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Parish Notices

Happy New Year! I wasn't expecting to do another newsletter so soon but the Scale Technical Committee (STC) has just released the new rules for the 2020 Indoor Scale Nationals and, with only about 4 months to go, I thought it might be a good idea to analyse what they mean for potential Peanut and Pistachio competitors, because it's a big change. Bear in mind, though, that this is based on the Heads Up on Revisions to 2020 Peanut Rules post on the BMFA Scale Technical Committee website, so there is a (very small) possibility that it might change before the big day.

New Peanut & Pistachio Rules

At the time of writing (late December 2019), the new Indoor Scale rules for 2020 have just been published, which doesn't give those of us who do things at a leisurely pace (or have additional interests) very much time to get ourselves sorted out.

I had already built a Wittman Tailwind for the 2020 Indoor Scale Nationals but I think I might now have to build something else in a bit of a hurry, because the Tailwind – as I've built it – doesn't really suit the new rules[1].

The new rules seem to be based on the old U.S. Peanut Scale rules from circa 1975, but there have been a few extras added;

- Overall scoring system is different
- There's a 50-second maximum on flight times
- The flight score is ~4x more important than the static score
- The static marking system is different.

[1] OK, I admit it – I left the pilot out because I didn't want to take the minor weight hit, but with the way the rules are now, I can no longer afford to lose the 3 points. And it's stuck on about 40 seconds until I can change the prop for something that turns slower.

Overall Scoring System

The way that the rules *used* to work was that you'd get a static place (e.g. 5th - I wish!) and a flying place (e.g. 6th – wishful thinking again) and then you'd add those places together to get your final position - so, flying and static marks used to count equally for the final score.

The 50-second Maximum

What the STC have done is to replace this time-honoured system with a new scoring system that gives a lot more emphasis to the flying score, which is now subject to a maximum of 50 seconds; if your model can manage a take-off, they'll award you a 10 second bonus. So, the maximum score you can ever get for a flight is 60.

The New Scoring System

What you do to produce a final score is take the score from your *best single flight*, and do this:

overall-score = 3 x best-flight-score + static-score

The best flight score would be a maximum of (assuming a ROG bonus) 60 points, and a good static score (depending on the model finish, configuration, etc) averages at about 40 points – see below for details. This means that the overall score would be made up from 180 points for the flight marks and typically ~40 static marks (see below), so we'd have:

overall-score = 180 + 40 = 220

So if you get maximum flight marks, each flight point is typically worth about *4.5 static points!* That's a huge differential, so a good flight score is now much, *much* more important than a good static score; improving your flight duration by a few seconds is a much better way of getting more points than building a new (more accurate) model that will have a higher static score.

In the Event of a Tie…

What if more than one model achieves a maximum flight score? The only way you can separate them is to look at the static score – so all the models that have a max will effectively have a mini Concours D'Elegance competition amongst themselves to sort out the podium positions.

The Importance of the Flight Score

So, looking at the new rules, the 50-second maximum puts us in an interesting position;

a. On past performance, the majority of models in the podium places can be expected to achieve maximum flight points.
b. Approximately 80% of the total marks are now gained from flying marks.
c. The maximum of 50 seconds from a ROG is achievable by models built from commercially-available kits (Lacey M-10, Andreason BA4-B, Nesmith Cougar, etc.).

It follows that any of our competitors – not just the regular winners – could order a Lacey M-10 (other designs are available, see below) from SAMs, build it as per the instructions and get the maximum flight score.

The Best Tactical Approach

Given what we've discovered about the scoring system and the importance of flight marks, we have to assume that *all* our fellow competitor's models will achieve maximum flight marks, which therefore means that we will *also* have to aim for the maximum of 50 seconds from a ROG. Static marks are really only there to separate the models that attain the maximum flight score.

Peanut & Pistachio Static Marking with Comments

Peanut and Pistachio rules are now the same, time will tell how well that works. The other major change is that The Total Static score is the *average* of the individual static scores of the two judges – so as discussed earlier, a good static mark is about 40 points which is about half what it used to be

One of the startling things that I have recently discovered is that these rules are not prescriptive – in the words of Captain Barbossa, they're "…*more guidelines than yer actual rules"*. This means that whilst you can take a reasonable guess at what your static score will be, you can't guarantee it.

