

WLMAC Newsletter December 2019

Editor – Felix Scicluna



Guest speaker / club member John Herman giving his presentation on model jet and gas turbines.

Welcome everyone to my 12th and the final Newsletter for this year. Looking back through each month it's been amazing how much we have achieved. I would like to thank everyone who has contributed with project reports, Tony P for updating us with track reports and the pictures that were sent to me for publishing. Above all I would like to thank Chairman Mathew for his support and for proof reading my Newsletters throughout the year.

Parish Notices

Up and coming Club night / AGM – Thursday 12th December. Due to its success last year we are going to have another Christmas Dinner at the golf club and make it a bit more of a social event. Dinner will be served from 7.00pm. Please arrive by 6:45pm.

If you haven't done so by now and want to join us all for the dinner, please let Mathew know ASAP, as we will need to know numbers in advance? The club will again subsidise members and the cost will be £12 each. Non-members, guests, partners, wives etc are welcome, at the full price of £19 per person. Payment can be made on the night.

Sub's collection will take place at the end of the meal with the AGM proper scheduled to start about 8.30pm. Membership fees are as follows and cheque or cash is fine:

WLMAC full member: £120 (or 1 instalment of £60 with £60 balance in June)

WLMAC social member: £32

WLMAC Junior member: £47

BMFA membership is: £38 (junior £17; family junior £13).

HOT NEWS - WLMAC will pay the new CAA fee for each full member, provided your BMFA membership is paid via WLMAC and payment is received no later than 18th January. (GDPR bit: CAA registration will require WLMAC and BMFA to pass on some personal data, such as your email address and DoB to the CAA, who will use it in accordance with their privacy policy: <https://register-drones.caa.co.uk/privacy-notice>)

Payment by cheque - payable to WLMAC - is preferred but if paying by cash *please* bring the right amount – as we can't guarantee to have change.

For the fashionistas amongst you, club fleeces and hats will also be available for purchase.

If you can't make the AGM, please either post a cheque made payable to "WLMAC" to:

Stuart Whitehouse
Orchard End
Bentley Road
Slough SL1 5BB

...or you could do a **BACS payment** to the following account:

Sort code: 40-38-20

Account number: 41139258

And please indicate whether you want us to register you with the CAA when you send payment - please email this to Stuart if paying by BACS.

The club fee is due by the end of December; members who have not renewed by the end of January may be required to pay the joining fee to re-join. **BMFA insurance lapses at the end of the year, so from 1st January you are no longer insured and must not fly, unless you have paid the BMFA fee to us, to another club or to the BMFA directly.**

New entrance combination – Please check your emails and WhatsApp messages for the new padalock combination or turn up at the field, play with the lock and wonder why you can't get in.

Hand Launching – When hand launching particularly an unknown model, allow for plenty of space for recovery and walk deeper onto the patch before launching.

Latest Drone registration update – The new CAA rules about pilot testing and registration are now in force. However, for WLMAC members this will all be handled through the existing club and BMFA system. It is best if you DON'T register directly with the CAA. The club will fund the registration fee this year, providing you pay your BMFA membership via us. To be sure that the BMFA have all the right details to register you with the CAA, please log into the BMFA's membership portal (<https://bmfa.azolve.com>) and check that they have the right email address and date of birth for you. We will also bring a computer along during the subs collection at the AGM so we can help update any missing information on the night.

Guest speaker John Herman – John had us all intrigued with his Jet and gas turbines, he explained how the model engines have developed over the years and he brought in some of his own to show us at the meeting.

At the end of the presentation we all went outside and John started one up for us to see and hear and oh yes smell.

A special thanks to Derek Jones who assisted John with this presentation, Derek also “helped” to build one of the original engines which were constructed from plans and had a compressor made from plywood.



Well turned out audience were kept interested with details of John's engines



Jet turbine started and restrained by Roger (Rojet).

Pro-fighter Mustang models – Tony B and Felix brought in their Pro-fighters which were part of a mass build project run by the Watford Wayfarers. At the end of the build they had a judgment day where we all had to maiden, test fly and try to cut the streamers attached to the other fighters, there were 9 flying. I won the best built model and Tony won the most aggressive pilot award (in the air, not generally). It was a very enjoyable project and great fun to all fly together. The Wayfarers had 4 Pro-fighter kits left over which have recently been sold to our members. Hopefully next year, we will have a joint inter-club session.



Tony B's plane on the left, mine (the winner) on the right



The 9 competing Pro-fighters

Work Party 16th November – We had a fantastic turnout of members, who came armed with chainsaws, shovels and brooms, all prepared to work on the patch and the wooded area to the left. Roger, kindly came with his digger. The majority of the workforce put in a big effort and cleared as much of the loose moss as possible, we managed to sweep through most of the patch. Mathew and John F then spread Daz over the patch – moss control. Roger, with his digger managed to pull down a large area of sapling trees and a few members cut the fallen trees with their chainsaws.

