Meadow Flyer

Newsletter of The Oxford M.F.C.

Autumn 2023



Mike Stuart launches his 20" Veron Nieuport 27 at the Summer Scale event on Port Meadow. Model came 4th in Kit Scale Duration and 2nd in Kit Scale Precision – see pp 13-21 for details. It's a delightful model and flies very nicely.[Andy Blackburn]



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Editorial

I seem to be in the unenviable position of having too many leisure interests (motorcycles, motorsport, etc.), and having too many aeromodelling interests (Indoor scale, peanut, outdoor rubber scale, IC scale, peanut, P30, A1, Coupe, Slope soarers of various types, etc.), and it's becoming very difficult to make everything fit into the time available. Building time is at a premium and I'm not the world's fastest builder, so it's all starting to pile up. Looking at my Building Schedule spreadsheet (stop laughing at the back!) I have, in no particular order:

Aerographics Miles Magister (almost finished)

FF Scale KK Cessna 170 for 0.5 cc Redfin (started)

WW1 Peanut for indoors (November competition – will probably be a foamie)

Ray Malmstrom Fli-Wing for indoors (mostly built. Dreadful plan)

Dime Scale R-1 Chambermaid for outdoors

Peanut Waco SRE for indoors

Home-brew P30 (plan done, but it's not right)

PSS Jet provost Mk3/4 to 1.5x original size (plan, parts, etc. available)

Another Frog Senior FF rubber sport model (probably a Tomtit)

FF Rubber Scale Fairey Barracuda

WW1 FF scale - either an SE5a for 0.75cc Redfin, or a D.H.9a for Mills 1.3

A Pistachio for indoors (don't want to admit which one)

What I've noticed, though, is that finishing off older, partly-finished projects (of which there are many) is very often nothing like as difficult as originally thought provided that a sensible approach is taken — it's taken me a long, long time to realise that it doesn't have to be perfect — it just needs to be good enough.

I'd like to thank David Lovegrove, Bob Lee, Simon Burch, Andrew Longhurst, Chris Brainwood, R T Fishall, Ian Melville and Jon Markovitz for providing content for the newsletter.

Chairman's Chat – David Lovegrove

Funny old weather, isn't it? At my age, memory increasingly tends to be a bit patchy, but I vaguely recall a few warm and pleasant flying days back in June, since when it seems to have been unremittingly pants (can I say that?).

The best of it was when my infinitely better half and I had a week in sunny Italy at the end of June and it was hot. Actually, no, to put it more precisely, it was scorching. This was just before the media began reporting wildfires and record temperatures all across southern Europe, China, the USA and Canada. In that respect, I suppose it's a bit churlish to complain about the rain and generally un-summery conditions in the UK...



The Intrepid Cloud-Trampers on 5th August on the Meadow; left to right is Alan Trinder, Gary Law and Chris Belcher [I am <u>assured</u> that our esteemed chairman is behind the camera – Ed.]

On the modelling front, we've mostly been lucky with our choice of competition days. However, yesterday, the 5th of August, the weather was atrocious, unfortunately coinciding with the day of the Charles Hampson Grant MIMLOCT commemorative worldwide Cloud Tramp mass launch at 5pm.

I was there, on the Meadow, British Stiff Upper Lip to the fore, along with three other stalwarts, Gary Law, Chris Belcher and the irrepressible Alan Trinder. It wasn't actually raining at the appointed time, though it was blowing a hoolie.

Within minutes of the countdown, conditions rapidly reverted to the norm and we legged it back to the carpark. On the plus side, there were plenty of free spaces, so parking was easy.

There are still one or two Club events left; let's hope for an Indian Summer.

Rather to my surprise, we are still receiving new Membership Applications. The most recent ones were free flight modellers living some way off, who were clearly attracted to the Club by our unlimited access to the vast open space

which is Port Meadow. How lucky we are! And of course, we extend a warm welcome to those new Members.

David

Miss35 Makeover – Bob Lee



This is probably going to get me thrown out of SAM35, but here goes anyway :-

A couple of years ago I built a Miss35. For those that don't know, this is a very pretty model that was designed by Dave Banks to celebrate the SAM35, 35th anniversary. At the same time, Alex Phin produced an engine for SAM35 members with, you guessed it, a 0.35cc capacity. It will come as no surprise then that this model has a 35 inch wing span.

As I said this is a very pretty model (see above). The problem is that since building it, all it has done is sit on top of a wardrobe collecting dust, the reason being that I don't have any experience of operating a diesel engine, and let's be honest, am a little scared by it! Most modellers of my age have been operating diesels before they could walk, but in my youth, all of my money was spent on Tottenham Court Road, buying bits for my latest amateur radio project. I simply don't have the years of experience that most have with these engines.

Time to do something about this situation and the obvious thing to do was to covert this very pretty model with its wonderful diesel engine, to electric. OK, that's my SAM35 membership blown.

In its original form my model has single channel radio and weighed 230grams, so the electric version should make a nice radio model with throttle and rudder control. The aim was to keep the weight down below 250 grams to I have a model that I can fly on the Meadow unsupervised.

The first job was to choose the power train. Talking to David Lovegrove we decided that given that I was looking to just potter about in some lazy circuits, then 50W/lb would be about right,

so 25W for this 250 gram model (lovely use of mixed units there!) At that low power level I would be able to make use of a stock of 2S/450mAH batteries that I already have.

The battery position is pretty much a given, there isn't too much of an option there so I decided to choose a motor based on its weight, one that would balance the model at the right place. I duly assembled the model (minus the diesel engine) with the battery loose but in the right place and added weights to the front to get the centre of gravity in the right place. This took 30 grams. So I have 30 grams for the motor/prop/prop driver and ESC. Looking at the 4 MAX website I came with this motor:-

The motor is 21 grams, so given that the ESC was going to weigh about 10 grams, that was about right. On a 6 x 3 prop it can deliver 60W, much more that the 25W or so watts needed. It also has a thrust of 255 grams. Clearly it's a more powerful motor than required but a smaller motor would only mean the need for noseweight, and you can never have too much power! I can always under prop it and/or use the throttle curve on the transmitter to limit the power. One further factor confirming that the motor was more than adequate was that the SAM35 diesel would be doing about 8000 RPM on a 6 x 3 prop, this motor will do 12600 PRM on the same prop! I matched the motor with a 12A ESC and hit the 'buy' button.

Now comes the big problem, I had a motor and a model that I need to bring together. The Miss35 is a lovely design and SAM35 diesel mounting is very good. The engine is on view and it's easy to get at (Fig 2).



SAM 35 Diesel Mounted in place

Miss 35 was never designed with an electric option, it was never part of the design brief. What followed was several hours of sitting with the motor in one hand and the model in the other, waiting for inspiration to come while exploring several ideas.

The most extreme idea involved passing the model under a bandsaw to cut most of the nose off, I wasn't keen on that one. What I came up with was a home-made motor mount that would screw into the existing engine bearers.

The mount is shown below and was made from 0.8mm glass fibre sheet

with some 3mm balsa added to provide more gluing area. With the motor mounted on this, the thrust was going to be higher than it was (almost at the level of the shoulder wing) which I figured was no bad thing and would reduce the need for downthrust.

