight of the sheet from the measured value.

$$E = \frac{12 \times (buckling\,weight - sheet\,weight) \times 9.81 \times L^2}{\pi^2 \times width \times thickness^3} \quad Pa$$

Density is easy…

$$\rho = \frac{sheet\,weight}{length \times width \times thickness} \quad Kg/m^3$$

… as is our measure of *bending* stiffness.

$$SC = \frac{E}{\rho^2}$$

Great, now all we've got to do is go away and calibrate a scale from a large sample of wood. Well, no, we don't; Mr. Hunt did that donkey work for us. However he used the usual aeromodelling hodge-podge of grammes, centimetres, ounces, grains, inches, poles, perches and crans (ask your Granny) and the odd, hem hem, *shortcut* which meant his outline uses magic numbers in the various unit conversions which obscure the underlying rules outlined above.

The mass to force conversion is skipped and the buckling weight used on its own.

$$E = \frac{0.188 \times 12 \times (buckling\,weight - sheet\,weight) \times L^2}{\pi^2 \times width \times thickness^3} \quad g/cm^{-2}$$

Where

- weights are in grammes
- dimensions are in inches

Density is expressed, in the more traditional, lb/cu. ft

$$\rho = \frac{3.8 \times sheet\,weight}{length \times width \times thickness} \quad lb/cu.\ ft$$

And the stiffness coefficient calculation becomes...

$$SC = \frac{2500 \times E}{13000000 \times \rho^2}$$

And the Hunt Stiffness Scale is ...

SC	**Comment**
≤ 90	Poor
90 – 110	Average
110 – 120	Good
≥ 120	Super!

According to Mr. Hunt, "*The best wood selected by this method is more than 30% stiffer than your average wood … and this makes a fantastic difference to EZB sticks and my un-braced F1D wing spars.*"

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Practicalities

To measure the buckling load you'll need scales that can weigh at least 2Kg (5lb) in 1g steps and (probably) some Jewellers' scales to be able to weigh the sheets accurately. This will let you test 3" x 36" sheets of 1/8" & 3/16" easily and *some* soft ¼" sheet. Not a problem for indoor and Peanut models where wood thicknesses are usually 1/32", 1/20" or 1/16".

For this method to be reliable you need to be able to measure the thickness and width of the sheet very accurately so a vernier caliper or micrometer will be needed. Digital vernier calipers are (relatively) inexpensive these days so this isn't a major drawback.

Wood being what it is you'll probably find it helpful to cut sheets into smaller pieces so that you can isolate sections of uniform(ish) density and stiffness. Apart from anything else this is more likely to give us the "uniform bow" bend that we assumed for an effective length coefficient of 1.

Aye, but...

How practical or useful is this method? Arguably less so than it was 30 years ago when it was still possible to walk into a model shop and pick over the stock to select wood of the quality you needed. Now that almost all of our aeromodelling shopping is done via electronic mail order we're rather lumbered (ha ha) with what we're given so all one can do is pick over the wood that was sent looking for the most suitable sheet or sheets.

In this situation it may be that the most you can hope for is to know which of your limited selection of sheets (or sub-sections of a sheet) has the best combination of high stiffness and low density. In which case simply measuring the bending load with your kitchen scales is likely to be good enough to pick the "best" bit of wood from whatever you have to hand.