The other startling thing – which shouldn't really be a surprise, I suppose – is that in many cases the presence of detail is more important than how well you've rendered it. So often, all you need to do to get a few extra points is to get hold of a very fine permanent marker (black or preferably dark grey) and simply draw the missing detail on!

The Peanut & Pistachio Scale Static rules are summarised as:

Accuracy of Outline

Wing

Wing Planform	**Points**	**Comments**
Scale	3	Outline matches drawing.
Minor Deviations	2	Simplification, minor difference.
Major Deviations	1	Shape doesn't match the drawing.

Wing Surfaces:	**Points**	**Comments**
All Double covered	3	Normal balsa wing structure, covered top and bottom.
Single covered	1	As above, but only covered on (e.g.) the top surface. Unless the full-size was single-covered, in which case it gets the full 3 points.
Solid aerofoil	3	Normally applies to wings carved from blue foam with a properly-formed aerofoil with shaped entry and tapered exit.
Flat/Curved Plate	1	A balsa or blue foam flat or curved plate with rounded entry/exit edges.

Dihedral:	Points	Comments
Scale	3	Matches the drawing.
Minor Increase	2	Any increase that isn't a major increase (!).
Major Increase	1	Any large and/or obvious increase.

Fuselage

Fuselage Shape:	Points	Comments
Scale	3	Matches the drawing.
Minor Deviations	2	Usually applies to simplifications.
Major Deviations	1	Lengthened nose or similar.

U/C:	Points	Comments
Scale length/spread/position	3	Matches the drawings.
Minor Deviations	2	e.g. missing struts/detail/bracing wires.
Major Deviations	1	e.g. obvious length increase to allow larger propeller.

Empennage

Empennage Planform:	Points	Comments
Scale	3	Outlines match drawing.
Minor Deviations	2	A reasonable enlargement.
Major Deviations	1	An obvious and significant enlargement.

Surfaces:	Points	Comments
All Double covered	3	Normal balsa tail structure, covered top and bottom.
Single covered	1	As above, but only covered on (e.g.) the top surface. Unless the full-size was single-covered, in which case it gets the full 3 points.
Solid aerofoil	3	Normally applies to tail surfaces carved from blue foam with a properly-formed aerofoil with shaped entry and tapered exit.
Flat/Curved Plate	1	A balsa or blue foam flat or curved plate with rounded entry/exit edges.

Overall Appearance

Accuracy of Colour & Markings:	Points	Comments
Scale	3	Exactly as per documentation.
Minor Deviations	2	Significantly different colour shade, markings obviously wrong size, etc.
Major Deviations	1	Different colour, or markings missing.
None	0	e.g. plain tissue, unless the colour is scale.

Surface Finish:	Points	Comments
Painted	3	Airbrushed.
Part/Unpainted Tissue	2	Includes printed tissue – but you only lose 1 point for a tissue finish!
Condenser Paper	1	A bit harsh for Pistachios, IMHO.

Scale Detail

Details as per Documentation:	Points	Comments
All	3	Every *obvious* feature on the photo or colour profile is reproduced on the model, even if it's only drawn on with a pen. Drawing on the detail with a permanent marker is often good enough.
Some	2	Some effort has been made to add significant panel lines, etc.
None	0	No scale detail at all.

Pilot:	Points	Comments
3-Dimensional	3	Doesn't have to be worthy of Michelangelo or Rodin, just has to be recognisable as a pilot to roughly the correct scale. If you can do it, that's 3 easy points. Even if it's a rough rendition, that's still probably good for 2 points. Add a pilot, your score-sheet will thank you!
2-Dimensional	1	Even a simple folded-paper pilot is worth a point.