To be safe, I did build in a couple of degrees of downthrust and right side thrust. The mounted motor is shown below. OK, it was never going to be pretty, but it's practical and didn't involve any major surgery to the model.

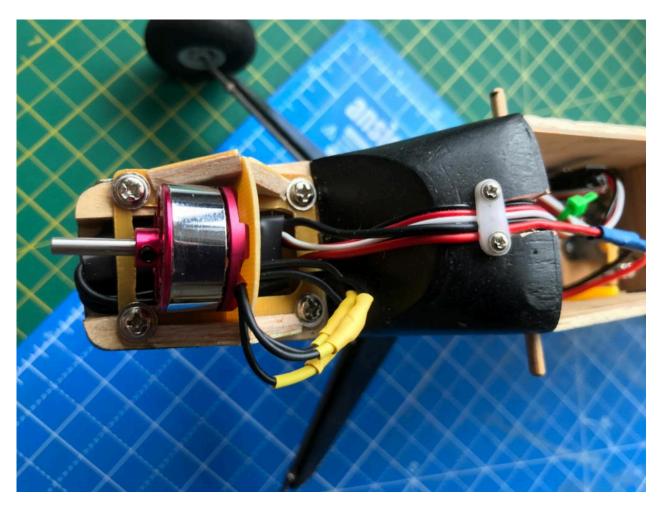




Home-Made Motor Mount

New Motor Mounted

I now repeated the thinking procedure with the model/mounted motor in one hand and the ESC in the other. The lightbulb moment (after a couple of hours and many discounted ideas) was the realisation that the ESC was a perfect fit between the engine bearers and under the motor – perfect! Well, OK, not ideal for cooling but I was not going to be putting any great strain on the ESC.



To get the wiring into the radio bay I had to cut a groove into the top of the fuselage (see above). The cable clamp is a piece of servo arm.



I knew where the battery was going to go, the issue was how to restrain it and access it. I didn't fancy the idea of taking the wing off to change the battery so it was going to be a hatch underneath the model with the battery strapped to the hatch (see picture left).

I just needed to work out how to secure the hatch, given that a less than perfect landing was going to try to rip it free. David Lovegrove came up with the answer: slip one end under a lip and a rotating catch at the other end. The lip is at the back, again its 0.8mm glass fibre board,

screwed into a 6mm sq beech crosspiece glued across the fuselage. The front catch is a servo arm, again screwed into a piece of 6mm sq beech. The hatch itself is 1 mm ply.

OK, all the bits in place, I assembled the model and checked the balance point which was spot on. How about the weight? Remember the 250 gram target? The final weight was 245 grams, - made it! It's 15 grams heavier than the original model but with a much more powerful motor.

At the time of writing, as yet unflown, waiting for that perfect windless day, with the sun shining and the patch freshly cut. OK, I'll go for the next day with light winds.

There was one interesting discovery in all of this. In its diesel format, I did fly it once on a day that was far too windy. I remember it well, the model climbed strongly and banked to the left and there was nothing I could do to stop it going left, the turn just got tighter until the ground intervened. I put this down to the wind just having got under the model and taken control. Having done all of the work above, I was giving it a final check over when I realised that the rudder is reversed! This explains why I couldn't stop the left turn which just got tighter as I applied more right (actually left) rudder. I think there is a lesson in there somewhere...

Spoiler Alert Part 2: Flaperons and Spoilerons Continued – Simon Burch

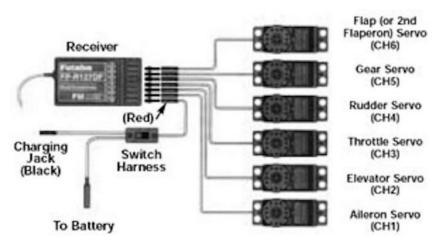
Setting everything Up

How do I Set Up Dual Aileron Servos? Firstly, you'll need to set up your two aileron servos to operate from two separate RX channels. Connecting them via a Y-lead to a single RX channel will not work. The way that you do this will vary depending upon your TX model and manufacturer. Refer to the manual.

Unfortunately, RC manufacturers' manuals can be confusing; many are translations from a foreign language and their terminology can make mud look like the epitome of clarity! On-line advice for your specific system, either written or video, can sometimes help, and there is a wealth of knowledge of various systems within the Oxford club. The Meadow Flyers WhatsApp Group has proved to be a particularly quick and easy way of contacting members to ask for system-specific advice, should you need it.

Your own equipment might differ in detail but the principle is the same. It must be set up so that each aileron has its own servo, and each of those servos will have its own dedicated RX channel. After setting up this facility, you must make sure that your ailerons still work in the correct sense and that the throws and aileron differential (if applicable) are set as specified for your model.

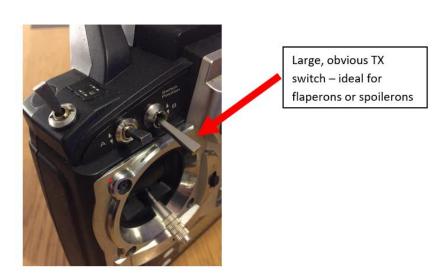
The example below is a typical Futaba set-up diagram. Note that one aileron servo is plugged into Channel One, and the other into Channel 6. For Spektrum DX6i and other TXs, it's AILE and AUX1. Other manufacturers are available!



Dual Aileron Servos – Futaba RX set-up

Which TX Control Should I Use? If you're flying a powered model, you'll need to assign your flaperon or spoileron facility to a secondary control on your TX. On many TXs, you won't have much choice; it'll be a single two-position switch. This has the advantage of keeping things simple – you have two selections: 'off' and 'fully deployed', but you'll have no option to use other settings. A large, obvious and easy-to-reach switch is best.

If you're flying a pure glider, it might be possible to use the throttle stick to activate the

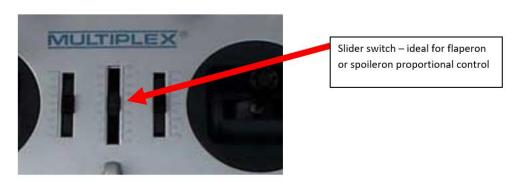


spoilerons proportionally. Many people choose this option, although some advise against it because it's easy to knock the throttle stick inadvertently.

If you have a three-position switch available you'll be able to introduce an intermediate setting. For flaperons, I suggest settings of 'off', '10°' and up to 20° if it's achievable; otherwise, 'off', '10°', and 'maximum achievable'. For spoilerons, I suggest 'off', "half maximum achievable'

deflection, and 'maximum achievable' deflection. Again, in my experience you are unlikely to achieve more than 20° up.

If you're lucky enough to have a separate slider control, flaperons and spoilerons can be set proportionally, i.e., set to whichever angle you wish between 'off and 'full'. A rotary switch may also be used in this way; however, in my experience, it doesn't work so well because the position of the rotary switch isn't so easy to see at a glance, and it's 'fiddlier' to operate.



How Should I Test-Fly The Model? Carefully and at altitude! To test your model, it's essential to make sure that the model is straight and that there are no warps in the wings or tail surfaces. The control surfaces should be neutral, and check that the centre of gravity (CG) is in the correct place. Don't forget lateral CG.

