

February fly-in and BBQ



Our normal club night fell on Waitangi Day, and this, coupled with daylight saving prompted a social fly in and BBQ at TECT Park in place of a normal club night at the Glider Club. Some 26 members and several partners turned out despite adverse predictions of rain and wind. A surprise visitor was John Miller from the Kapiti Club. (Some of you may remember John as a former member of TMAC). The wind was a bit fickle but the glider guys had fun slope soaring on the updraft at the edge of the main runway. The wind later died back and some good powered flying was had. The rain didn't arrive. New member Dave put an aerobatic machine up after not having flown for 4 years. Some interesting impromptu manoeuvres until he discovered he was on full rates and until his atrophied reflexes kicked in. Our initial warnings to take cover were unnecessary and he eventually made a successful landing. Mike entertained us with some advanced aerobatics including rolling circles and lomcevak (is that what you call them when the plane seems to be rolling in 4 dimensions at once?). Lots of suggestions that "we should do it again". (*we will repeat this on March 6th – ed*)

Wings over Wairarapa (by Rob Morgan)

I was invited to be part of the model flying display at the WOW 2019.

This was set up by Dave Thornley and Model Flying NZ, and was to be a part of, and to run concurrently with the full size displays.

I opted to stay at a small hotel in Carterton, the Marques of Normanby. If you are ever in the area and looking to stay at a cheap place, go somewhere different! !

The model flying displays consisted of helicopter displays, DLG glider displays, jets, racing drones and control line. I was involved in the control line combat display, flying with Bryce Gibson (5x NZ champion and world champs representative).

The combat was a very staged affair made to look good for the public. It must have looked good as we received a round of applause after each display. The big bonus was that we flew 4 'bouts' and never had a crash or line tangle all day, a great feat in itself.

There was also a control line aerobatic display which also went down well.

The DLG gliders were pretty impressive too and the public couldn't believe the height they were thrown to.

The drones buzzed around.

The model jet display was a solo BAE Hawk which was flown off the main runway and could easily be mistaken for the real thing.

The model heli display was flown acrobatically and pretty impressive. At night an LED light system was rigged up on the blades and tail, \$ 1000 for the blades, which was programmed to firstly give a multi coloured effect and also do signwriting,

The main program of full size aircraft was highlighted by multiple WW1 aircraft from Sir Peter Jackson's stable. A B52 US strategic bomber was supposed to overfly but had a "technical" problem in Aus. A hard landing was the rumour.

Also there was only 1 WW2 plane flying, a Yak 9, which was based locally, Mustangs and Spitfires from Ardmore didn't show.

There were displays by the RNZAF with helis and others.

Overall a very good advert for MFNZ with a lot of enquiries and interest.



Useful links – possibly related to model aviation

- Lithium titanate batteries – is this the next evolution of battery technology ? <https://www.ev-power.eu/LTO-Tech/>
- Here’s another useful site to check wind levels <https://www.windy.com/?2019-02-16-00,-37.943,176.166,14>
- Here’s how to do the perfect landing. Bruce Liddell sent this to Andy Avgas after seeing some of Andy’s landings and realising Andy needed some help!
https://www.youtube.com/watch?v=ISVI2qfjLns&fbclid=IwAR37az00kpZwKHITYE0-Hz2glsIk_nM3OakufxGq3mm5eQ_UM03rrRf7Z0O

Generalities

- Looking for a source of methanol?. Frank Brown has 60l available (or let the Secretary know if you are interested)
- Our access road at TECT Park is to be upgraded using millings from SH 36. You won’t need to wash the car so often!
- Roger is about to send out invoices for this year’s subs. Our financial year starts March 1st so it would be appreciated if you could get these in soon. If you have not paid your MFNZ sub by end March you will be uninsured.
- Have you thought about standing for committee? Details have been sent to members by email.

Coming Events

- March 6th - Clubnight. BBQ open flying at TECT Park. Partners and hangers on welcome. From 5pm.
- 9th, 10th March. Kapiti Aeromodeller’s Club Annual Rally.
- April 3rd – Our 73rd AGM. Time to think about the future.
- 5th, 6th & 7th April aerotow meet TECT Park. We anticipate 20me 20 flyers who will camp overnight at the field. As far as possible we will endeavour to maintain normal flying during the aerotow activities.
- June 16th – TMAC annual auction. Time to clear out the shed and to make up a wish list.



More Wings Test Questions – are you ready to go for your test yet?

