

## **Torque Back      August 2019      Editor: Garth Wilmot.**

### **Around the hangar.**

After seemingly months of windy weather the beginning of August provided some decent weather and I managed three consecutive days of flying. Surprisingly I only had a couple of members joining me on 3<sup>rd</sup> August with quite a few more on the following two days. I took time for a rest on Saturday and returned to the field the following day making it four out of five days. Unfortunately the weather deteriorated for the next couple of weeks. Unfortunately, it looks as if I am at the desk for at least another month.

### **From the Safety Officer.**

A few things for members to know about.

There was an instructor refresh / training day a few Saturdays back and we now have a reasonable group of instructors available to undertake training. This should make instruction a little easier to organise, but the next thing is to make sure we all get time at this sometimes-difficult task.

Its very pleasing to report, Damien Blackwell has passed his Gold Wings (Helicopter) and is now I think the clubs first dual gold wings holder and instructor for fixed and rotary wings. Considering the mental agility, it requires, this is an outstanding achievement. After an immaculate flight which I spent sweating over those big sharp and hard rotors turning at around 2000RPM inside one Km from my head, all was well.

Peter Ralph has passed the southern CFI baton onto me and this has been confirmed by the MAAA. Peter has carried the training load for some years but with CASA intruding more and more into model aircraft activities, spurred by the advent of FPV models and the multi rotors, the administrative load (see below) is increasing and Peter felt he needed a break. He has been a valuable instructor for whom I have great respect and thankfully, he assures me he will help out when needed.

**Incident reports** - FYI, it appears that an incident is any event including a crash that could result in damage or injury to persons or property. It doesn't have to be a crash but any event that carries a safety implication such as quad, fpv flyaway, or fingers in props etc. As mentioned in the last newsletter, incident reports are now required by CASA and not something we dreamed up to pass the time on a bad day.

Interestingly it was a crash in the SW corner which came to rest just over the fence to the South that provided our first recordable event. A detailed examination as to cause, revealed all aspects of the often-flown model were found to operate correctly except for two wing servos with stripped gears. We think these failed as a result of the impact, and the owner concluded he was too far out for effective visual control, with which I agree there is no further action to be taken.

Crashes inside Kf boundaries do not need a report as long as no third-party injuries or damage which could result in an insurance claim occurred.

Pilots involved in an incident or crash, are required to complete the "incident report form" with help from an instructor if needed. Attached to this form you will see an Incident investigation form which I complete then decide if the matter requires further action. At least that's my current understanding of the situation as I await clarity.

The forms required of incidents and accidents are available in the clubhouse or if it's more convenient feel free to phone me and we can complete them this way.

I don't know what others think but winter so far has been benign. A couple of frosty mornings and a series of up to 4 days of perfect flying conditions. Even though it often remains chilly in the shade the winter sun when the wind is light gives adequate warmth for enjoyable flying. It was good to see Chris Rowe back after a nasty health scare and time in an out of hospital, he's asked he be allowed to check his currency on the club's buddy system until he is confident flying his own models, very sensible and we're happy to agree.

### **This is where we need your cooperation.**

In the past it has been almost impossible to maintain club models in a flying state due to interference with the transmitters.

The trainers are available to all instructors but to avoid endless reprogramming, this has to be by a request to Barry, me or Ken so that we can ensure the settings and channels etc remain operable with models properly set up before flight, thus avoiding any need for programme changes.

Most of you know that it has been long standing club policy that newcomers can have three free training flights, but only once they show adequate skill on the simulator in the clubhouse (which should always be their introduction to flying). Any further training flights are at the instructor's discretion but please note the trainee must have HMA membership and have a model at least in the build process and all equipment. It is the instructor's responsibility to ensure the students model is ready for flight and when using the club trainers make sure our trainer is functional and also ready for flight. As a courtesy to the next user, please make sure all batteries are charged both before and after flight.

Talking of the clubs training models - we have two operational at present, both electric. Both are light foamy airframes, one on the Futabas (mode 1) and the other on older JR sets, (mode 2) We have a further two models not yet operational which we can bring into use as the need arises.

