



# Flight Desk

April 2017

The official newsletter of Chesham Model Flying Club Ltd

Volume 29

Issue 2



February Club Night Hurricane

## Editors Ramblings



We had a very enjoyable club night in February with 7 winter projects on display. Turnout was a little disappointing but the 18 club members who attended were very impressed with the quality on display. Robin Hodge showed off his Provost which is not only large but has the most rivets that we have ever seen in the club. Richard's Spitfire was in primer and drew a lot of attention. Steve had his Hurricane (pictured above) which is a good looking ARTF that has had a lot of careful finishing. Simon's Mustang filled the room and was joined by the smallest project, John's tissue and dope old timer. Robert had an interesting fuselage and engine to look at and finally Mike brought along some old radios which have been updated with 2.4 innards. All in all,



an entertaining evening. There is no club night in April but we are always open to offers.



Some of the Newground flyers had their regular winter lunch gathering recently. Twelve met at a hostelry in Wendover and had a lunch and a lot of chat. They also remembered the late Nigel Beany who had been a fellow Newgrounder.

Flying at the field continues whenever the weather shows promise. It can still be a bit chilly and windy but that doesn't stop the hard core. With luck, the weather will soon be rapidly improving and we will be joined by a few more members.

As always, you can contact me, Colin Hooper.  
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## Summary of Club Events in the next quarter

March 15 <sup>th</sup>	Committee meeting @WHC
May 17 <sup>th</sup>	Committee meeting @WHC
May 29 <sup>th</sup>	Limbo and BBQ @ NG

## Member's Ramblings

### THE COLDEST FLIGHT



It's not every day you get asked to drive from the most southern point in Europe, Athens in Greece, to the most northern point, Nordcapp in Norway (some 6,500km) - and then get asked to film the adventure as you go! We were asked that very question and we took to the challenge.

The Drone world has moved on so quickly in the last couple of years and the more we travel with them the more we ask of them. There is so much footage online showing the stunning scenery of Iceland, the Alps, snow cover peaks in Scotland, Glaciers, cars drifting on frozen lakes in Norway; they all make for beautiful and dynamic shots, but just how much work has to be done beforehand by the operators?

For me, panic set in thinking about how I was going to get dozens of batteries through Heathrow for our epic coast to coast European adventure. In the end that was the least of my worries as all of our equipment went out to Athens in a truck. The most hassle was the ATA CARNET (Customs declaration), but that's a whole other story!!

Batteries however did play a huge part in the trip. Today's Drone technology with Lithium-Polymer batteries has come a long way since the days of Nickel-metal hydride batteries (Ni-MH). We can now manage our battery packs in great detail. While charging we know exactly how much charge we're putting into every cell, we even know the discharge condition whilst in flight, and all that information is beamed back down to the user from the Drone, which is vital for commercial Drone operations. The power to weight ratio of today's Lithium-Polymer batteries over

Nickel-metal hydride batteries is a huge benefit too. This one element alone has played its part in bringing the Drone industry forward at such a pace. The accelerated development of electric cars and mobile phone technology (to mention just two innovations) has only really been possible thanks to the Lithium-Polymer.

Although Lithium-Polymer batteries have advanced drone technology they still have their short comings, namely operating in cold temperatures.

As well as being a Commercial Drone Pilot I also fly Radio Controlled model aircraft, so standing in a field in the middle of the British winter I know full well the limitation of any battery subjected to the cold. Use yourself as a battery Barometer, if you're feeling the cold there is a good chance your batteries are too!

Everything works at 25°C, turn everything on, do your pre-flight checks and go fly. It just works! So flying around the hills of Athens was a breeze. As we drove further north the snow started to fall - 2ft fell in one day! I'm not accustomed to that kind of weather, -15°C was a whole new ball game! My hotel room became a charging station and a flight case storage facility overnight. Who knows what the cleaners must have thought!



Extreme weather 'IS' a game changer and you need to be ready, I for one was not. In sub zero temperatures things can start to wrong very quickly - battery management, equipment exposure, even your fingers can start to malfunction! These are the things you need to think about and be prepared for.