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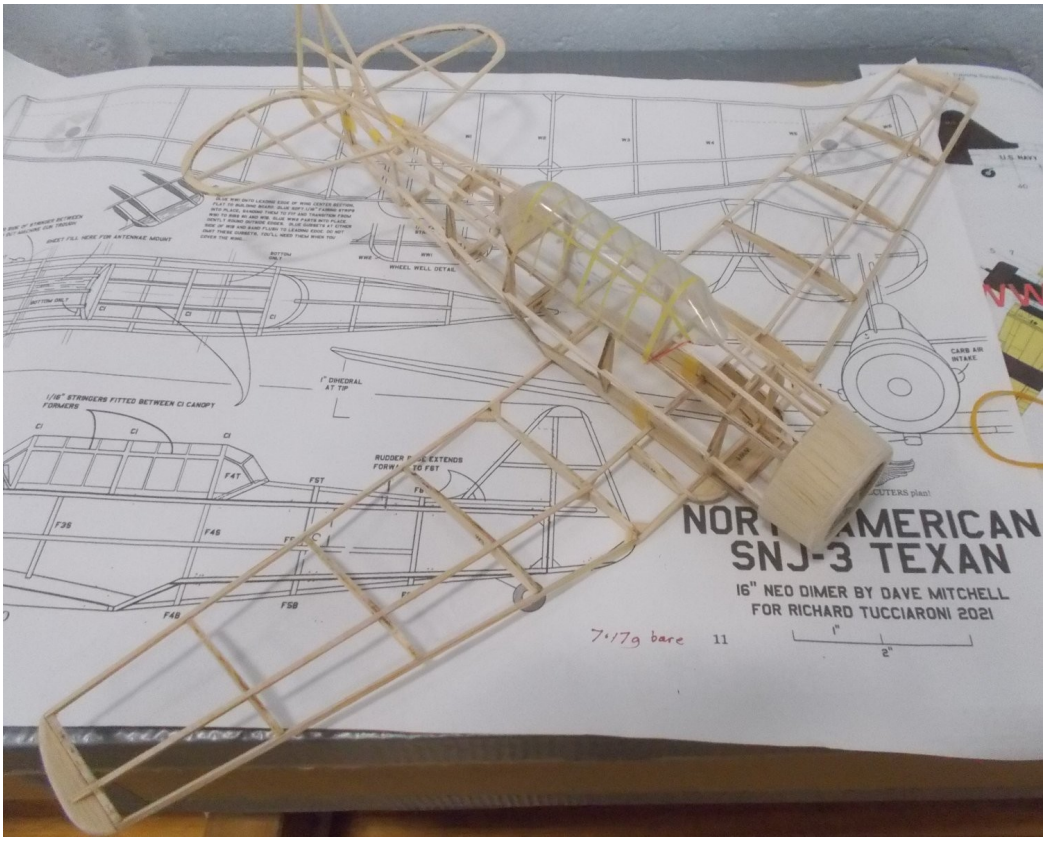
Work In Progress

John Whatmore – Dimer Texan

As of mid August



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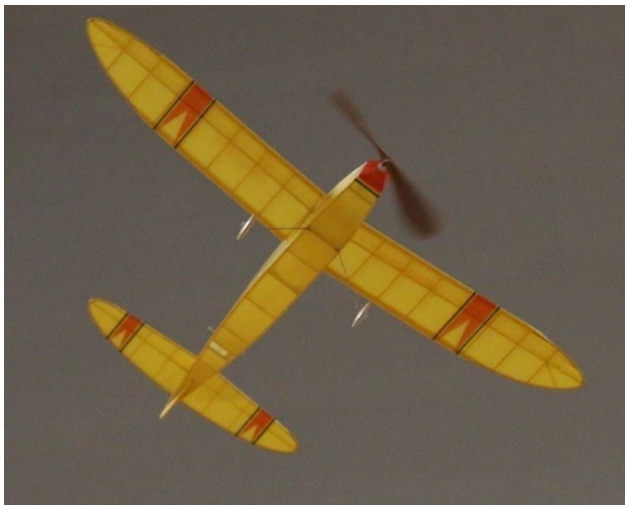
Just Because

The usual random assortment of snaps that couldn't be crammed in elsewhere.

Richard Preston & his Sonex Highwing
Photos: Andy Blackburn

Peter Brown's Boston Found
Photo: Andy Blackburn



John Whatmore's Eaglet
Photo: Andy Blackburn

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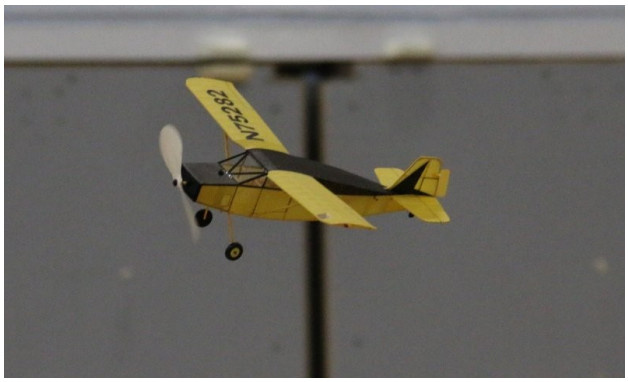

Steve Haines' Nesmith Cougar
Photo: Andy Blackburn

Lurk's Comper Swift
Photo: Andy Blackburn

And finally…

The joyful aeromodeller contemplates
the end of a successful flight.
Photo: Andy Blackburn

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Newsreels & Other Links

Thanks to Chris Brainwood for creating the compilations.

August	https://youtu.be/9nj4gtMQMrA
September	https://www.youtube.com/watch?v=_jIxQAm910I