

WESSEX AEROMODELLERS LEAGUE NEWSLETTER

(16 March 2013)

The Aeromodelling Link for Dorset into Wiltshire, Hampshire, Somerset and Devon

What's happened and what's new for 2013

From James Parry and Chris Hague

After much winter speculation I thought it would be interesting to get updates from the competitors. So here goes, straight from their replies:

600RES

We have established a minimum battery weight of 300g over the winter and together with the motor, fixing bolts, prop, ESC and any leads it seems that an average weight of 600g is to be expected for the power train. The same for everyone, creating our "level playing field" So to play!.....

Denis Grocott:

Your email is quite timely as I am building and repairing at the moment. My present stock of 600RES models is as follows:

1. Two Swifts ready for use when gear has been re-fitted after checking (existing models).
2. Apollo, but have just found that the wing needs some attention due to cracked TE. May take the opportunity to fit airbrake (existing model). *(Editor: Spoilers seem to be coming into favour this season.)*
3. Allegro, a Mark Drela design that I have modified for 600RES - finished but not yet test flown (built last year).
4. A second Allegro which is at the covering stage (built since Christmas). This model should be a lightweight at about 37ozs. *(Editor: This is a very low weight seems to be the aim for several pilots this winter, me included! – I wonder how well they will fly and also long they will last? I always remember the old motor racing maxim – "to finish first, first you have to finish.)*
5. A third Allegro may be possible as I have almost assembled a complete kit of parts. Hopefully at least one of these will serve me well in your competitions this year.

Malcolm MacKendrick:

3 Apollos, the last new this winter with all moving horizontal tailplane & rudder & the new slim section wing. Also it's 2.3 metres span. Weight between the other two. Test flown & seems very very good on glide. No climb measurements yet.

Roly Nix:

Sleek, shapely grp wing tips to be added plus 2 new slimmer Swallow Mk2 moulded fuselages, to take either a cross tail or a vee tail. Also a fuselage pod only version is being produced so that a boom of your own choice can be added.

Peter Kessell

How's this..... 5 fuselages and 8 wings. Peter has been very busy building this winter: Two new fuselages, one balsa, one moulded. The models have the new lightweight all moving tailplane. (*Ed. One piece tailplanes, not two halves like my AMT's.*) One successfully test flown and, according to Peter, extremely good. Two of the new wings are the slimmer, faster section (*Ed. Available from Derek at The Old School Model Airplane Factory*) Plus a new wing with a section of Peter's own design, which also looks very promising. (*Ed. Sounds like no-one else need bother this year!! You have been warned!*)

Darren Bumpass

Darren has a "geographical" advantage over the rest of us – he lives very close to Peter! (see above). As well as last year's excellent Apollo, Darren now has a new Apollo, only weighing about 40 oz. (*Ed. That should be a very competitive model this year.*)

My Winter Builds by Ian Pratt

A couple of years ago I was attracted to the 600RES competition when I saw Chris Hague flying his glider at Cashmoor whilst I flew my 15 year old Galaxy Mystic around the barbed wire obstacle course. I found Chris's enthusiasm for 600RES quite infectious and decided to enter the competition and to have a go at my own designs. By chance I had been given a copy of Stephano Durante's computer design program Profili2 which allows one to use any of the range of many rib profiles and to adapt any of the profiles to one's own preferences. The program also computes a range of polar charts to compare the lift and drag coefficients and much more, so I thought it would be very useful to have a go and learn more about model aerodynamics.

The first glider I built used a SD7037 rib profile and, in line with several other gliders I had seen, I used a 10mm diameter carbon tube as the main spar. By chance I tested this glider on a day when Chris was at the field and it seemed to give a comparable performance compared with his glider. It became obvious however that with a 50 ounce weight, a 2.4 metre span and an underperforming motor that it was not as competitive as I had hoped. Nonetheless I was delighted one day to see the very same glider soaring to a little speck in the sky, only to realise that my eyesight was also in need of an upgrade. In my quest to recover the glider the wing tips each turned to a right angle at a certain 'terminal velocity' and the fuselage parted company from the newly bent wing at a great height. I had to imagine what speed the fuselage must have reached before being driven deeply into the adjacent field but I did manage to recover the wing to live another day.