Before flight testing your flaperon or spoileron mix, you'll need to ensure that it works properly on the ground. This is not as easy as it might seem. For example, let's say you set flaperon mix to, say, 'down 20°' aileron and 'down 7°' elevator. When you activate flaperon, you'll see the ailerons go down, but the movement of the elevator is much smaller, and it might be imperceptible. One way to make it easier to see is to set both aileron and elevator to "down 20°'. That way, you'll easily be able to see that both aileron and elevator move in the correct direction. Once you've confirmed this, reduce the elevator movement to the required 'down 7°'. Make sure that both ailerons go down by the same amount; if they don't, adjust the amount of movement on one aileron until they do. The same applies in reverse for spoileron. Finally, check that the elevator and ailerons work normally both with and without the mixes set.

Time to fly This is how I test a new mix in the air. Others might recommend a different way. If you're unsure, seek advice. Choose a reasonably calm day so that the effects aren't masked by turbulence. Launch the model, climb to a height that will allow you to switch off the mix and recover from any 'unusual attitude' that might develop, and check that the area below the model is clear. Make sure that the model is properly trimmed into a straight and level cruise, into-wind at a medium-to-low throttle setting (if applicable); don't fly too fast, otherwise there's a risk that you might overstress the structure or mechanism. Activate the mix. If it's set up correctly, there will be no roll and, initially, no marked pitch attitude change. The model should stay under full control throughout, with minimal deterioration in handling. If you see a marked attitude change, deselect the mix and regain control of the aircraft. Make a careful mental note of what happened, and land.

Adjustments Flaperon: if you activated flaperon and the nose pitched upwards, you'll need to increase the amount of down elevator in the mix. If the nose pitched down, you'll need to reduce the amount of down elevator. Do this in small increments – not more than 2-3° - and then test-fly it again. Keep adjusting the elevator and retesting until the response is acceptable.

Spoileron If you activated spoileron and the nose pitched upwards, you'll need to decrease the amount of up elevator in the mix. If the nose pitched down, you'll need to increase the

amount of up elevator. Again, do this in small increments – not more than about 2-3° - and then test-fly it again. Keep adjusting the elevator and re-testing until the response is acceptable.

If the model rolled left or right when the mix was switched on, once on the ground re-check that the ailerons and rudder are in the neutral position. Switch on the mix and check that the ailerons move in the same direction and by the same amount. Assuming all is correct, which way did the model roll? Apply the following corrections:

If the model rolled right, reduce the amount of 'up' setting on the right aileron by a one or 2°. Similarly, If the model rolls left, reduce the amount of 'up' setting on the left aileron.

Flaperon If the model rolled right, reduce the amount of 'down' setting on the left aileron by one or two degrees. Similarly, if the model rolled left, reduce the amount of 'down' setting on the right aileron.

When your mixes are working properly, practice flying your model at height with the flaperons or spoilerons deployed. Try increasing speed (not too much), reducing speed, and turning. If the model is noticeably more difficult to fly, you'll probably need to reduce the amount of flaperon or spoileron deflection. Retract the mix and land. Back in the pits reduce the amount of aileron movement by, say 2-3°. Don't forget that you'll need to reduce the amount of elevator movement by a proportionate amount. Then launch and test it again.

Once the handling is acceptable in all configurations, climb to height, turn into-wind, deploy the mix, and stall. See how the model behaves during the stall and recovery. You might see a considerable wing-drop, especially if you are using flaperon. There's not much that you can do to rectify this characteristic, short of building more washout into your wing; the important thing is to note the amount of height that is lost. The message to take away is to avoid stalling, particularly when you don't have sufficient height to recover. That's difficult on the landing approach of course, so take care.

Finally, if you are flying a power model, slow down, deploy full flaperon, close the throttle completely, and check how the model handles in the glide. Make sure that the model is fully controllable. Smoothly open the throttle and perform a go-around manoeuvre at height. Check that the model is able to climb. If you're using spoilerons, retract them as soon as you can; flaperons should remain down until you are above the model's clean stalling speed, and then they should be retracted.

I've Set up and Flight Tested Flaperons. When Do I Use Them? Primarily, you'll use flaperons to slow down and steepen your model's landing approach. This is always a useful facility, but it's particularly valuable if you're forced to land your model on rough ground e.g., following a dead-stick.



Personally, I deploy flaperons on the downwind leg, but others advocate the base leg. There's no hard-and-fast rule. My own procedure is as follows: abeam the landing point, reduce power, adjust attitude to maintain height and activate flaperon (if you have an 'intermediate' setting or a slider, select a mid-position at this point). When you're ready, turn onto the base leg, and reduce power to begin your descent.

Once established in descent on the base leg, you have the option of selecting 'full flaperon' if applicable. As usual, maintain speed with attitude and adjust your rate of descent with power. When you turn onto final, you should find that your approach is usefully steeper and slower than it was in 'clean' (i.e., no flaperon) configuration, and your landing run should be slower and shorter. If you need to perform a 'go-around' manoeuvre, make sure that you allow the model to accelerate above its 'clean' stalling speed before you retract the flaperons. Leaving the flaperons at an intermediate setting, or any setting of 15° or less, will probably provide you with a steeper angle (but not rate) of climb. Experiment with different settings.

If you suffer from a 'dead-stick' and you are forced to land away from the Patch, using flaperon is a very useful way of reducing the landing speed to avoid damaging the undercarriage on rough ground. It's worth regularly practicing this type of approach — even with electric models. Don't believe the stories that electric models are immune from dead-sticks; I've had three, including one caused by the propeller detaching.

You can also use flaperon to improve your model's take-off performance but, if you intend to use it in this way, don't set more than 10-15^O down, and retract them as soon as you are safely clear of obstructions.

I've Set up and Flight Tested Spoilerons. When Do I Use Them? Spoilerons are used primarily to lose unwanted height. For gliders and 'floaty' models, the glide angle on the landing approach can be very shallow indeed. On light-wind days, this means that the approach must be commenced at some distance from the landing point, or from an uncomfortably low height. Frequently, it's necessary to use 'S' turns or a side-slip manoeuvre to lose excess height, both of which can be uncomfortable to fly close to the ground. Spoilerons enable you to lose excess height at the flick of a switch, and without changing the model's heading or attitude.

If you have an intermediate setting, this can be used to select different rates of descent as you require. For example, let's say you are flying a glider and you are descending on final approach with the spoilerons on an intermediate setting. If you find that you are still too high, activating full spoileron should allow you to regain the correct approach path without S-turns or sideslipping. Spoilerons can also help to



improve your landing accuracy and as previously mentioned, they can help you to escape from strong thermals or updrafts. Even if the model still climbs with the spoilerons deployed, it will do so at a much slower rate which would hopefully give you sufficient time to fly out of the lift without resorting to a spin.

Next Steps Hopefully, you're now less mixed up about the mixes, and feel sufficiently well informed to give them a try. Using the flaperon and spoileron mixes might enhance the capabilities of your model, and they will help to prepare you for the day that you fly a model with dedicated secondary control surfaces. Don't forget that there is a wealth of experience within the club which you can tap into, so don't hesitate to seek advice and practical help.