Before I and others bemoan CASA involvement in model aviation which at times can be a pain in the butt, look at the changes we face and the need for sensible regulation becomes evident. Models weighing up to 150Kg are being built with heavy models (7 to 27Kg) now common. We buy motors which would be respectable in motor bikes, turbine aircraft with speeds well in excess of 200mph, and I read in a model magazine of a DS gliders reaching speeds in excess of 500mph (No that's not a mistake) and multi copters with 6KV gensets able to lift well over 20Kg. Then we have FPV models with all the implications they bring. So yes, regulation is with us. Be thankful we can still indulge in all aspects of our activity.

Don't for one-minute disregard the benefits of being an HMA member.

If you need some info. Ask. With the current membership of around 55, before you can duck you will have possibly 65 opinions to consider. Some will be good valid advice, some the result of

wild imaginings generated at 4am on a poor sleep night but in the 65 may be an item that cause you to gaze at your navel for an extended period.

This happened to me some weeks back. Barry happened to mention our suspected water leak with its cost and that another member had used water divining in an effort to find pipes and leaks. It appeared to work.

Now this was something I'd heard of but always regarded as nonsense.

Fortunately, I kept my opinions to myself when I fronted the aforementioned and highly respected member whose advice and instruction I value, demanding a demonstration of this unlikely quality. It should be noted though, that when I followed his very successful instructions for burning a large Blackwood stump in my backyard, I failed to ask how to deal with the resultant hole which if discovered by council would have required mining approval - another of life's lessons - know what to ask.

Off he went to return minutes later with a piece of fencing wire, straight and about 20" long with a right-angle bend in one end about 6" long which turned out to be a handle. First, he showed me how it worked over a water pipe in a known position. When he reached the buried pipe, the wire swung from straight ahead by 90 degrees. Ah Ha methinks, he knows the pipe's there and he is also in command of the wire. I don't buy that.

So, "you have a go" I'm told. So off I go in command of the wire and bugger me it turns 90d right at the pipe with me in control. I tried it held at about 30 degrees up and down and it still swung. I then went on to test the dog bowl on the corner of the clubhouse and rather than turn it sort of wavered back and forth of its own volition. About what you'd expect on a pot sized target.

I'm still sort of discombobulated, still thinking - I just do not understand - but one thing's for sure I'm glad I didn't offer to eat my hat if it worked. I commandeered the wire for further testing at home

There's more to this model aircraft malarkey than I thought.  
Safe flights guys

Nils CFI South

**President's Corner.** Need I say again that the weather has not been very kind to us over the last month and consequently there is little to report.

As you know membership fees are due after the AGM and by 1<sup>st</sup> July if you wish to fly. Faced with a possible reduction in membership this year I have been most encouraged by the renewals this year. We could have a membership around 47/48 if all goes to plan. This is a reduction of about 4/5 on last year.

Nils and Ken have between them managed to get two Trainers up and running in readiness for the influx of new Trainees!

Nils report in this Newsletter sets out in detail a protocol to manage the Trainer aircraft and equipment.

We now have a Defibrillator unit mounted inside the door of the clubhouse in a cabinet.

I suggest to members that they might like to make themselves familiar with it's use by reading the documentation in the cabinet.

A one-hour course will be arranged with St. Johns to be conducted at the club on a date to be fixed soon. It will most probably be on a Saturday.

**Please note:** Whenever there are members at KF, please ensure that the Clubhouse is unlocked so that the Defib. is instantly available. There are sufficient keys amongst members that someone will be able to unlock the clubhouse and ensure that it is locked up at the end of the day.

The water usage issue has been resolved to the extent that since the water has been turned off to the irrigation systems there has been little recorded usage other than that of the horses and cups of tea. As to where the water went is still a mystery but we do not have a massive leak.

The Gents Amenities have been fitted with a new basin tap by Phil Hubbard.

The road repair will be finished at the end of the month as the rock base has pretty well consolidated over the months.