Bonuses

Aircraft Type:	Points	Comments
Floatplane	2	e.g. Macchi Schneider trophy racer
Flying Boat	4	Anything with the hull in the water
Autogyro	6	Not natural, if you ask me.
Helicopter	8	Oh dearie, dearie me… ☺
Wing Type: Low	3	e.g. Macchi Schneider trophy racer – bonuses are additive.
Bi-plane	2	The rules still favour biplanes.
Tri-plane	3	e.g. Sopwith Triplane
Multi-plane	5	e.g. Armstrong-Whitworth F.K.10

Structure

Accuracy:	Points	Comments
All scale structure	3	Includes fuselage structure as well.
All scale ribs	2	Wing and empennage ribs and riblets.
Part scale ribs	1	No riblets, or non-scale at the tail.
Non-scale	0	

Complexity:	Points	Comments
Intricate exposed structure	6	Bleriot, Demoiselle etc.
Complex compound curves	4	Spitfire, FW190
Carved/hollowed/solid	3	Anything constructed from foam
Box with fairings	2	Jungmann, Tiger Moth
Simple box	0	Lacey M-10, Fike Model E

Multi Engines:	Points	Comments
Motors on diverse thrust lines > 10% span	3	Do335 and Cessna O-2 don't count!

Miscellaneous

Workmanship	Points	Comments
Marked on merit	0 – 5	Don't worry about the workmanship score, just take a reasonable amount of care and accept that it is what it is.

Summary

Here are some Rules of Thumb which should hopefully summarize the situation:

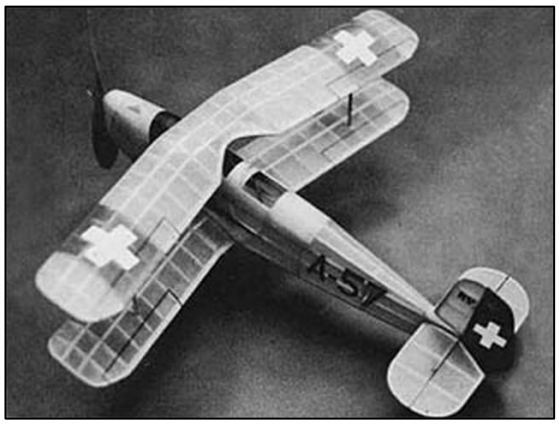
1. The model really must be able to take-off because if it can't, that's 10 seconds off your score that you won't get back, and it's worth the equivalent of about 45 static points, or what might well be your entire static score! You can use a dolly if the gear is retracted, but the model has got to be able to manage a take-off.
2. It is sensible to assume that many of your competitors will be able to achieve the maximum flight score, so ideally your model should also be able to achieve the maximum 50 second flight from a ROG.
3. Each 1 flight point is worth about 4.5 static points; you'll do much better with a scruffy model that can hit the maximum flight time than with a pristine model that can't.
4. Models finished in tissue are now more competitive because a well-executed tissue finish will only lose 1 static point when compared to an airbrushed finish.
5. However, leaving out the pilot will cost you up to 3 static points! To put this in context, it could be 8% or more of your entire static score
6. A hinged rudder is a really good idea for trimming purposes. However, make a note of the deflection so that when you drop the model on its rudder (!) you can re-set it easily.
7. If the motor is tired (i.e. model doesn't get to the same altitude as it did earlier), change the motor for a new one.
8. You might need the much-increased torque from a motor wound to 90%+ maximum turns for a good ROG and long flight, but you can only do it once per day – change the motor for the next flight. This isn't so bad because under the new rules, you only need <u>one</u> good flight.

Some Suggested Peanut Subjects

I'm not really qualified to talk about Pistachios (perhaps someone will write in?), but I *can* discuss Peanuts. Bearing in mind that the most important capability of a peanut is an excellent flight score (preferably a 50-second max), after some research (and personal experience) I'm prepared to stick my neck out and say that I think the following peanuts are likely to be capable of doing the job:

Andreasson BA4B

Peck kit - keep an eye on the wood density, move the rear peg forwards 3/4 – 1.5 inches, use Jap tissue, set the flight trim as it says on the plan and offset fin/rudder for a wide left turn on the glide. Use a small trim-tab on the right-upper wing to keep the turn flat and get a bit more altitude. Trim a 6" Peck prop to 5.35" diameter and use 2.8-3.0x loop of 1/8". Mine weighed a ton but bettered 50 seconds from a ROG on several occasions.



