Tauranga Model Aircraft Club Inc.

Now in our 72nd year

# October 2017

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**Photo from Battle of Britain Memorial Flight** – two generations of aircraft, same purpose.

## The month in summary

Not the best for model flying. Lots of wind – we have lost 2 windsocks. Lots of rain. Not many good flying days. The ground temperature is rising and our runways are growing rapidly. We now need to mow twice a week. Some of our major projects have been delayed through contractors being unwilling to work in slippery conditions.

On the positive side, I hear stories of lots of building projects, so am looking forward to see the Spring crop of new models. Our new drainage system is working well and despite the continuous rain we have had no lasting flooding.

## Projects update

Bad weather has delayed the drilling of the amenities block waste water soakage pit, and the outfield mulching project. This means that the contractors have a backlog of work to get through and this may result in some further delays.

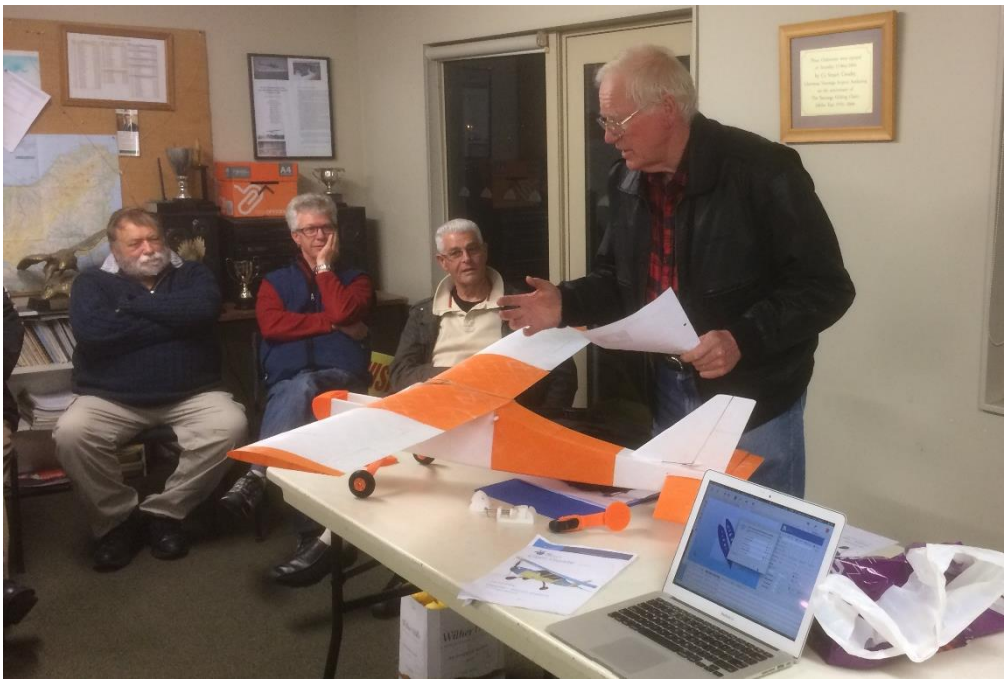
Gary Powell hopes to install the solar panels on the roof of the amenities container, once the weather settles down. This will charge batteries to power the water pump, and also for a LiPo charging station.

We have applied for funding to purchase a tractor drawn flail mower. This will be attached to our tractor and used to maintain the outfield to a manageable level, after the contractor has provided the first blitz. There are no guarantees with gaining external funding so we will not make a purchase commitment until we have secured sufficient funding.

## Landing Competition

Bill has proposed that we have a landing competition. This will be open to all categories of fixed wing aircraft and will provide an opportunity to demonstrate or develop your landing skills. Points will be awarded based on how close your wheels touch down to a marked patch on the runway. This is first touch down, not final resting place. Last time we ran this it was a lot of fun. The winner will receive the coveted prize of a bag of jelly aeroplanes. Its currently too wet, but we will send out an email notice of when this event will take place.

## Club night 6th September



**Russell Corney** demonstrated his 3D printed electric trainer. This was described in last month's newsletter. The structure was surprisingly sturdy and not much heavier than conventional construction. Overall the cost of the printer, software, spools of print plastic is not substantially more than a kitted trainer and gives the advantage of being able to print more copies, spare parts and other models relatively cheaply.

See https://3dlabprint.com/shop/ for other models which can be printed.

### Presentation by Scott Spooner

Our primary speaker was Scott Spooner. Scott is our local MFNZ regional delegate and he focussed his talk on his professional and personal modelling activities. This was a very good opportunity to develop direct relationships between the club and MFNZ Council.

Scott has a background in mechatronics and works for Aeronavics in Raglan. Aeronavics is a world leader in commercial multirotor design and includes customers such as NASA and National Geographic in its portfolio. The large yellow RPAS in the photo is an "Icon" with a price tag of around $60,000. It has a vertical thrust capacity in excess of 100Kg and can carry a 20Kg payload for 50 minutes. It can be equipped with clever payloads such as multispectral cameras for crop monitoring, high resolution high zoom cameras for aerial inspections and other applications. An interesting development is a payload with artificial intelligence and computer vision. This can patrol an area looking for wilding pines, and then spray them under autonomous control, with no human intervention. The tower on the top of the machine is a ballistic parachute, which will fire automatically if the machine gets out of control. This is more for the purpose of providing safety to people on the ground rather than to protect the machine.


For safety the machine uses Li-ion batteries. These have a current limitation which means that to produce adequate power, the voltage must be lifted, by using multiple cells. The machine is 12S- 48V.