Happy and safe flying,

Barry Gerrard

### **From Jason Bedelph.**

So, for those that know absolutely nothing, consumer 3d printing is a basically where a part of model is built from a molten plastic extrusion, controlled by a cnc machine. The plastic used, commonly called filament, comes on a spool and looks a lot like whipper snipper cord. The correct name for this is called 'fused deposition modelling' or FDM for short. I use a cheap kit printer called a Tevo Tarantula that is capable of making models 220mm Wx280mm Dx200mm H, and is a cartesian style CNC machine, which means the printhead moves in the X (left and right) and Z (up and down) directions and the build surface moves in the Y (back to front) direction. I am also currently assembling an open source build called a Hyper Cube Evolution, which will have a build volume of 400x400x400mm and is of a CoreXY type CNC where the printhead moves in the X and Y and the build surface moves in the Z direction.

After printing some replacement hubs for Peter Ralphs Hobby King Gyrocopter, he gave me a rotor blade mount with the unassuming words "see if you can make that in your spare time'. Unlike the first part, which someone had already designed and shared publicly on 'Thingiverse', there was no available model ready to just send off to the printer and have some tea and biscuits while watching the part build up layer by layer. This time I would need to recreate the part as a 3d model.

Anyhow, fast forward about 9 months, a little time window presented itself! When I started off on Peters little part, I decided it was a great little primer for some more advanced models I will need to tackle on some larger projects I have on my wish list.

Being new to 3d modelling I did a little googling and decided to dive right in with a professional program, Fusion360 from the makers of AutoCAD, Autodesk.

Not nearly as intuitive as some online programs like 'TinkerCAD', and actually quite frustrating to use to start with. I after much trial and error (about 3 hours) I had a half decent model, pic1.

This was then ready for conversion into stereolithography or 'STL' format ready for the 3d printing software. This usually taken care of by the CAD program these days.

After this the next step was to load it into the 'Slicer', a program that converts the 3d model into 'G-code' (CNC) commands for the 3d printer. It is in this software that all the printer parameters are

tweaked for the material being used, the resolution of the print and also the type of model being printed. This is another rabbit hole you can disappear down with literally hundreds of options that can be adjusted. Out of the many Slicer programs available I use two, 'Cura' and 'Simplify3d'. There are many different reasons to use a different program to suit a different model, so it is good to know how to use a few. Cura is free and has many good options for the beginner and advanced users alike, however lately I have been using Simplify3d more because I like how it handles PETG plastics, or rather I managed to get Simplify3d to print PETG with good results easier than Cura.

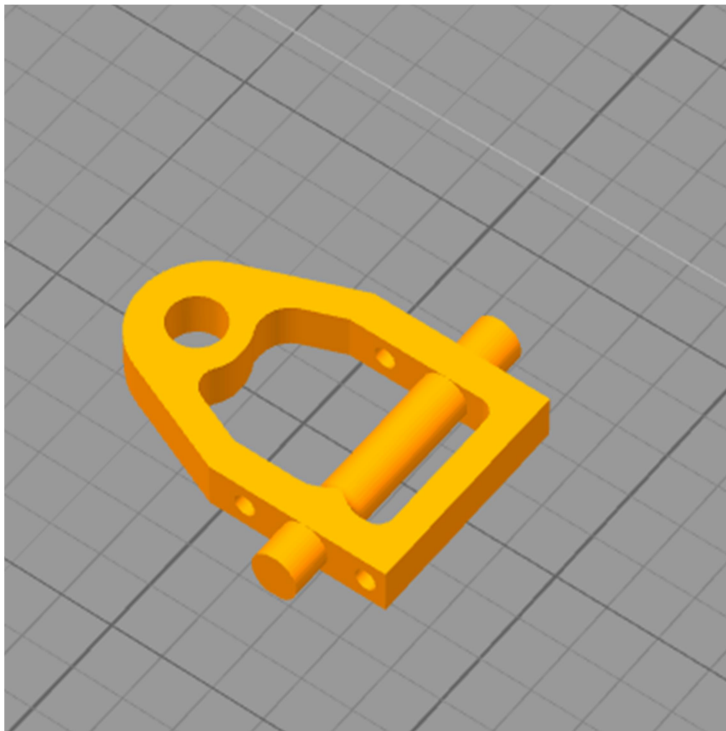
Below are some pics of the model loaded into the slicer (pic2) and 'sliced' ready to send to the printer (pic3)