Finally, it's possible to use flaperon, spoileron and other mixes to improve the general handling and aerobatic performance of your model – but that's a subject for another day.

In another article I'll describe how to set up and use dedicated secondary control surfaces. In the meantime, if you have any questions arising from these two articles, don't hesitate to contact me at membership@oxfordmfc.bmfa.uk

Rubber Motor Turns Table – Andrew Longhurst

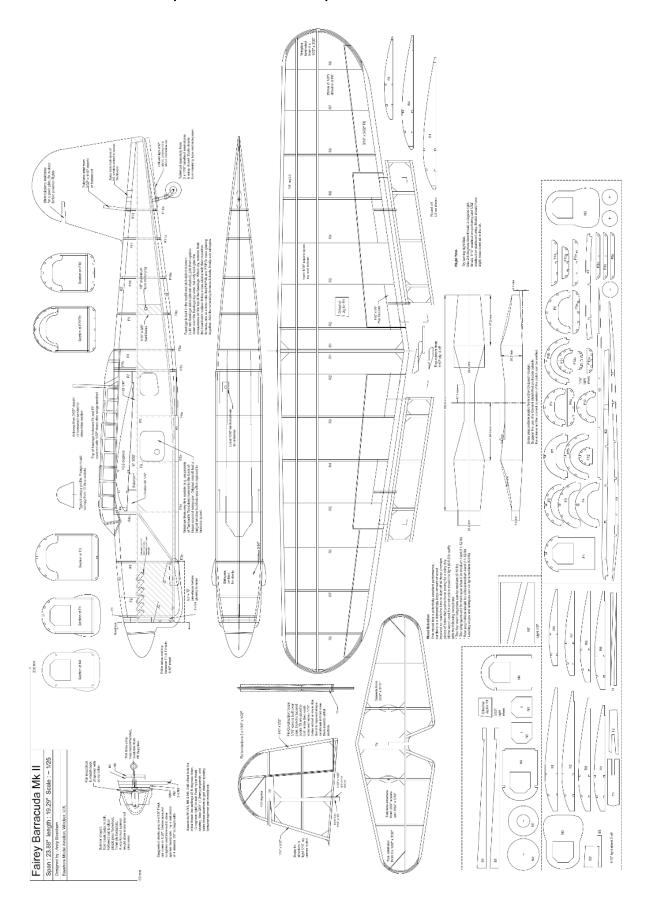
Turns Table by the late John Barker (mathematician and stress analyst) This is from an Excel calculator based on adjustable input data.

(Based on empirical 3rd-party data, These numbers appear to be burst Turns. Members are urged to use 80% or a little less for sport flying)

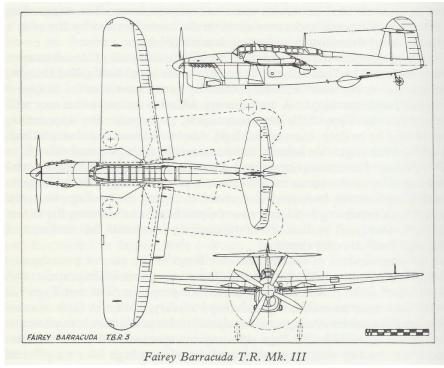
Rubber details	ins	mm
density g/in3 (kg/m3)	16.5	1007
width ins		
(mm)	0.094	2.39
thickness ins		
(mm)	0.04	1.02
stretch	9	

Motor weight		Number of strands of 3/32									
in grams	2	3	4	5	6	8	10	12	14	16	18
3.00	2536	1380	897	642	488	317	227	173	137	112	94
4.00	3381	1841	1195	855	651	423	302	230	183	149	125
6.00	5072	2761	1793	1283	976	634	454	345	274	224	188
10.00	8453	4601	2989	2139	1627	1057	756	575	456	374	313
20.00	16907	9203	5977	4277	3254	2113	1512	1150	913	747	626
25.00	21134	11504	7472	5346	4067	2642	1890	1438	1141	934	783
30.00	25360	13804	8966	6416	4881	3170	2268	1726	1369	1121	939
35.00	29587	16105	10461	7485	5694	3698	2646	2013	1598	1308	1096
40.00	33814	18406	11955	8554	6507	4227	3024	2301	1826	1494	1252
50.00	42267	23007	14944	10693	8134	5283	3780	2876	2282	1868	1565
60.00	50721	27609	17932	12831	9761	6340	4537	3451	2739	2242	1879
Motor weight				Nu	mber of	strand	s of 1/8	th			
in grams	2	3	4	5	6	8	10	12	14	16	18
3.00	1654	900	585	418	318	207	148	113	89	73	61
4.00	0	1200	780	558	424	276	197	150	119	97	82
6.00	3308	1800	1169	837	637	413	296	225	179	146	123
10.00	5513	3001	1949	1395	1061	689	493	375	298	244	204
20.00	11025	6001	3898	2789	2122	1378	986	750	595	487	408
25.00	13782	7502	4873	3487	2652	1723	1233	938	744	609	510
30.00	16538	9002	5847	4184	3183	2067	1479	1125	893	731	613
35.00	19294	10502	6822	4881	3713	2412	1726	1313	1042	853	715
40.00	22051	12003	7796	5578	4244	2756	1972	1500	1191	975	817
50.00	27563	15004	9745	6973	5305	3445	2465	1875	1488	1218	1021
60.00	33076	18004	11694	8368	6365	4134	2958	2251	1786	1462	1225
Motor weight				Nur	nber of	strands	of 3/16	th			
in grams	2	3	4	5	6	8	10	12	14	16	18
3.00	897	488	317	227	173	112	80	61	48	40	33
4.00	1195	651	423	302	230	149	107	81	65	53	44
6.00	1793	976	634	454	345	224	160	122	97	79	66
10.00	2989	1627	1057	756	575	374	267	203	161	132	111
20.00	5977	3254	2113	1512	1150	747	535	407	323	264	221
25.00	7472	4067	2642	1890	1438	934	668	508	403	330	277
30.00	8966	4881	3170	2268	1726	1121	802	610	484	396	332
35.00	10461	5694	3698	2646	2013	1308	936	712	565	462	387
40.00	11955	6507	4227	3024	2301	1494	1069	813	646	528	443
50.00	14944	8134	5283	3780	2876	1868	1337	1017	807	660	553
60.00	17932	9761	6340	4537	3451	2242	1604	1220	968	793	664

Rubber Scale Fairey Barracuda – Andy Blackburn



This 24" span Fairey Barracuda started life as a quick 1.5x enlargement of an (unbuilt) 16" span dime scale design; but turned out to be a comprehensive redesign, albeit as a Flying Aces Club "Simplified Scale" type model, so some of the finer details (wing fences, bomb racks, etc.) are missing. The plan isn't quite finished and I'll probably revert to traditional balsa segments for the curved bits of the flying surfaces on the finished plan, just because it'll then look a little easier to build.



One of the few half-way reasonable 3-views of a Barracuda, from "The British Bomber Since 1914" by Peter Lewis. Still requires careful checking against photographs though.