I returned to the drawing board and have since built 5 fuselages and 6 wings, acquired a Puffin 1.8m Swift from the Blackbushe show and must have bought a dozen or more motors within the 600RS specification. The more recent wings used Pete Kessell's Apollo rib profile as available from The Old School Model Factory and much testing has taken place to arrive at a specification that would improve my results.

I must have done something right as I was fortunate to win both the round robin competition and the monthly postal competition last year. The only problem is that I don't really know why I won because the glider that gave me the most consistent results was the bog standard Puffin Swift that several other fellow pilots have also used during the year. What I did learn of course was that it is an advantage to keep your eye on your own model at all times or you may well end up flying someone else's.....no names no pack drill.

As Chris has been my inspiration over the past couple of years it was a real challenge to find that we were flying against each other right up to the last round last year and the irony was that most of the day we were both flying the Puffin Swift wing mounted on our own fuselages. Chris had a 2 metre span and I had a 1.8 metre span.

On the very last round it was him or me. I decided to make a change at the last minute to my Apollo wing which sported my special home-designed 'top secret' wing tips and I also gave the battery a larger burst of charge just before take-off. I was delighted to say that it worked and I won the day, but I think it was more likely that Chris lost an opportunity by flying in a different part of the sky from me and I was lucky. (*Ed. Me'thinks you make your own luck, well flown Ian.*)

This means of course that the pressure is now on to do something better for 2013. Pete Kessell has already thrown down the gauntlet and Chris reports several others are joining in to win, which is making me focus on what to do next. It has also started a good range of banter in the pub which helps to make the competition good fun.

As a start I made some notes to form the bones of the specification for my 2013 design. These are as follows:

I believe that weight and wing loading is the key to the 600RES competition. The weight of my glider last year using the Puffin Swift 1.8m wing was 38 ounces. This I shall try to improve and my current new glider is 37 ounces.

I removed the servo and air-brake from the Swift wing to save weight. This may cause a bit of grief when you need to lose height but as long as you avoid excessive speeds it may be no problem. My own designed wings have no air-brake.

The JP660 motor gave a good performance last year and should be satisfactory. The only other motor to come close was the Multiplex Permax. (*Ed. Experience has shown that each batch of motors vary a little, which is down to the manufacturing tolerances, but at around £9 each it is inexpensive to test a few before fitting!*) This motor is now obsolete but one or two may still be available.

To compete with Chris I felt it useful to build a 2 metre span to the Swift rib profile whilst also building light to improve the wing loading.

For windy days I noticed that Rick Farrer's glider gave a good performance and his span was closer to 1.6 metres, so I hope to build another wing to a similar span that could also reduce the weight....wait and see.

I think the specific rib profile is maybe not so important provided you have one that gives a Cl of about 0.6 at an angle of attack about 5 degrees. The SD 3021 or the Apollo profiles seem to be quite good enough and offer a reasonable drag 'bucket' at the slow speeds used in the 600RES spec. I say this because the competition is limited to 15 minutes max and if you're lucky enough to get a good thermal you will probably get 15 minutes flight quite easily. The only snag of course is that all the other pilots have the same advantage.

To save weight I have used So-Lite covering, the weight is about half that of Solarfilm and as the 2 metre wing uses about 0.8 of a square metre then a saving of almost an ounce is achieved. *(Ed. All up model weight, checked on my own scales, has come out at a miserly 1046g -37oz)*

Wing tip designs are becoming the hot topic for 2013. Some choose a turned up tip or a vertical tip because that's what the 'experts' use. The only problem is that the wingtip is such a small part of the 2 metre glider wing there is no practicable way of proving any theoretical design. I have my own views on wing tip design and although I cannot say that my design works I am confident that it hasn't made any of my flights worse (apparently). In theory, the flow from underside to upside of the wing at the tip causes the tip vortices and subsequent induced drag. Nothing new here of course (grannies sucking eggs), but I took the view that if the energy of the vortices could be directed over a smaller tip aerofoil then a bit more lift can be squeezed out of the wing that would otherwise be lost in drag. My design passes the airflow through a slot and over a small aerofoil wingtip. Vortices must still exist but it has to be smaller than the full chord effect.

Some pictures of the new model and the wing tips are available. I claim the copyright of course just in case Boeing or British Aerospace want to enter the competition.....



