Editor: Andy Blackburn

Contents

Parish Notices

Welcome to the first Trinity Indoor Newsletter; I'm not sure how often it'll be published – maybe 4-6 times a year but as ever, if you've done anything interesting then please send it to me – otherwise you'll have to put up with the drivel that I produce myself…

A Word on Trinity Indoors – John Winfield

Trinity Indoors will continue through 2020 via my stewardship, and I will be assuming all responsibility for its financial viability. The cost for the use of Trinity is £175 per month and we usually cover this, but I will be asking for 12 stakeholders to assist me with a financial buffer; if you are interested in becoming a stakeholder please let me know. This will be refunded when we enter a profit position. The indoor programme will remain as per current with alternating FF and RC and the cost will remain at £15 per flyer. Insurance via the BMFA will remain mandatory.

Keil Kraft/Flying Aces Elf Competition?

A number of people have Keil Kraft/Flying Aces Elfs; these are simple, cheap kits that build into models that fly well, and there have been suggestions that we maybe think about an Elf duration competition – the original (Flying Aces) format was to fly for a specific duration using a commercial 6" prop, and points would be knocked off if you were under or over the target time (say 25 or 30 seconds); there were a number of rounds (say three) after which the times were totalled and the podium places announced, after a fly-off if necessary. If you're interested, please make your opinion known to myself or John Winfield.

Indoor Trim by Butch Hadland

First published in the October 1987 Issue of "The Hangar Pilot", edited by Dr John Martin

My indoor flying scale models have been very successful in the past, mainly due I think, to my previous freeflight duration experience. Other contributory factors to success are flying competitively in the United States, membership of the Flying Aces Club, and letters to and fro across the "pond" to my bosom pal Doc Martin of the Miami Indoor Modelers Association. Of course, watching and listening to other scale modellers is also a superb pastime for furthering one's information and experience libraries.

I should stress that the following is my way of trimming and flying. You may have other ideas, but I can guarantee that my way will get your models flying satisfactorily, and that's what it's all about.

The main difference between indoor and outdoor flying is that indoor we don't glide! The whole flight is "power on", although towards the end of the flight the propeller is in a "no-man's land" condition; that is to say that thrust and drag just about cancel each other out, so a "powered glide" may be the correct phraseology.

Another factor to be considered is that in calm indoor conditions the model does not become destabilised by changes in air speed, as can happen outdoors with gusts and general turbulence, so that generally a scale sized stabiliser will suffice.

To overcome the "small stab" syndrome I usually locate my C.G.s far further forward than usual. This effectively lengthens the tail moment and makes the stabiliser more effective. I use this technique on all my models, both rubber and CO-2 and have found it to be safe and pretty-well foolproof.

My high-wing types (rubber) are flown either left or right depending on the type of competition entered! If the model is to be judged for "SMAE flight" then I fly right. This involves a straight take-off, and as the torque dies off, the model settles into a right-hand cruise and eventual descent. The model's trim is as follows:

- Slight wash-in (1 deg.), right-hand wingtip.
- 2 - 3 deg. downthrust.
- Right rudder, 2 - 3 deg.
- Slight up-elevator to counter (6).
- Corresponding wash-out, left-hand wingtip.
- C.G. position approximately 10 - 15% from L.E.

Incidentally, most of my models are built with separate elevators and rudders. The weight penalty is negligible, but the control that can be effected on the model is immeasurable. I don't like Sellotape or masking tape trim tabs.

Flying high-wing models left is very exciting; take-off is usually followed by a very tight left-hand turn, gradually widening out until the model assumes circles of wall-banging proportions: OK outdoors, but frowned upon indoors.
High-wing rubber: FLY SAFE, FLY RIGHT!

My low-wing rubber ships, on the other hand, always fly left. Flying right against the torque is suicidal and should be avoided at all costs. My current stable of low-wingers includes a Heinkel HE 100 V8 (the 1939 world speed record holder), a Mew Gull, and Howard Hughes's H.1 in short-wing configuration. All utilise the same trim and all fly really well (all are Peanuts). The set-up is:

- 1/8" - 3/16" wash-in, left-hand wingtip.
- 1/16" - 1/8" wash-out, right-hand wingtip.
- 2 - 3 deg. left rudder.
- Forward C.G. (10 - 12%).
- Up elevator (1/16" - 3/32").
- 3/32" - 1/8" downthrust.
- Some models may need 1 deg. left thrust.