Getting the outlines correct has been difficult because some of the existing drawings are shockingly bad (e.g. Hall Park Warpaint #35) and there isn't an existing airframe available to examine, although one of the well-known museums (Hendon/IWM/FAA?) is thought to be preparing to re-build one from various donor airframes and parts.

The most vexing area of disagreement is the leading-edge at the wing root – some drawings show a discontinuity in the leading-edge shape near the root when viewed from directly above, but I just can't convince myself that it shows up in the top view;

there *is* a discontinuity but I think it's basically a decrease in the (significant) wing thickness inboard the wing fold break.

The fuselage glazing is another area where there are differences; as built, the larger transparency (with the DV panel) was slightly "blown" allowing the observer to see directly downwards, but some/many aircraft had this replaced with a sheet of Perspex to reduce the fuselage cross-section and reduce drag. I've gone with the flat-sided Perspex.

Also, I am coming to the view that my spinner shape is very slightly too pointed and not quite long enough, and I've just realised that Blackburn-built aircraft appear to have slightly longer spinners.

The design has a long nose (top tip – multi-seat military prop aircraft usually have longer noses) with loads of wing area so should have an excellent performance, looking at my commitments it's probably a winter project. If it's light enough (one dares hope for < 40 grams, in which case a low-torque prop/rubber combo from an Under 25" Vintage Cabin model should work) then it might need a dethermalizer, which in turn might require the somewhat unusual solution of a pop-off wing (and attached canopy) on three lengths of fishing line.

Oxford MFC Scale Competition 2023 - Chris Brainwood



Simon Milan brought a new BMJR Models ULF-1 scale towline glider to fly for fun but didn't get a chance to try it before the wind got up [Chris Brainwood].

For the past couple of decades, Dreaming Spires has been one of the premier events run by the club as well as becoming a firm fixture on the BMFA Free Flight Scale calendar alongside Andy Crisp's duration classes. The scale event was established and run by Charlie Newman, with latterly, Laurence Marks and the event proved very popular with flyers with its relaxed attitude to competition.

This year saw a change as Charlie decided to stand back from organizing the event and new team has taken on the mantle. Andy Blackburn and Gary Law were joined by Bill Dennis who took on the Contest Director role. The new format was to run the competitions on a Saturday in the morning with results declared around lunchtime and this pretty much ran to schedule.

I find flying in free flight scale comps a very rewarding and fun part of my aeromodelling. The added discipline of having a competition to fly in makes the day much more enjoyable and gives me some focus to my building and flying.

The Oxford MFC competitions are very relaxed, like most of the BMFA FF Scale meetings with the emphasis on enjoying the flying and meeting and flying alongside similarly minded modellers. I find it much more enjoyable than flying scale models on my own and have

probably learned more from competing than from anything else. The flow of knowledge about aeromodelling at these events is worth entering for, in and of itself. But I digress...

The club's Free Flight Scale comp saw 3 classes run, with a Flying Only and Kit Scale Precision CD'd by Bill Dennis and a new event - Kit Scale Duration CD'd by Andy Blackburn.

The Flying Only was an "all in" competition, so any forms of power all in the same class comprising I/C, (usually diesels) rubber, electric and CO2. The models are judged on flying realism by the flight judge Bill Dennis with scores given for various stages of the flight - climb out, cruise, transition from power to glide and things like that. The competition was flown in 4 rounds with 15 secs of flight required to qualify as a scoring flight.



Bill Dennis about to judge Mike Smith's Mercury Tiger Moth (from a Belair kit, I think). Tiggie flies very well, judging was laid-back in the extreme. [Chris Brainwood]

Multiple entries were permitted but only the highest scoring model counted for an award. 7 models were entered from 4 modellers which proved a good turnout for the class. Conditions were good with only light wind though it gradually increased as the rounds progressed so some of the best flights were the earlier ones.







Ivan Taylor's stunningly-realistic rendition of Albert Ball in the cockpit [Chris Brainwood]

The class was won by Ivan Taylor's new SE5a. This model was only on its 3rd flight at the start of the competition and is a credit to Ivan's building and trimming skills. The SE5a is modelled on Albert Ball's machine and Ivan has created a wonderful rendition of the man himself to pilot the model. Ivan says that this was created from a balsa base and car body filler and the results are superb. The model is powered by an Irvine Mills .75cc which provides more than enough power for such a light model. Ivan was also awarded the John Blagg Trophy



Chris Brainwood launches his rubber scale Miles Falcon. [Andy Blackburn]

My own rubber powered Miles Falcon took 2nd spot flying nicely now that the rubber motor size has been reduced a bit. This model is from the David Rees plan drawn by Walt Farrell but with knock off wings and some additional sheeting and moulded parts to cope with our more blustery UK weather. The design is for the Flying Aces scale competition which is flown in the USA as a duration competition, so the extra weight in construction has helped the model fly in a more scale like manner for windier-weather competitions over here.

It's taken a while to trim out, one of the key things is how much the wheel pants act as large rudders so fixing them so they don't move but also knock off was vital. Small stub dowels and neodymium magnets hold them on.



Mike Smith's much-modified Mercury Tiger Moth [Andy Blackburn]

Third was Mike Smith with his Tiger Moth. This from the Mercury kit plan but Mike has changed some of the outlines to give a better scale representation. Mike has found the rudder to be very sensitive and his first few flights showed its effects well. Later flights were very good.

I also entered my IC powered Cessna 170 in the class and was rewarded with 4th. This is built from the Replikit of the Keil Kraft favourite from the 1970's. There's a Piper and Luscombe in the range and they all feature very light construction and very little or no plywood, something not seen in the contemporary Aeromodeller and Model Aircraft plans.

Building one certainly teaches you a lot about building light. Mine flies very nicely on a .5cc Redfin TBR throttled well back. On the day, the glide turn proved a bit tight so I think I need less side thrust on the motor so I can open out the glide turn and let the engine torque produce more of a turn under power. It flies left on power and left on glide which I prefer as a flight pattern.



Chris Brainwood's Keil Kraft Cessna 170 was a reliable performer [Andy Blackburn]

Ivan Taylor entered two more models in the class, an F16 and a MIG 3. The F16 is powered by an electric ducted fan motor and usually puts on an impressive high climbing performance but for some reason the motor/battery was down on power and the model gave a more muted flight. The MIG 3 is rubber powered and looks glorious in its colour scheme but it seemed to have lost some of its trim as scale models are apt to do



Ivan Taylor with rubber-powered MiG 3 [Chris Brainwood]

Mike Stuart's Consolidated Fleetster was struggling a bit in the increasingly blustery conditions but still managed to put in some impressive flights.



Mike Stuart's Consolidated Fleetster [Andy Blackburn].

The new Kit Scale Duration proved very popular with 6 entries. Great to see a new type of scale comp particularly as it was so well supported. Andy ran it with a nice, relaxed feel to it, making it very enjoyable to fly in.