Does it work?

I think so. What I have also noticed is that on launch climb the wing seems to have a rock steady climb and a tendency not to wander. The rate of sink is not apparently worse but the only way to be absolutely sure that it works is to win the competition again for 2013.

Wait and see.....I have already tested one wing and the new fuselage is also ready.

Cheerio...see you up the field... (Ed. We did see lan testing this new glider up at the field and after a 45 second motor run time I noticed that you eventually landed - after 26 minutes! Ummmm!)

Ian

John Bainbridge

John has built two new models for his first entry into 600RES, very light and very sleek..... (Ed. Now that's a proper workshop!)



John Taylor

John's own design and beautifully constructed, 2m YellFin as used last season with a new motor, all up weight 1166g (41oz)

After a very enjoyable session flying 600 gliders and 36" Tomboy here is the breakdown of the performances.

READ ALL ABOUT IT:

My Mk 1 Black Tail weighs 38.4 oz @ 84" span ,Permax motor.

Mk 2 : :weighs 40.5 oz @ 90" span Permax motor.

The Yellfin weighs 40.4 oz @ 96" span Perkins motor.

The permax will out climb the Perkins by 100' [checked with an onboard altimeter]
I then checked the current draw from a new fully charged 7 cell pack.

The Yellfin Perkins motor. The Black Tail Permax motor.

After 10 secs 22 amps After 10 secs 28amps

" 20 " 21 " " 20 " 27 "

" 25 " 20 " " 25 " 27 "

" 45 " 20 " " 45 " 26 "

Revs 10,200>9,990. Revs 11,160>10,700.

VERDICT.

The extra Revs from the Permax driving a 4.5" pitch prop accounts for a 130' extra height assuming no slippage.

This equates well with my practical observations. So if you can get a new Permax snap it up.



Now for the 36" Tomboy.

Mine is powered by an original Mills .75 with a 3cc tank. Engine run 3mins 40 secs in flight. With an Indian Mills carburettor and 2cc tank I expected "pro rata" just over 2mins but can only achieve 1min 40secs. What can I do to improve the economy? I don't want to upset the original Mills tank and carburettor assembly.

I hope this will provoke more discussion on 600 gliders and Tomboys.

Happy Flying John Taylor.

James Parry

1.8m model (ARTF made in China – under £100 delivered) used in 2012 – further flight testing required.

Secret new 2.0m own design with balsa/ply fuselage and special wing tips, now finished and ready for testing – (*Ed. James says that this is the “ultimate 600RES design” and is unlikely to be bettered – ever!*) That’s what James said.

Jeff Fellow’s pusher design, very competitive

Two improved pusher designs for 2013. Both have landed in the one tree at Jeff’s flying site and sustained some damage. Now repaired and ready to compete against the tractor planes.



Tomboy

Once again for yet another season the Tomboy rules remain unchanged, making it easy to stay competitive with existing models. The inexpensive and superb MP Jet Classic 040 diesel engine is the motor of choice in the 36” class.

Mini Speed

No rule changes again this year, same nice and easy format. Just fly on your own patch once a month and send in the 5 lap times.



The laser cut kit from Topco kits



Chris Hague’s two Spitfire Scramble models

Tasuma Power Duration

Bill has a class for every conceivable vintage power duration model ever designed, so there are no excuses not to find one you like and build it. Either i/c powered or one of three electric classes. These models are now designated RTM – Radio Trimmable Models – now you know!

Useful numbers

Tomboy and Zoot Suit short kits and Apollo wing rib sets from the OSMAF Derek Foxwell 0208 647 1033 derekfoxwell@btinternet.com

(Derek is recovering from an illness so if the kits are not available it may mean waiting a month or two. At time of writing there is a supply available in stock.)

MP Jet 040 Classic engines Flitehook www.flitehook.net/ 02380 861 541

2200x7 cells 4/5C NiMH battery packs www.component-shop.co.uk/

Puffin Models <http://www.puffinmodels.com/>

Tel: 01454 22 81 84

For Spitfire Scramble kit and free plans <http://www.topcocameley1.com>

For Den's Cox 049 Sure Start motors <http://www.densmodelsupplies.co.uk>

**Lots more information about the Wessex
Aeromodellers League at: www.wessexaml.co.uk**