Afterwards, we all stopped for the usual hot soup bread, cheese and cakes. It was a very calm day and a few stayed behind to fly.

Drone pictures courtesy of Graham Motler



All hands on deck



Cheers John



Roger uprooting the sapling trees with the help of the chainsaw team they cleared a large area to the left of the digger.

At the field – Pictures by Chairman Mat



Mike P training - 1st lesson, both must be looking at the same plane Splash down at the patch (David Orrells's Flightline Spit)



Jason creating another splash with his HPI Truggy Flux



We have a Drone, a car and an airship on the patch



David Orrells with his Yak on final approach



Charlie before he hit the cones (Ryanair's finest).

Projects – Mathew's indoor, miniature, Depron SE5a.

Mathew, recently attended a Wycombe Club indoor event (WLMAC members have been invited to attend – next one is 14th Dec). Where there were, amongst the usual indoor stuff, some miniature WW1 bi-planes. He was impressed with their handling, duration, very slow flying ability, finish and the way they were able to survive impacts with the walls. They are from a British company called "Microaces" and are constructed from a kit of pre-printed Depron, plastic and stickers. They start from about £40 depending on complexity, the full range is available to view / purchase from their website <https://microaces.myshopify.com/> Mat obviously bought one, spent an enjoyable week of evenings following the excellent manual and gluing it together with UHU Por. He used a salvaged indoor Rx from a wrecked "Vapour". The

electronics can also be purchased new, if required, from them. If you're interested in these models or attending a future indoor event then contact Mat.



Top left contents of kit, Middle various stages of construction. Bottom, completed SE5a ready for flight.

DIY Scale – Andy Blackburn

I like scale models, but I'm afraid that I find the current crop of available "scale" ARTFs to be largely devoid of attractiveness (the changes that have been made often remove most of the character that defines the full-size aeroplane) and they're now quite expensive. Foamies tend to be a bit on the light and fluttery side for my tastes, unless they're in the 7lb+ range or are high-powered EDFs in which case they're often expensive. So there's nothing for it but to design my own; and it might be possible to finance my modelling in retirement by selling the odd design.

How Big?

I'm looking mainly at very practical small scale designs that your average builder (note the carefully-chosen words – I'm aiming at the sort of person who still actually builds stuff himself) can easily tackle, knowing that the thing will be easy to build and will fly nicely.

A few years ago I'd be thinking of .25 size two-strokes but I think we're well past the point where people would much rather just drop in an electric motor, in fact they might have a complete set-up from an old 3s foamie just lying around. Some example prop/motor/ESC set-ups are:

- 4-Max PO-3547-1190, 10"x5", 40A ESC, 3s2200-3300 : 345 W
- 4-Max PO-3547-1190, 10"x6", **50A** ESC, 3s3300-3700 : 440-490 W (estimated)
- 4-Max PO-3547-800, 12"x6", 40A ESC, 4s2200-3300 : 550 W (for emergencies!)

The Weight and Power Calculation

The following power sizing table is adapted for electric power from Table 1 in Gordon Whitehead's seminal work "Radio Control Scale Aircraft" with input from "Electric Scale Modelling" by Tom Hunt.

Type of Model	Wing Loading (oz/sq ft)	Power Loading (W/lb)	Examples
Vintage	12 12 14	65 65 65	Antionette Deperdussin Racer Avro Triplane
Light Homebuilt WW1 Bomber/Recce Biplane Trainer Between wars Lightplanes	14 15 15 16	85 85 85 85	Jodel D-9 D.H.9, Avro 504 Tiger Moth Leopard Moth, Puss Moth
WW1 Fighter Lightplane Trainer (light monoplane) 1920s/30s Fighter Advanced Piston Trainer	15 16 18 20 22	100 100 100 100 100	Camel, Berg D.1, Bristol Fighter Luscombe Silvaire, Cessnas Magister, Chipmunk A.W.Siskin, Curtiss Hawk Biplanes Miles Master, Harvard/Texan
Aerobatic Lightplane Racer WW2 Fighter	20 22 24	120 120 120	Jungmeister, Edge 540 Mew Gull, Cosmic Wind, D.H. Comet Yak-9, Tomahawk, Beaufighter
Post WW2 heavy metal	25	140	Sea Fury, Bearcat, D.H. Hornet
EDF Jet	25-28	160- 200	F-16, Viggen, Swift

Design Example - Vans Aircraft RV-4



General Characteristics

The main requirement (apart from a photo, obvs) is the general characteristics of the aeroplane so that we know what we're dealing with:

Length: 20 ft 4 in

Wingspan: 23 ft

Height: 5 ft 5 in

Wing area: 110 ft²

Empty weight: 905-913 lb

Loaded weight: 1,500 lb

Design Calculations

After that there's a fairly simple set of calculations to work out the sizing (stay with me, it's not that difficult); we look up the wing and power loadings from the above table (let's assume 100 W/lb for the power loading and initially about 18 oz/sq ft for the wing loading because the full size is quite fast) and then calculate the size of the model:

Wing Loading 18 oz/sq ft, 345 W @ 100 W/lb

Planned weight = Total power / Power loading = $345/100 = 3.45 \text{ lb} = 55 \text{ oz}$

Wing area = planned weight / wing loading = $55/18 \approx 3 \text{ sq ft}$

Scale factor = $\sqrt{\text{full-size wing area} / \text{model wing area}} = \sqrt{110/3} = 6.06$

Wing span = full size wingspan / scale factor = $(12 \times 23) / 6.06 = 45.5$ inches

Length = full-size length / scale factor = $(12 \times 20) + 4 / 6.06 = 40.3$ inches

Here's the \$64M question: do I think I can build an RV-4 (with spats) that has a wingspan of nearly 46 inches and have it weigh no more than 55 ounces (3.45 lb), and preferably nearer 3.2 or 3.3 lb? I'm a reasonably light builder so I think I could *probably* manage it by using really light wood and a small battery (e.g. 3s2200 mAh), but that's pushing it a bit, if I'm honest, and in any case I want a reasonable flight time.

So, let's see what happens if we make it a bit smaller by looking at a higher wing loading (changed numbers coloured to make it easier to follow):

Wing Loading 20 oz/sq ft, 345 W @ 100 W/lb

Planned weight = 55 oz

Wing area = $55 / 20 = \sim 2.7$ sq ft

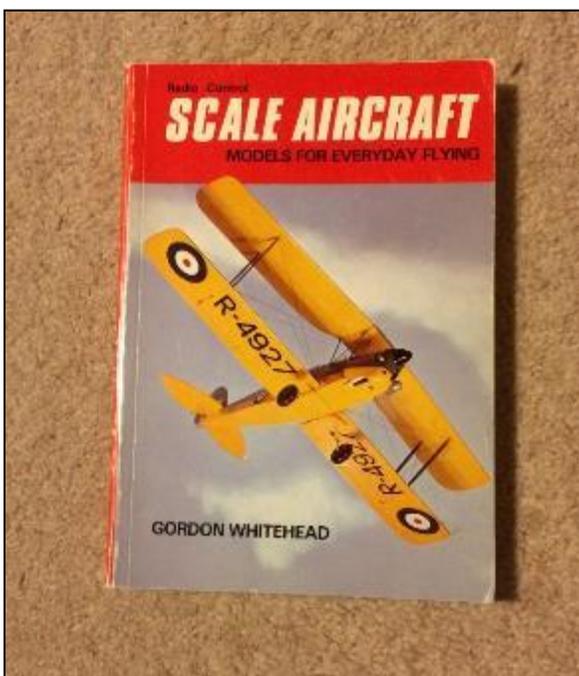
Scale factor = $\sqrt{110 / 2.7} = 6.38$

Wing span = $(12 \times 23) / 6.38 = 43.3$ inches

Length = $(12 \times 20) + 4 / 6.38 = 38.24$ inches

That looks better to me; I think I'd be comfortable building to that size and if it comes out a bit over the top, there's always the choice of using a bigger prop for a few more watts. Checking the available spinner and wheel sizes, it looks as though a 2" spinner is correct (an Irvine spinner with the alloy backplate is a pretty close match to the picture), and mainwheels of 2" with a 1" tailwheel will be close enough; this is sport scale, after all.

Next Steps



Those of you who wish to take this further could do a lot worse than obtaining a copy of "Radio Control Scale Aircraft" by Gordon Whitehead; this is really the standard work on how to design your own scale model and apart from the obvious lack of coverage of modern electrickery (the first edition was published in 1980!) it has stood the test of time remarkably well.

The local library should be able to get one but the best place to get your own copy is probably eBay – but be warned, there was a time not so long ago when these were selling for about £80 and many sellers will still ask that price, presumably being repeatedly baffled when it still hasn't sold after being re-listed 3

or 4 times. I have several copies in various states of (dis) repair, I think I paid £10 for the cheapest and £25 for the most expensive.

Events

Date	Event	Location	Description
Thursday 12 th December	AGM	Uxbridge Golf Club	Membership renewals
Thursday 12 th December	Christmas meal	Uxbridge Golf Club	Partners are welcome but are required to pay full price of meal

Finally I would like to wish you all a very happy Christmas and New Year and let's hope next year will be as successful as this one has been. Best regards to all, Felix