Chris Brainwood's Piper Super Cruiser [Andy Blackburn]



John Winfield's Veron Comper Swift was proxy-flown by Andy B [Chris Brainwood]

Mike Smith won with his Aeronca Defender, with John Winfield's Veron Comper Swift 2nd being proxy flown by Andy Blackburn. I was 3rd with my Piper Super Cruiser just 2 points ahead of Mike Stuart's Veron Nieuport 27. It was interesting to see how many flights were around the 30 second mark as most had been trimmed to fly for 30 seconds, which brings us onto the final competition.



Mike Smith's Aeronca Defender found some lift and cleared off with the Kit Scale Duration prize. Not the world's best photo – one just can't get the staff [Andy Blackburn]

Kit Scale Precision is flown with a target time of 30s. In the past, it has been a very popular class at BMFA events often attracting the largest entry of the day. Every second of deviation from the 30s target time is recorded and after 3 rounds the winner is the model with the least total deviation. It was won by Mike Smith's Aeronca with a combined error of just 11 seconds.



Bill Dennis preparing to hand out the prizes [Chris Brainwood]

In summary, it was a lovely event blessed with some nice flying weather, albeit a bit breezy towards the end. Can't wait for next year.

Competition results

Free Flight Scale - Flying Only (All in)

	, , (,)			
Name	Model	Power	Flight score	
Ivan Taylor	SE5a	I/C	825	1
Chris Brainwood	Miles Falcon	Rubber	745	2
Mike Smith	Tiger Moth	I/C	725	3
Chris Brainwood	Cessna 170	I/C	715	4
Ivan Taylor	F16	Electric	680	5
Ivan Taylor	MIG 3	Rubber	655	6
Mike Stuart	Consolidated Fleetster	Rubber	625	7

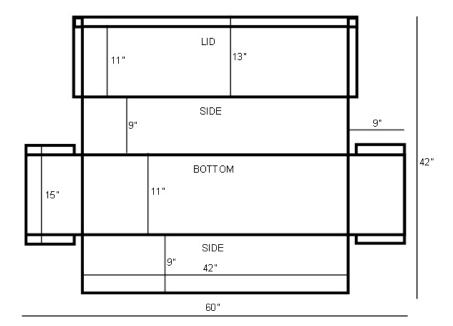
Kit Scale Duration

Model	Flyer	Bonus	Flight 1	Flight 2	Flight 3	Total	
Aeronca Defender	Mike Smith	13	52s	37s	Max	162	1
Comper Swift	John Winfield (Proxy A.Blackburn)	13	38s	37s	30s	118	2
Piper Super Cruiser	Chris Brainwood	13	28s	27s	23s	91	3
Nieuport 27	Mike Stuart	28	27s	23s	11s	89	4
Piper Pawnee	Simon Milan	13	13s	13s	21s	60	5
Vultee Vigilant	Bill Dennis	13	-	-	-	-	6

Kit Scale Precision

Name	Model	Flight 1	diff	Flight 2	diff	flight 3	diff	Total	
Mike Smith	Aeronca Defender	29	1	36	6	26	4	11	1
Mike Stuart	Nieuport 27	19	11	31	1	24	6	18	2
Chris Brainwood	Piper Super Cruiser	19	11	16	14	15	15	40	3

Model Box Pattern – Andrew Longhurst



This is a cutting pattern for a cardboard model box, I usually use discarded flat-panel TV packaging, but do make sure that its double-layered. You can make it any length from 30 to 50 inches. For the long ones, the ends must usually be separate bits. Best weapon is a hot glue gun.



The editor's 32" long model box constructed to Andrew's pattern. The lid is a tight fit so it might be best to allow another 10mm at the sides and front of the lid so that the lid is a bit bigger and overlaps the box nicely [Andy Blackburn]

How To Make Some Kit Scale Duration Rules – Andy Blackburn



Veron Nieuport 27, quite robust construction, flies for about 30 seconds with average wood selection [Outerzone]

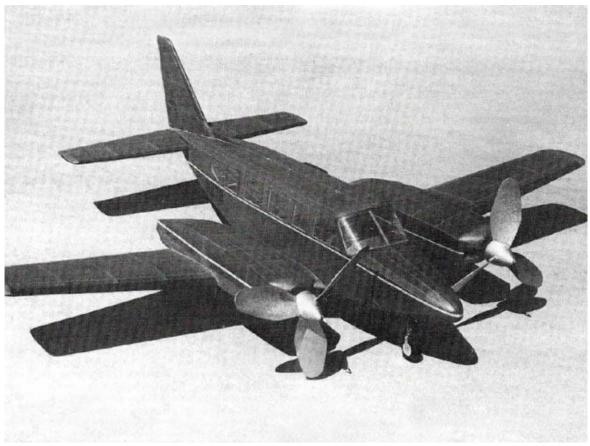
Many of us (of a certain age) started aeromodelling by building one or more (definitely more, in my case) of the small flying scale kits of about 18"-20" span from messers Keil Kraft and Veron, and then later on Guillows and Sterling, although the latter were guite expensive.

Most of these kits had quite a poor reputation when it came to flying ability, partly because of the inexperience of the people who built them, partly because the structure was often what I shall politely call "reasonably robust", and often because of the extraordinarily heavy wood usually supplied in the kits – I still have vivid memories of cutting out formers for a Keil Kraft Messerschmitt 109F from rock-hard print wood with half a razor blade. And the ridiculously unsuitable plastic propeller supplied by both Keil Kraft and Veron didn't help.

These days, many of the plans are available on Outerzone, and the Vintage Model Company are selling updated laser-cut versions of the original Keil Kraft Flying Scale and Veron Tru-Flite kits – this allows those of us of a certain age to re-live our youth (if only!) with the huge advantage of knowing what we're doing this time around.

Existing Competition Classes

After a while, of course, one starts to think about how long these models can actually be made to fly for, and this thought is followed by "I wonder if there are any competitions for kit scale models?" As it happens, there are a couple of competition classes that might be suitable; there's the Flying Aces Club Simplified Scale event in the U.S., and the SAM 35 Masefield Trophy in the UK.



Piper Navajo Chieftain flies for a claimed 50 seconds [Outerzone]

However, both of these rely on what appear to be a series of arbitrary bonus points; for instance, the Masefield Trophy used to apply a 150% bonus for multi-engines until some troublemaker ran an article that pointed out that you'd be almost guaranteed first place at the Old Warden event if you entered a twin that would fly for only 22 seconds (sadly, they've noticed it and have now corrected matters – they still give twins an undeserved 50% bonus, though). There were other anomalies – a 40% bonus for something with a wingspan of less than 20"? What if I have a 16" span dime scale model that will fly for a minute? Basically, the bonus system used in published rules didn't seem to be very fair.

What we want (and I suspect, what most people want) is a fair set of rules that will allow any kit scale model that's entered a reasonable chance of getting on the podium. The rules shouldn't put too much of a strain on the CD, and we should try and make sure that *any* rubber scale model (enlarged kit scale, own design, etc.) is eligible.

The Kit Scale Rubber Duration Rules that were used at the Summer Scale event (see pages 16-22) are an attempt to produce a relatively level playing field where anyone has a chance of getting on the podium with almost any model if they get some good air.