If you examine the above you will see that virtually every "tweak" works in opposition, resulting in a constant diameter left circle under full power, and approximately the same diameter circle under cruise and approach conditions. Very safe and predictable.

Using this trim is for power-on complete flight only; if your motor becomes non-productive at altitude (above ground!), then your model will spiral to the right, coupled with deep stalls.

I cannot comment on low-wing CO2 as yet because I haven't built one. However, high-wing and biplaness I have; always turn left with CO-2. Trying to fly right, fighting all that torque from a relatively high-pitched prop, is a tremendous waste of energy.

I still use the forward C.G. coupled with up-elevator configuration on CO2, once again, because it is so safe. This set-up was discovered accidentally when I built a Sig. Mr Mulligan with standard Telco power and what used to be a fairly willowy flight pattern was transformed after the model hit the wall. The CO2 bottle on board moved forward about two inches due to the impact and was (of course!) inaccessible. To offset this change in C.G. - now about 10% - the elevators were adjusted up about 1/8", and the model flew great, indoors or out. At the time of writing it has worn out two Telcos, and is flying as well as ever.

As there is no real power burst with CO-2, trimming is less tricky than with rubber models, but unfortunately nearly every charge differs, changing power and weight.

However, my models seem to cope with these changes, and provided that your gas cylinder is on or near the C.G., no significant flight changes should occur. My high-wing CO-2 models have the following trim:

- Slight wash-in, left-hand wing.
- Slight wash-out, right-hand wing.
- Forward C.G., 10 - 15%.
- Up elevator to counteract (3).
- 2 deg. right thrust - to counteract torque.
- 1 - 2 deg. downthrust.
- Straight, or slightly left rudder.

This trim gives constant diameter left-hand circles on power and "flight idle". My rubber biplanes are trimmed in a similar fashion except that wash-in and wash-out are applied to the lower wings only.

When setting biplane rigging angles I use the American method: only the leading wing has incidence; the trailing wing is set at zero. This method and a forward C.G., coupled with up elevator, will cure the average biplane's tendency to be over-elevated and fly crazy.

Do not forget to charge your gas cylinder, or to put enough turns on your rubber motor to make it taut, before you adjust for C.G. position. A charge can weigh up to 6gm (Brown twin, 6cc tank) which in my Lacey's case is 20% of the model's weight, and I should think that rubber is comparable. Keep sparklet cylinders in your pocket to generate some heat for they dispense gas much more efficiently when warm. Use no other method, though, to warm cylinders!

Use as long a rubber motor as is practicable. This minimises high initial power bursts, gives a more even power curve, and allows many more turns for longer flights.

Some examples: my Peanut Lacey uses a 24" loop of 0.083" rubber and takes 2,100 turns, resulting usually in a 60 - 100 second flight. My Heinkel He100 (with 6in. Peck Polymer propeller trimmed to 5 1/2") flies about 45 seconds on a loop of 0.110" rubber. The Mew Gull is similar.

As a comparison my inch-to-the-foot Lacey with dual noseblocks (rubber and CO-2) uses four strands of 0.100" in a 36" loop and flies for 100 seconds, while the Brown twin with a 6cc tank has flown 2min. 24seconds in the Lacey at West Baden, Indiana, in 1980. The Sig. Mr. Mulligan flies about 1 minute with the standard Telco.

I hope that this information has given food for thought and in clubroom discussions and that should you use any of my methods that they will work as well for you as they have for me.

2020 Battle of Britain Commemoration

Following the unexpected success of the recent WW1 Kit Scale Competition, we're planning another indoor scale competition in September 2020 to commemorate the 80th anniversary of the Battle of Britain.

Aircraft Eligibility

Subject Aircraft

Any armed aircraft that was in squadron service with any air force between the official Battle of Britain dates of 10 July to 31 October 1940 is eligible.