<p>22. Explain the precautions associated with charging batteries</p>	<ol style="list-style-type: none"> 1. Always use an approved charger for the type of battery being charged. 2. Lipos must not be left unattended during charging. 3. Place Lipos in a fire proof container during charging. 4. LiPo cells are made from thin lithium foil (flammeable) packed with a flammable gel. They contain a lot of energy. If the cell is damaged and a short develops inside the battery, the battery can catch fire. Similarly if the battery is overcharged it will give off gas, which will cause the battery to swell, to the point where if it ruptures it can catch fire. Precautions: <ul style="list-style-type: none"> Check for damage before charging Charge outside, do not charge unattended Charge in a heatproof container Use only an approved charger with automatic cutoff Make sure the charger is properly set. Monitor continuously while charging Cease charging if the battery starts to swell. 5. Avoid overcharging NiCd or NiMH batteries as this will reduce the battery life.
<p>8. What would you do if a person walked into the flying area?</p>	<p>Shout a warning. Request that they move to a safe place. Avoid flying over persons. Land if safe to do so.</p>

(For a full list of questions send an email to taurangamodelfly@gmail.com)

Aviation wisdom

- Flapbracket's rule - It takes 100 things to go right for a successful flight. It only takes one thing to go wrong to ruin your day. Make sure you do those preflight checks.
- Aviation saying – there's nothing more useless than runway behind you.
- There are three simple rules for making a smooth landing. Unfortunately, no one knows what they are. (*oh yes they do, see links. – Ed*)
- A test flight ought to be like a skirt, short enough to be interesting but still be long enough to cover everything.
- (Full size) Immediately the engine quits, the plane belongs to the insurance company.

Professor Flapbracket's column

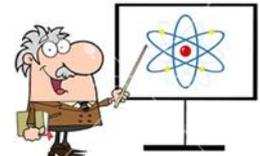
Oops !

Last month Prof. Flapbracket published an incorrect formula for determining the kv rating of an electric motor. The formula should read:

$$kv = \text{rpm} / (\text{voltage} \times 0.95 \times 1.41)$$

where 0.95 is a proxy for motor efficiency and 1.41 accounts for rms."

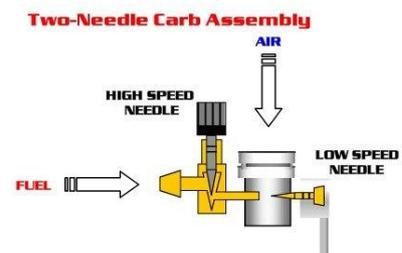
(as a penance, Prof Flapbracket has given an extended article this month – Ed)



Glow twin needle idle adjustment

Frequently the Prof. notices someone spending time in the pits twiddling one or both of their needles. (?!) This generally arises from an incomplete understanding of how the simplified carburetors on a model plane engine work. In simple terms this is how to set up your idle setting:-

- The high speed needle only adjusts the top end. The low speed screw adjusts from idle through to mid range.
- First run the engine at full throttle and set the high speed needle to give max rpm – then back it off a small amount so that it is slightly rich (better a rich mixture than a lean one which could damage the motor). The high-speed needle valve sets the maximum fuel flow rate at maximum revs.
- Do not play with the low speed adjustment until you are happy with the high speed setting.
- As the throttle is opened you will see that the throttle drum moves on a spiral and moves across as well as rotating. It is this sideways movement which opens or closes the low speed jet. The idle jet provides a reduced fuel flow at partial opening of the carburettor.
- Every manufacturer has their own method for setting the idle screw. For OS carbs, the starting position is with the idle screw flush with the outside body of the carburettor. ASP use the blow through method¹, Magnum (v similar to ASP) have a method where you open the throttle fully, then screw in the idle jet until it bottoms out and then unscrew a given number of turns, MVVS have a system where you can see the idle jet through the carburettor opening and can use the eyeball technique to see when it just starts to open.
- Each method just gives an approximate position, but you will need to fine tune by moving +/- up to half a turn either way.
- From idle
 - if the engine dies when the throttle is opened - it is too lean
 - if the engine coughs and splutters and puts out blue smoke when the throttle is opened - it is too rich.



¹ The blow through method. "It is best to adjust either the servo travel in the slow position, so that the amount of opening is approximately the diameter of a modelling pin. Now connect some fuel tube to the fuel inlet nipple and set the high speed needle at the full speed setting (or 1 1/2 turns open from the fully closed position for an initial trial). Now close the throttle and while gently blowing through the tube, establish the setting of the idle needle where air just starts to escape. The correct idle setting will now be 1/2 turn open from this point. As a check on settings, if you, while still blowing through the tube, open the throttle, you will find a rapid increase change in air flow when the arm has moved about 15 degrees from the slow position."