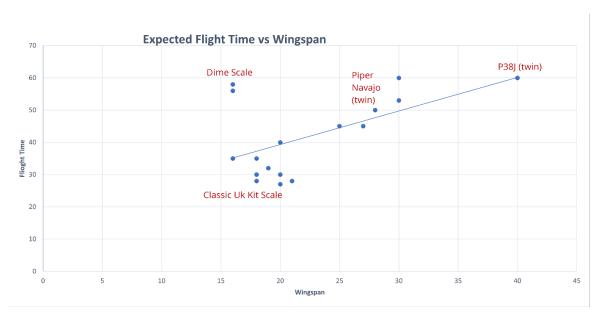
The rules have been through some changes recently but – gratifying – seem to be quite popular, although that may be just novelty value. However, there's no doubt that most people seem to find the duration rules more exciting and more involving than the Kit Scale Precision rules that have been used in the past.

Applying a Bit Of Science

Let's have a look at how the rules came to be as they are; what we need at this stage is to have a good look at some data to see what's what. After trawling through various magazines, timing various models and just asking people how long their models will fly for, the following data set was extracted:

Publisher	Model	Span (inches)	Claimed Flight time (seconds)
KK	Cessna 140	19	32
Frog	Auster Autocar	21	28
Veron	Comper Swift	18	35
Easybuilt	Aeronca Chief	20	45
DPC	Pfalz D.III	16	40
VMC	Spitfire	18	28
KK	Stinson 108	20	40
Veron	Nieuport 27	20	27
Earl Stahl	Aeronca Defender	27	45
KK	Piper Super Cruiser	18	30
Comet	Hawker Hurricane (Dime)	16	56
EasyBuilt	Beech Staggerwing (Dime)	16	58
Enlarged Veron	Auster AOP9	30	53
Enlarged Veron	Comper Swift	30	60
Flyline	Howard DGA-8	25	45
Flying Models	Piper Navajo Chieftain	28	50
Flying Models	P-38J Lightning	40	60

At first sight there doesn't appear to be much of a pattern there (other than the fact that the joint-highest expected flight time is for a twin), but watch what happens when we plot flight time against wingspan:



Now, isn't *that* interesting? There's a fairly clear trend line based on wingspan (no real surprise there, then). One could argue that aspect ratio is bound to come into it, but for

"normal" (that is, commonly used) wings the advantage of a higher aspect ratio is usually approximately balanced by the disadvantage of operating with a smaller wing chord (lower Reynolds number). But see later.

If you look carefully there's a definite cluster of low-ish flight times around the 18"- 20" wingspan area that match the various (relatively heavy) Keil Kraft and Veron designs, and there are a couple of stand-out times in the 58-60 second / 16" span area that correspond to Dime Scale models which weigh (typically) half an ounce or less. And the twins do pretty well.

The fact that something is a biplane or twin or floatplane doesn't seem to have a significant effect on expected or claimed duration; what seems to matter is only:

- a) How big is it?
- b) How lightly-constructed is it?

Kit Scale Duration

In other words, the graph suggests that we ought to be able to come up with some bonus points that only rely on a cursory examination of the model and the use of a tape measure. That very interesting graph is the basic driver for the Kit Scale Duration rules (although eagle-eyed rules lawyers will have already noted that it's not just for kit scale models anymore).

What we've done is to base the general outline of the rules on the Flying Aces Club Simplified Scale rules; there are three flights, the final score is the total of the three flights (TOTF) plus a number of bonus points that are (in this case) designed to even out the score sheet to some extent so that smaller and heavier kit scale models have a better chance of success, but a bigger well-flown model may still carry the day if it gets good air.

All this is managed by the Contest Director (CD) whose task is to allow any reasonable scale model to enter the competition, if at all possible, whilst keeping out (e.g.) P30 or cabin duration models that are masquerading as "proper" scale models. We are, in other words, encouraging the use of a modicum of common sense which I think you will agree is a little unusual in this day and age.

The Bonuses In Detail

It might be instructive to have a closer look at each of the bonuses and discuss why they ended up that way:

Design is classic Dime Scale or Pseudo Dime Scale, or is	0
bigger but has Dime Scale type construction (e.g. 1/16"	
square leading edges, trailing edges, tailplane, fuselage	
members and generally sparse structure).	

So, if the model looks like a dime scale model – very sparse structure, lots of 1/16" square, etc – then no matter what size it is it's going to be very light and it will need no assistance of any kind. We would expect it to be capable of flying for at least 60 seconds. If it's larger than dime scale (e.g. 24") then the wood sizes should be scaled appropriately (e.g. 1/16" becomes 3/32").

Design was originally sold as a kit, has box fuselage with	25
formers and more robust construction than dime scale.	
Only applies if model has not been enlarged.	

If the model is a typical Keil Kraft or Veron high-winger (e.g. Piper Super Cruiser, Stinson Flying Station Wagon, etc.) with 1/16" square fuselage construction, it'll be heavier than a dimer and is due a bit of assistance, so it gets an additional 25 points.

Design was originally sold as a kit, has keel-and-former	45
fuselage construction with stringers at least 1/16" square.	
Only applies if model has not been enlarged.	

If the model is one of the heavier Keil Kraft or Veron designs, it's going to need rather more assistance (45 points). This also applies if it's one of the later Guillows or Sterling keel-and-former kits.

Wingspan <19"	30
Wingspan >=19" and < 22"	25
Wingspan >=22" and < 28"	10

Anything over about 28" span can look after itself, but we can apply one of three sets of bonuses depending on the wingspan. This is an approximation, but it's fairly reliable and has the advantage that the CD will only have to add numbers together – no multiplication required.

Colour and markings generally agree with optional	20
supplied documentation (e.g. profile, colour picture, etc.)	

There really is no documentation required other than proof that the model was built from a kit, and then only if you're entering the Kit Scale class rather than the Open class, but it was felt that we should reward people who have spent some time decorating the model with registration letters and other markings. You don't *have* to do this, though...

Subject has a vary law aspect ratio high wing (~<1) with	-100
Subject has a very low-aspect-ratio high-wing (~<4) with	-100
a box fuselage (or nearly so), so and zero or limited	
dihedral (e.g. Lacey M-10, Fike, etc.)	

And we've left the controversy till last! This bonus exists to a) discourage people from entering Laceys and Fikes, and b) balance off their extreme performance potential if people really do want to enter one.

We thought carefully about this and there's an obvious argument that Laceys and Fikes will be easy for novices to fly, but the obvious problem is that they'll also be easy for the experts to fly so we're seeking to avoid the situation where anyone who doesn't enter a Lacey will be disadvantaged. Low-aspect ratio aircraft such as Laceys and Fikes are not banned but will start at a significant disadvantage.

That's about it. I do hope you'll consider finishing off your part-built kit scale model so that it can be entered in the Kit Scale Duration Competition on Saturday Sept 9th...

As Time Goes By – R T Fishall



It's a Saturday in 1963 somewhere in Essex, and a 12-year-old boy, probably wearing short trousers and a school cap is in the local newsagents. No, he isn't there to buy fags, but instead is standing in front of the Airfix stand, pocket money burning a hole in his pocket. At this early stage in his life he is too naive to wonder why the kits are priced to be the same as his pocket money, but he has decisions to make.