Bonuses

Any aircraft that fought in the battle (as defined in https://en.wikipedia.org/wiki/Aircraft_of_the_Battle_of_Britain#Full_list_of_aircraft) and *is finished in a colour scheme that represents an aircraft that fought in the battle*, gets a +1 place static position bonus. It is up to the entrant to provide sufficiently convincing documentation (such as a photo or profile colour scheme with a suitably convincing caption) that will enable the administrator to grant this claim.

Model Requirements

All models must have double-covered flying surfaces and must have some fuselage/nacelle thickness; profile and NoCal models are not allowed. Single-engined aircraft must comply with the "Trinity School Walnut Scale Rules", which are basically rubber-powered scale models of 19" wingspan, with no restrictions on the origin of the plan or design – enlarge a peanut, use a kit, design it yourself, whatever. Multi-engined models are allowed and, given that their flight performance is likely to be rather less than the single-engined subjects, their wingspan can be up to 22" (good luck with getting it to circle within the hall, though!).

Entries

Entrants can enter up to two models with the following restrictions:
a) Only one of the models can be multi-engined.

b) The models must be of aircraft types from opposite sides of the (WW2) conflict; for the purposes of this rule, Finland is counted as Axis.

Flight Scoring

The flight score is produced in exactly the same way as the current BMFA peanut scale rules; the usual flight score sheet will be provided, a maximum of six attempts are available and the best two flights will count.

Flights will be timed to the second (fractions of a second are dropped, not rounded) there will be the usual 10 second bonus for a ROG. You need to get someone else to time your flight, the flight lasts from the moment of release to the first time the model hits anything (wall, ceiling, floor, spectator, etc.). If the model is released for an ROG but fails to take off, the flight time will be 0 and it will count as one of the six attempts.
In order to allow the final scores to be generated, flight time entries will be closed at the end of the penultimate 1:00-1:30 Free Flight slot.