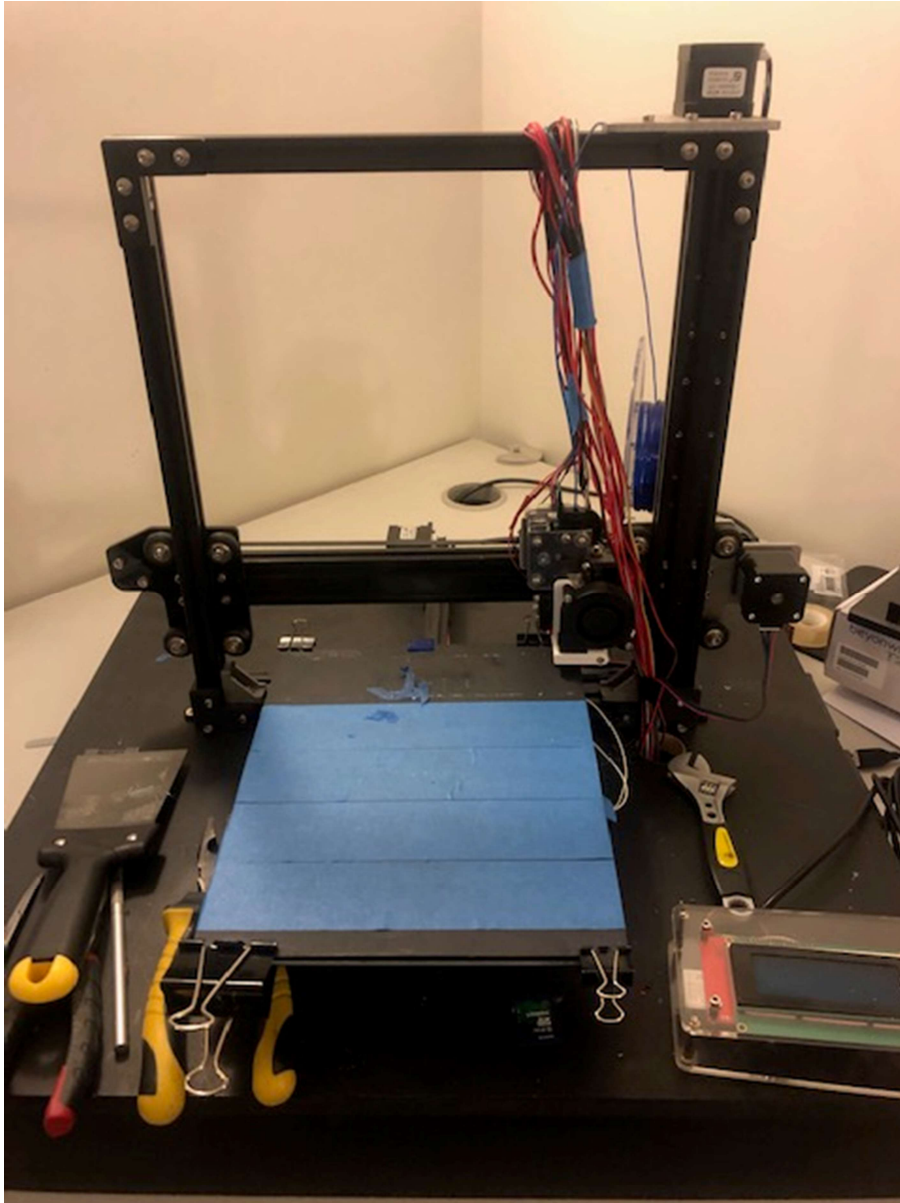
So, after another 31 minutes, I had a 'sort of' copy of Peters part. Pic 4 is the item being printed and pic 5 and 6 of the finished part.