- Once set, the idle mixture will very rarely need to be adjusted - perhaps for a change in altitude or different fuel blend.
- Always make throttle movements slowly - a quick transition from idle to full speed means that the engine does not have time to match its speed against the new mixture and can stall.
- Once you set the idle, go back and recheck the main needle setting. The two are interrelated and you may need to go through a couple of cycles to get it right.
- Once you get it right it is useful to make a note of the setting(s) so you can quickly re-establish that position after an overhaul etc.

Taildragger take off procedure

The Prof recently observed a flyer with a new taildragger. He pulled it off the ground, it went vertical, stalled and then SPLAT! Not a pretty sight. Here's how to avoid this situation.

With a tricycle undercarriage the plane is generally at close to flying attitude when sitting on the ground and the take-off procedure is not much more than opening the throttle, building to flying speed and then applying a little elevator to climb away from terra firma. Taildraggers are a little more complicated but there are some simple steps to ensure that you go home happy.



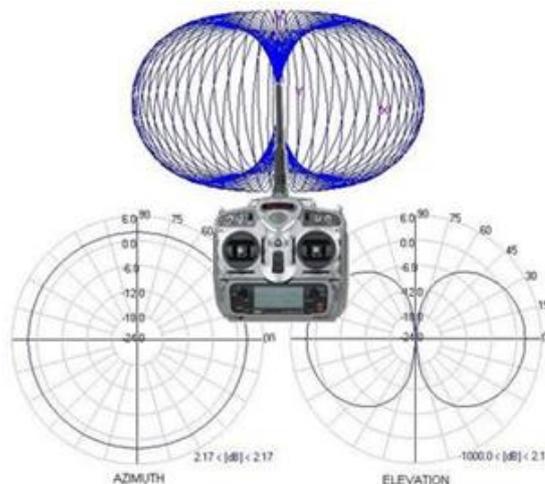
1. Make sure that the wheels rotate freely. If they bind, this can cause a noseover.
2. When taxiing, use full up elevator. This will keep the tailwheel on the ground and will avoid noseover and enable steering. This is particularly important on windy days where the model will try to weathercock into the wind.
3. Start your take off run with full up elevator. This will prevent noseover when you open the throttle.
4. Open the throttle slowly. Allow the model to build speed while slowly relaxing the elevator. Too little elevator may cause a noseover. Too much and it may lift off prematurely, stall and then disintegrate as it cartwheels down the runway, throwing fragments in all directions. (This is considered poor etiquette as it makes the runway untidy).
5. As you reach flying speed the tail should have lifted and the model running on 2 wheels. At this point the rudder will have enough authority to steer without the tailwheel on the ground. You can hold this position for a long time to give a scale appearance to the takeoff.
6. When you feel comfortable, slowly ease in a little elevator to lift off. Don't give it full throw as this could result in a stall even if the plane is at flying speed.

Loss of radio link

One of our flyers recently lost control of a jet directly after takeoff. The model was completely unresponsive to any control input. Post crash investigation has not found any problem with any of the radio equipment and it is now thought that there might have been a loss of signal through the receiver being shielded behind equipment (eg jet unit, fuel tank or battery). Radio waves do not bend around objects.

Most receivers use a quarter wavelength aerial as this is naturally resonant at the transmitted signal frequency. For a 2.4GHz signal the quarter wavelength calculates at 31.2mm long. Some manufacturers further optimise this by adding components in the receiver and have aerials in the 23-35mm range. This is not very big and you can see how the aerial can easily be shadowed behind a big lump of engine or battery. For this reason, higher quality receivers are often fitted with one or more additional "satellite" receivers to ensure no signal dropout. This is called "diversity".

Maximum signal is transmitted/received from the side of the aerial. There is very little signal transmitted in the line of the aerial. The statement about orientation of aerials is equally valid for receivers as for transmitters. If you have your transmitter pointed directly at the model there is a significant downgrade in signal strength and this is further degraded if the receiver aerial is pointed directly at



the transmitter.

Simple rules.

1. Where possible always use multiple receivers (main + one or more satellites).
2. Carefully plan their installation such that there is no orientation where they both could be screened by other equipment. (tanks, engines, batteries, carbon fibre.)
3. Make sure that the aerials are at 90 degrees orientation to each other.
4. Do not point your transmitter aerial directly at the model.

That's all for this edition. Fly safe and keep out of the jungle. Send me some photos !

Dave Marriott
Editor



Did I mention – photos, please?