Static Scoring

The output of the static scoring process is a static place for each model, exactly the same as the current BMFA Peanut Scale rules, but the way its done is slightly different. Everyone (flyers and spectators) is given a form like this one:

```
Name: [                              ]  (just in case of questions)
Please look at all of the Battle of Britain models that are entered
in the competition and write down the best three models below (use
the serial number or letters if you're not sure what it is) and if
possible, give them a rank/position from 1st (best) to 5th.
Please don't vote for your own model!
Model: [                              ] position [     ]
Model: [                              ] position [     ]
Model: [                              ] position [     ]
If you don't know what a model is called or if it's in the
competition, please ask - but wait until the nice people have
finished winding the motor because they'll probably be counting the
turns.
Please hand this in to <administrator's name> as soon as possible (so
that we can make a start on the scoring), but no later than 1:30 pm.
Thanks.
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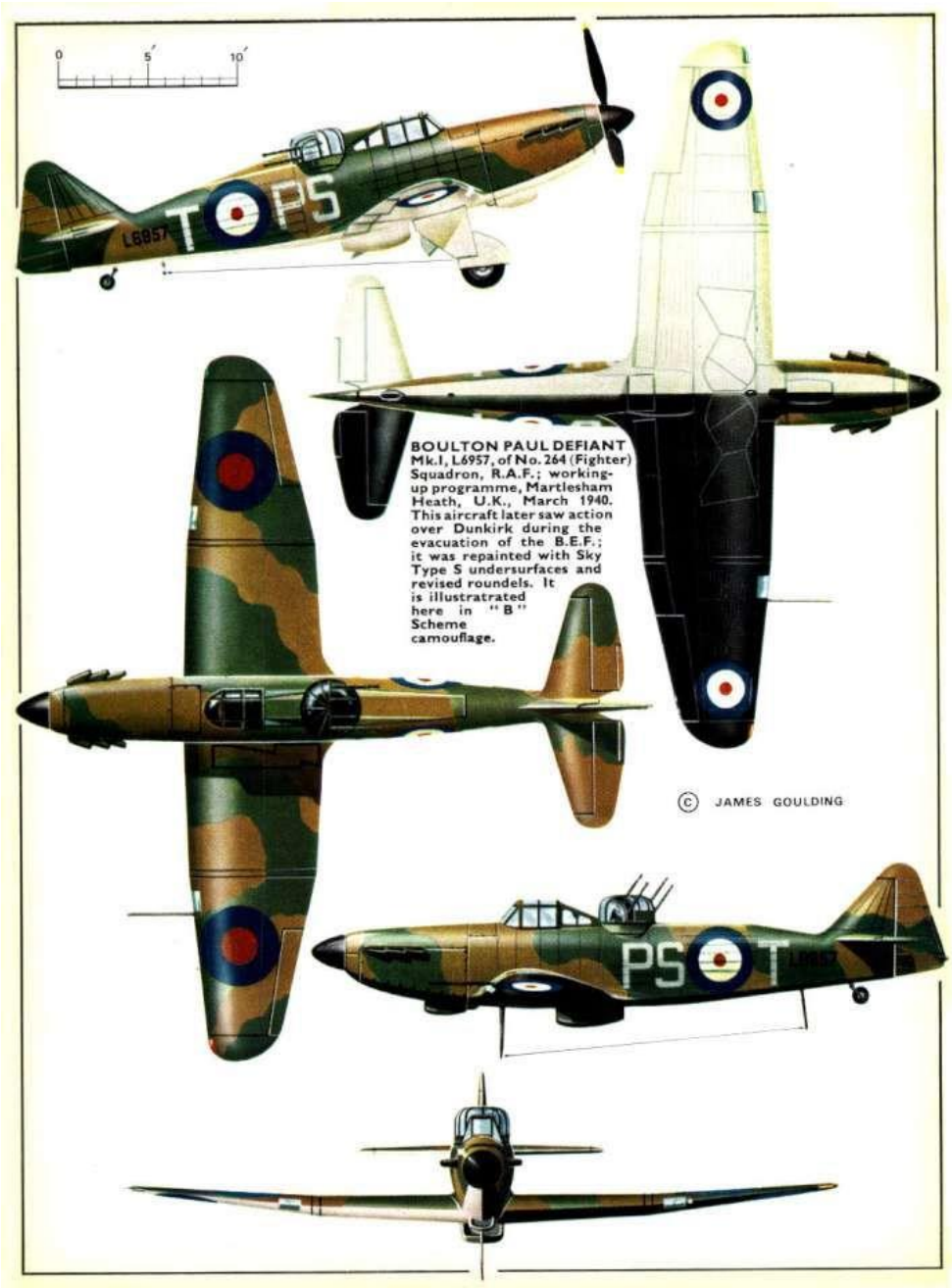
Final Score

Anyone with a static scoring form will be expected to complete it as soon as possible and hand it in so that a start can be made on the scoring.

The administrator ("judge" is rather too grand a term) totals each static marking form (probably on a spreadsheet) to get the static mark - 3/2/1 for 1st -> 3rd places, or 1/1/1 if no positions are given - and then applies any +1 place adjustments for aircraft that fought in the battle.

The spreadsheet should then produce a final static place. The best two flight times will be used to produce a flight place for each model, and then the flight and static places are totalled to produce a final position just like peanut scale (lowest number = the winner).

2020 BofB Commemoration Model Recommendations



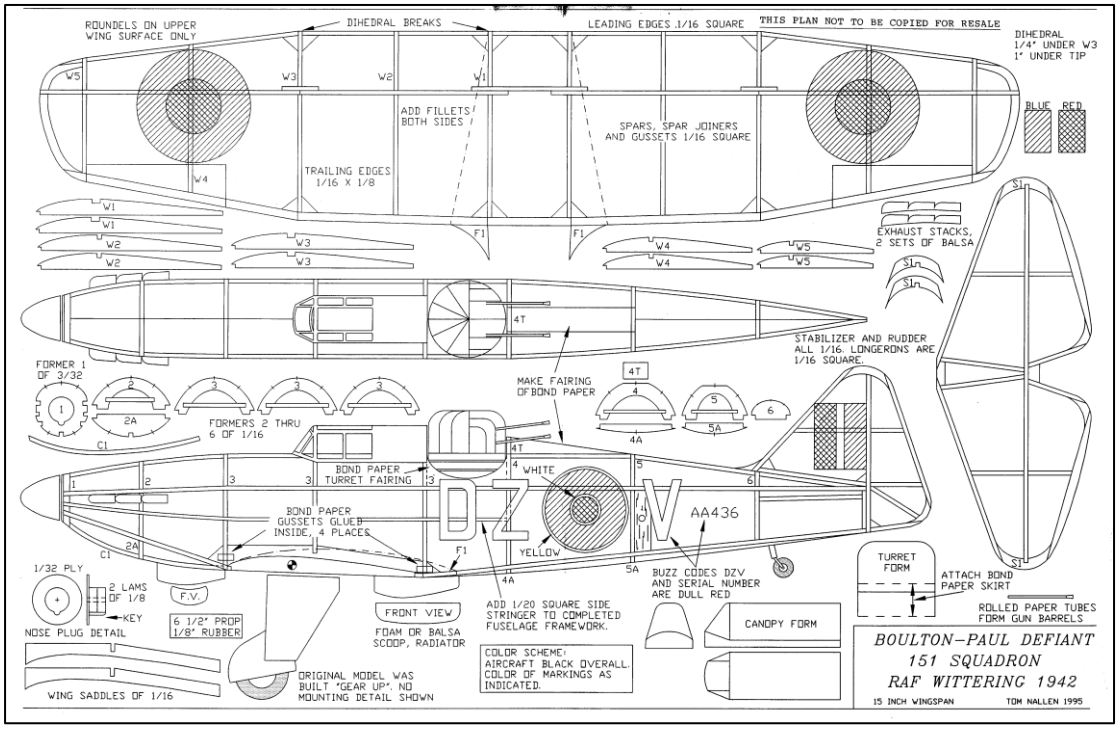
The Boulton-Paul Defiant is an example of that rare class of beast, a WW2 fighter that has a long nose. There are a couple of plans in back issues of FAC news that are available for download from the FAC website – see below.

The Battle of Britain Commemoration rules are based on the normal Walnut Scale rules (like Peanut, but bigger) but have been tweaked to allow most of the old Keil Kraft, Veron or newer VMC kits to be entered. However, I should point out that:

- You don't have to use a kit, you can use a plan or you can design it yourself.
- The Flying Aces website has a page where back issues of the FAC Newsletter can be downloaded and there's an index of plans and articles

(see http://flyingacesclub.com/wp/about-the-fac/fac-news-back-issues/) to help you find what you're looking for.

- If you do use a kit or plan, you can make any changes to it that take your fancy, but bear in mind that there will be some informal static judging so try not to make it look worse than before you started the modifications.
- Flight duration is obviously *very* important, so lightweight model construction would be an advantage. Some of the US Dime Scale designs would be very suitable for this event.
- I'd suggest adding some extra dihedral to some of the Keil Kraft or Veron designs that might have less-than-scale dihedral (yes, it's true, some do) – I'm told that 9 degrees is the magic number used by some Indoor Scale Nats competitors. Wing area and/or a long nose are also significant advantages. You don't *have* to have an undercarriage, and it needn't be much of a handicap if you don't, just launch close to the floor to get some more floor-ceiling headroom.
- There comes a point where a model is just a bit big for the venue; in the case of the Trinity School Hall, I suspect that this about 20" span. You might get bigger, slower-flying models to fit but it'll be a tight squeeze and not for the faint-hearted.
- Finally, experience suggests that it will probably take *much* longer to trim and optimise for duration than you think, unless you have access to more than one venue.



Tom Nallen's Pseudo Dime Scale Boulton-Paul Defiant from FAC News issue #169. The wingtips look a bit truncated but you can easily fix them if you want to, and it's so lightly built that it's difficult to see how it could avoid flying well. Other plans are – of course – available.

Trinity Dates

2019
December 14

2020
January 18
February 15
March 14
April 18
May 16
June 20
July 18
August 15
September 19 ← Battle of Britain Competition
October 17
November 14
December 19

A Last Word
I'm always on the lookout for material related to indoor flying and I still haven't got round to building an Indoor RC model, so will usually be short of RC material until this error is rectified; if you've done anything related to indoor flying (particularly involving RC), please send me something for the newsletter. Thanks!

P.S. – Merry Christmas!