Bucker Jungmann

Walt Mooney plan or similar (e.g. reduced–size Skylake plan) – very long nose so still probably the best choice for biplane fans, Walt Mooney's plan can lose some ribs if using a printed-tissue or airbrushed finish, and move the rear peg forward one fuselage bay to reduce weight – there's still plenty of motor length available at 3x hook-to-peg to get a 50+ second motor run.

Lacey M-10

Peck kit – do what it says on the plan and trim for either a left or right turn. Comes out heavy because it's big, but relatively easy to get an excellent performance. Possibly the best choice for a first peanut, some people avoid them because with all that wing area and long nose, it's just too easy! I'd expect 50-60 seconds from a ROG without too much trouble.

Fike Model E

Similar to a Lacey; easy to get the glide/descent trim slightly wrong (extremely low aspect-ratio wing) and chuck away a vital few seconds at the end of the flight. Semi-religious comments about the Lacey also apply to the Fike.

Nesmith Cougar

Peck kit - do what it says on the plan and trim for a left turn. Usually flies extremely well, but make sure the noseblock is a tight fit. Again, I'd expect somewhere between 50 and 60 seconds if built straight and reasonably light.

Wittman Tailwind

Various Tailwind plans are available from Outerzone, most of which are known to be capable of 60 seconds from a ROG although, as I am discovering, getting the prop/rubber combination right takes some time. The Moorhouse plan benefits from moving the rear motor peg forwards slightly, and a cut down Sleek Streak prop works, but not well enough to break 50 seconds.

Peanut Competition Flying for First-Timers

Apologies (again) if you've done all this before and are already fiddling with your torque meter and blast tube, but this is for people who haven't tried competition flying and fancy having a go:

a. Documentation is important. I normally have a plastic A4 folder that contains the scale drawing or copy of a Profile publication, proof of colour (e.g. colour photo or copy of book/picture caption with colour scheme text highlighted) if the documentation is a drawing rather than a coloured 3-view, and the BMFA Free-Flight Competitor's Declaration form, filled in.
b. Deliver your model and documentation to the static marking bench ASAP, be nice to the judges and let them know if you need to take it away to do some flying. Also, let them know when you're replacing it on the judges table after the session.
c. You obviously need to know when your rubber motor will break, so you need to know exactly how long it is and how many turns per inch (or cm) you can put on it before it breaks. If in doubt, make up a short test motor and wind it to destruction.
d. Make sure you have several (four or five) spare motors run-in and available at the start of the competition, and use a new one for every competition flying session. I store them in Ziploc plastic bags with the exact 80%/90%/break turns written on the outside.
e. Even if you only wind to 80% max turns, let the motor rest for a few minutes between flights (or change it for a new one).
f. Talk to the timekeeper before the flight, they usually want you to look at them and nod before releasing the model.
g. Every peanut flight is a fight between the model and the ceiling; if it misses the ceiling furniture and you have a half-way decent time already, put a few more (50-100) turns on next time. If it gets to the ceiling with turns left, change to a prop with wider blades that turns slower, then if it doesn't climb enough, use wider rubber until it does.
h. Watch the descent carefully – can you take some noseweight out to gain a few extra seconds?
i. Make notes after each session and read them before flying again. I suppose I should admit that I don't always follow my own advice, which is how I broke my Andreasson.
j. If you wind much more than about 80% maximum turns (and certainly if you use 90+% max turns), that motor is done for the day.
k. Make use of the trimming time that is normally provided the evening before the competition, if only to work out where to launch the model and whether it'll hit the ceiling furniture on the turns that you want to use.
l. Trimming the model on the competition weekend is possible, and will work if you're lucky. But it might not, in which case you may well spend the day watching other people fly, cursing under your breath and wishing that you were more organised.

A Word on Duration and Rubber

I apologise for harping on and on about this, but to get a duration of 50 seconds indoors you're going to need about the same motor run as the intended duration; if you do a ground test and it only runs for about 40 seconds, then that's obviously not going to do it; change the prop or use longer rubber (or possibly both). I normally try and use 3x prop-hook-to-rear-peg length unless that causes it to hit the ceiling furniture.

Trinity Dates

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

Still on the lookout for RC Stuff…

I really must pull my finger out and build something for indoor RC, if you've done anything related to indoor flying (particularly involving RC), please send me something for the newsletter. Thanks!