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When he is not flying RPAS, Scott flies fixed wing model aircraft both conventional and unconventional. On the conventional side he has a scale P51 and a Calmato. On the unconventional side he competes in "dynamic

soaring". This involves flying heavy 2m gliders in circles on the lee side of a hill. Every time the model crosses the wind shear line it gains in speed. (I don't understand the aerodynamics here). Speeds can be as high as 600km/hr – scary and potentially dangerous as the high aerodynamic loads can cause a model to disintegrate in flight. The world speed record is 835km/hr. Some of his dynamic soaring gliders are shown in the foreground of the photo.

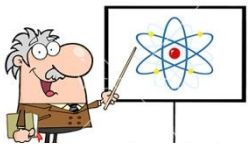
## And the latest from MFNZ.

The rabbit hole just goes on and on . . . . . .

- I trust you all have read the latest Model Flying News and in particular the Secretary's report and the "Girls Rule" column. These contain emotive, ill-informed, and inaccurate statements about the conduct of a group of members at the (failed) AGM. Is this the level of professionalism we expect from our executive?
- In a similar vein, one of MFNZ's members, in an attempt to unravel the decisions behind the recent MFNZ AGM situation, requested copies of minutes of the AGM Council. In many clubs and Incorporated Societies, an open book transparent approach is mandated through the Constitution. (In the case of TMAC any member can attend a Committee meeting). MFNZ declined the request. This is particularly concerning when the legal definition of the organisation is 'the membership' and the Council is simply a group of people elected by the membership to act in the best interests of the membership. Every member has the right to seek assurance that the Council is acting within their mandate. Why are they keeping the affairs of the Council hidden from member scrutiny? This just leads to mistrust in the executive.

"There is something rotten in the state of Denmark" – Hamlet, William Shakespeare

## Professor Flapbracket talks technical



**Prof. Fred Flapbracket is an expert on all things technical. Sometimes he may be useful, if you don't fall asleep during his lectures. Author of the best seller "101 ways to fall from the sky"**

Flapbracket has been advised of an electric model where the pilot swapped a 3S LiPo for a 4S. On the subsequent flight the ESC caught fire and the plane fell like a burning meteor out of the sky, causing much drama. Here's why:

When you upgrade from 3S to 4S you are lifting the voltage by 30%. Motors are rated in kV which is a proxy unit which defines a linear relationship between supply voltage and speed. This means that the propeller will try to rotate 30% faster.
The power drawn by a propeller is roughly a cubic relationship. If you try to turn the propeller 30% faster, the power drawn will be 1.3 X 1.3 X 1.3 = 2.1 X the original.

Power is defined as Volts X Amps. If the Volts have been lifted by 30%, then the Amps will be 2.1/1.3 = 1.6X the original.

To simplify – lifting from a 3S to a 4S battery will increase the ESC current load by 60%. If you have a 30A ESC and the original model runs at 25A, then the additional cell will take it to 40A. That's a little uncomfortable. If the model originally draws the full 30A the ESC will be well overloaded at 48A.

The best way to fix this is to use an Ampmeter to check exactly how much current your motor is drawing. If you exceed the ESC rating you can always restrict the throttle movement to bring it back. Otherwise fit a smaller diameter or lower pitch prop.

Always make sure that ESCs are well ventilated. Its heat that kills them.

## Insurance

In the last month we have been looking at the MFNZ insurance policy and matching the levels of cover against the requirements in our lease with TECT Park. MFNZ provides public liability cover in the event that you set fire to the forest or hit a prize bull in the scroats. It does not provide coverage for loss of a model. In this process we have become aware that many of our members may have some level of public liability and loss of model coverage through their home contents policies. Both State and Vero provide "hull" insurance as part of the standard cover. This means that if you are flying within CAA rules for remote piloted aerial vehicles then you have coverage for loss of your model up to $3000 (State). This is another good reason to get your "wings" as this is a means of verifying that you are a competent pilot and therefore not a contributory factor in any crash.

## For sale

Jim Byrnes has an original ¼ scale Hangar 9 Piper Super Cub ARF kit for sale. This is 109" span and suitable for something like a DLE 20 – DLE 40 power plant. The model needs a minimum of 6 channels and 8 servos to cover flaps and all moving bits. The box has been opened but is as original. Colour blue/white as per the photo. These sell for in excess of $1500 and Jim would let it go for $1000.

See https://www.horizonhobby.com/product/airplanes/airplanes-14501--1/almost-ready-to-fly/1-4-scale-pa-18-super-cub-arf-han4540 for more details. Give Jim a call on 5792337 (Tauranga)

## Andy Avgas – (junior reporter)

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**WAR OF WORDS**

Today marks the 35th anniversary of the death of Sir Douglas Bader and I couldn't let it pass without this story about the RAF hero. He was giving a talk at an upmarket girl's school about his time as a pilot in the Second World War. "So there were two of the f***ers behind me, three f***ers to my right, another f***er on the left," he told the audience. The headmistress went pale and interjected: "Ladies, the Fokker was a German aircraft." Sir Douglas replied: "That may be, madam, but these f***ers were in Messerschmitts."

## Snippets

- TECT Park has a new website – see www.tectallterrainpark.co.nz
- TECT Park has installed new direction signs. These have a bigger, more visible graphic depicting our flying site. What do you think of these ?
- Vodafone has advised that they will be closing their internet service from 30 November. This includes clients with Clear and Paradise accounts. If you have to change provider, please let me know your new email address, otherwise you will miss out on future exciting editions of the Newsletter.
- Overheard at the Flying field – "I will never crash another aeroplane" (Roger Peddle). Yeah right!

That's all for this month – safe and successful flying to all

Dave Marriott

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