So why did I choose PETG plastic? PETG is very durable and reasonably heat resistant so should withstand many a sunny day at KF. Other common plastics that can be used are ABS which is slightly more durable than PETG, however a step up in difficulty again to print with, down to PLA, which is what most start printing with. PLA is somewhat brittle and will droop and deform in direct sunlight, and is also biodegradable. PLA is however easy to use with good results straight away.

So, some specifications for those that are interested. The part is printed at a 0.4mm resolution and 0.15mm layer height, so it is made up of lines .4mm wide by .15mm tall. 68cm of 1.75mm diameter filament was used to print up the 30 layers of this particular model. It has 1mm wall thickness and is hollow inside, but with a 30% infill pattern, and weighs about 2 grams. It has a little more flex than the original but should be more than adequate for the task, with the PETG being more flexible than the original plastic used.

Anyhow I hope this was informative as I leave you now wondering about the decision of how I decided to use my spare time...







Pictured on page 8 is Peter Ralph's Piper Cherokee built from a kit produced by Russell Goff based on the VK version. It had a good quality fibre glass fuselage with balsa covered foam wings. All very well except for the fact that the chord was larger than the wing opening. All eventually fitted after some surgery.

I had it for a few years and eventually sold it to Peter who had quite good service from it and may still have it.

Russell Goff was somewhat of a character to say the least! He produced trainer kits with fibre glass fuselages and foam wings to a reasonably high standard, but chose the Precedent Highboy to copy. The original was a dog and totally unfit for training, and many did not even survive the test flight!



Damian Blackwell's Mustang is an FMS 1450mm 4S Tuskegee airmen Red Tail edition. Completely stock.



### **Russell Goff.**

It was suggested that Russell was often under the spell of the whoopee weed and was a cross dresser. One evening he turned up to buy something from me and he was wearing lipstick and high heeled shoes. He was on his way to the casino. He was a willing volunteer and once took on the newsletter.

I was so disgusted by the grammar and spelling that I immediately produced a new one, without getting any permission. No one complained and from that point on I produced newsletters for many years. I did have a secretary in those days and I am afraid the Credit Union paid for the postage, paper and envelopes from my marketing budget.

### **A late one from Nils.**

Barry and I decided in the interests of mental stability to clean out the training cupboard. Amongst some of the "really good stuff" were some old transmitters for which we have no use - to wit

JR Quatro 36Mhz

Futaba FS7 fitted with an FRSky module (this is a particularly nice set though well out of date)

HiTec Laser 4 channel 36Mhz

HiTec 4 channel 36Mhz

JR Quantum 36Mhz



Flysky Basic set with receiver on 2.4Ghz

If any of these Tx's have an owner who would like them back could you advise Barry or Nils as soon as you can please?

Any not claimed will be offered to members, they are probably a bit dated but may be useful as simulator controllers.

**. From Canberra based former member Peter Ederle.**



My latest, it's a Flybaby by VQ Models. 94 inch wing span. Picked it up cheap. Just the frame. They are designed for a 27/30 cc petrol donk. I didn't have one. Did have a 55cc DLER and guess what, it's fits. So after much fixing and restructuring I now have a ballistic missile. Plus it is a ton of fun!

Page 10 picture is Damien Blackwell's F4U Corsair which is a great performer.

I wish I had Damien's money tree!



## FOR SALE

Myford ML7 lathe plus extensive list of essential accessories.

Face plate, 4 jaw chuck, live and dead centres, tail stock drill chuck, dial gauge, vertical slide for milling, machine vice. Heaps of tools, large range of medium to large drill bits and mills, many reamers both fixed and adjustable. Mounted on solid custom made metal table.

Single phase electric motor.

Very low usage, is set up completely true and accurate, and from new, only used for light hobby purposes. \$2,400.00.

Peter Ralph. [lizar@netspace.net.au](mailto:lizar@netspace.net.au) 0431 821 966