Spitfire? Hurricane? No, done those already (of course). Tiger Moth? Camel? SE5? Maybe a jet, how about the Hunter or Meteor? Maybe save up and buy the Lancaster? No, he thinks he might get that for Christmas (or maybe a Michell fishing reel).

Decision finally made, he cycles off home with the precious kit and occupies the kitchen table for the afternoon. By teatime, the model is finished and painted. After tea, he has to put the transfers on before Morecombe and Wise are on the telly (no recorders or streaming in those days).

It's now 2023 and it's the National Museum of Flight, near Edinburgh. The same person, now a 'little older' and somewhat grey haired is again standing in front of an Airfix display. Pocket money has been replaced by contactless, but the same decisions still have to be made all over again. He finally settles on the 1:72 scale Hurricane MK1 Gift set since this includes the cement and paints. The cycle ride home has been replaced by a long drive in the campervan.

A couple of months roll by while he gets on with some real aeromodelling and then it's time to make a start on the kit. No kitchen table this time, it's been replaced by a dedicated, well-equipped workroom.

Cripes! he cries (reverting back to a 12-year-old), they have made all the parts smaller, I can hardly see them let alone pick them up! Did I really build this when I was 12? Maybe his eyesight was better and fingers nimbler then [tweezers and close-range varifocals - Ed]. And probably a lot less fussy, speed being more important than a neat job. He notes one significant difference, the instructions are now a lot clearer, one exploded view and a lot of words have been replaced with several diagrams and a total of zero words.

The paints are acrylic rather than the good old Humbrol enamels, they don't cover as well and dry as fast as you are working, but at least the brush washes out in *water [Vallejo acrylics are better for brush-painting - Ed]*.

Eventually it's finished, his first plastic kit in 60 years. He has of course been on the Airfix website already and found the soon to be released, 1/24 scale Spitfire. OK, its £94 plus another £50-ish for the full set of paints but the detail is fantastic. But 384 separate pieces, all to be painted and carefully glued into place? And the list of models to build that actually fly is as long as his arm. The Spitfire for Christmas or another fishing reel? Only time will tell.

PS – any resemblance to any person, past, present or future is purely coincidental, even if they look like me. PPS – The Scottish National Museum of Flight is worth a visit if you are ever up that way if only to visit their 'shrine' to the Concorde.

What's a Nom De Plume?

Readers will note that one of the names given as a contributor to this issue is quite obviously a nom de plume; R T Fishall was of course the alias of Britain's most respected and best-loved Astronomer, Patrick Moore.

Sir Patrick had a hobby of exposing bureaucratic incompetence and stupidity wherever he found it, especially amongst tax inspectors and traffic wardens. Members are urged to peruse "Bureaucrats and How to Annoy Them" and "The Twitmarsh Files" which contain humorous – and genuine – examples of official idiocy.

As a matter of interest, readers may remember the fuss generated some years ago when the TV licensing operator started a policy of writing to owners of new TV equipment, Personal Video Recorders, etc. with a warning that a TV license was not registered to the address of the buyer, with dire warnings about what would happen if the equipment was operated illegally.

Luckily, Mrs B and I were in a position where there was some irregularity in the way that our TV licence had been assigned (two surnames, separated by a slash, I think), so we used to get an official letter every time we bought anything; this generated hours of fun because we were then able to write back answering every point in the official letter, congratulating them on their knowledge of the law, staying just on the right side of politeness (mostly) but – crucially – providing them with no additional information whatsoever.

This would typically generate a more extreme letter, and we could then do the same thing again. I think our record was 4 rounds of letters (and hours of wasted bureaucratic effort) before some career bureaucrat realised that they were wasting their time and had been since the beginning. Ah, happy days...





2023-2024 Season Dates Indoor Model Flying

Funfly for all. Freeflight, Rubber, CO2, Electric

Venue:

Henley Leisure Centre Gillotts Lane Henley-on-Thames Oxfordshire RG9 1PA

Dates:

Sundays 10:30 to 16:30

1st October 2023

5th November 2023

3rd December 2023

7th January 2024

4th February 2024

3rd March 2024

7th April 2024

5th May 2024

2nd June 2024



Contact:

Ian Melville

07545158177

ofmac@redkite.aero

Club Meetings at Begbroke

Wednesday Sep 20 Club Night :- Mini talks by club members

Wednesday Oct 18 Club Night Talk: Designing a Flying Wing. OMFC member Alan Smith

Wednesday Nov 15 OMFC Annual General Meeting

Wednesday Dec 20 Club Night Fish N Chip supper plus quiz

Wednesday 17 Jan 2024 Club Night – Indoor flying with the club's 'duration' foamies

Competitions on Port Meadow

Saturday Sept. 9 - Autumn Duration Comps. on the Meadow for members and guests. Classes: Coupe d'Hiver, FROG Senior (Peterborough rules), Rocket Duration, Rubber Scale Duration – for detailed rules see https://oxfordmfc.bmfa.uk/omfc-rubber-kit-scale-duration-competition/ and VMC Pilot Duration and a general FF Fun-Fly.

Arrive ~9 am for event start at ~10am. Finishes approximately 1pm. CD is Gary Law.

Club Postal Competitions

The combined *P.30* and *Coupe d'Hiver* Postal Competition consists of one round which is run between 1st September and 31st October inclusive. For full details see the club website https://oxfordmfc.bmfa.uk/p30-and-coupe-dhiver-postal

Completed Postal Competitions

Under 25" Vintage Rubber Cabin Postal

Congratulations to all finishers in the 2023 Under 25" Vintage Rubber Cabin Postal; the top three are due some Tunnocks Teacakes, although I seem to have slipped a place this year (drat); I shall have to build a better model over the winter. And of course, Andrew gets to retain the highly sought-after, almost <aherem > priceless trophy.

Postion	Name	Model	Total of Three Flights (sec)
1	Andrew Longhurst	Skyleada Cadet	481
2	Richard Fryer	Veron Rascal	459
3	Andy Blackburn	KK Achilles	404
4	Jim Paton	Skyleada Hawk	342
5	Gary Law	FA Moth	287
6	Chris Brainwood	Skokie	61

VMC Pilot Postal

Congratulations to all the entrants, and the top three have been awarded the traditional packet of Tunnocks Teacakes.

Position	Name	Best Flight (sec)
1	Mike Stuart	50
2	Chris Brainwood	46
3	Gary Law	44
4	David King	42
5	Simon Burch	23

Please let me have your contributions by 10th December for inclusion in the Christmas 2023 newsletter. Send them to: Andy Blackburn at newsletter@oxfordmfc.bmfa.uk.

If submitting lots of photographs (which we all enjoy) it's best to send the files separately, using www.wetransfer.com. However, anything less than 20 MB is usually OK on email.

Tailpiece

We've had to put up with some proper rubbish weather this summer, but as these pictures show it hasn't *all* been doom and gloom.



Late afternoon flying at the patch on Wednesday 7th August - a gloriously warm and calm session with much power training going on [Jon Markovitz]



An eclectic group of free-flighters (six in shot – look carefully) on the meadow on Tuesday 18th July [Andy Blackburn]