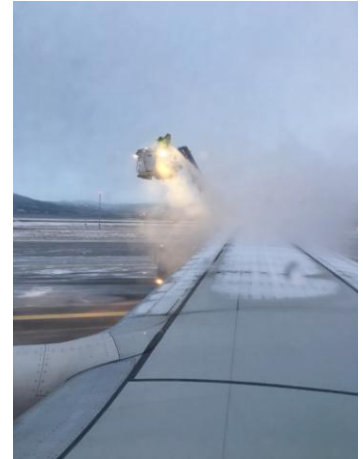
Now I wouldn't say for one minute that I'm a fair weather flyer but -15°C hurts! Gloves (fingerless in order to operate the equipment), a coat and a hat that could handle that sort of temperature where the order of the day for the team. Once on location our support vehicle was always kept running, and the heater was turned up full blast. There were two reasons for this, the first was to keep our hands and feet warm, and the second was to keep the Drone and all its ancillaries warm.

Back at home in the UK a 15 minute flight is the norm, at -15°C make that 6 minutes! The flight time was cut by over half. Not only do you have to fly to catch those beautiful and dynamic shots, but you also have to get the Drone back in one piece to be able to retrieve the data. The efficiency of the batteries is greatly reduced in cold temperatures, plus the four motors are asking even more from the batteries as the propellers are



struggling to grip the cold thin air.

The effects of Mother Nature don't stop there either, over a very short space of time ice will form on the leading edge of the propeller reducing its efficiency even more. This was brought home to me when at 07:30 hours, with dawn just breaking and still very cold, we were sitting on the tarmac in a Boeing 737-800 getting ready to take off from Alta airport in Norway when the quite impressive de-icer machine approached the aircraft and started to spray the wing with Antifreeze. It was at that moment that I had an even greater appreciation for the reasons for de-icing the wing given the problems I had encountered flying my Drone in such extreme conditions.



It's fair to say that the Drone's Internal Measurement Unit (IMU) hates the cold. The Global Positioning System (GPS) also struggles in these conditions. Even the Tablet used to operate the Ground control software



(with 76% of battery power left) turned itself off! The only thing I could do was to keep the whole system nice and warm in the support vehicle, and only bring it out once the team was happy and everyone knew exactly what the flight plan was.

"Redundancy" is a word we use a lot in this industry, safety is paramount for obvious reasons, so to have a back-up really is a must. Systems are now coming on to the market that have six batteries, in each battery there are up to six cells - and yes some of that power is now being set aside to help heat the system in conditions below 0°C, something I would have found very useful on our expedition. Even if you lose two batteries you can still land under control. The advanced software algorithms in the flight control systems of today's modern Drones will help you land safely in unforeseen circumstances (i.e. in the unlikely event that propellers break). GPS has been around for a while, but we are now seeing systems that can hold the Drone with centimetre level positioning and block out magnetic interference. This could be really useful in Iceland for example where the volcanic rocks are rich in Iron.

So, being deep inside the Arctic Circle with the risk of losing your Drone, getting Frost Nip, and a huge diesel bill, is it worth it I hear you say? Well

the photographers and filmmakers amongst you know the answer to that! We were there in mid November when you only really get five hours of sunlight a day at that time of year - it's like the Golden hour but for five hours. They say God is the best Lighting Director in the business, they are not wrong!

If the conditions are right (blue skies, no wind) point the camera towards the direction of the sun and fly a nice slow tracking shot, the effect is just breathtaking. We also encountered "Diamond dust", a meteorological phenomenon composed of small crystals of ice. The camera picks up the light as the sun reflects off the ice crystals producing a beautiful visual effect. I challenge anyone to replicate that in the final edit. If the flying conditions are good you will get some of the most stunning shots with a Drone. Your audience will feel the cold through the screen drawing them into your world.



Keep warm, fly safe and happy landing!



Simon Adams, Pilot, Director Heli Tele Ltd.....

# Safety Officer's Corner

## Try to find the reason why



I recently had the misfortune to watch a lovely large aerobatic model meet its demise. The plane seemed to enter an unusual terminal spin, the pilot called out that he couldn't regain control.

I asked the pilot to take his transmitter to the crash scene so that if anything was still connected we could see if there was still communication with the model. On arrival we were able to operate the ailerons as they were the only surfaces still connected to the receiver, the front end of the plane was completely destroyed. From the rear of the canopy back there was no damage at all except for one elevator that had become detached from the tailplane. Interestingly the elevator still had the pushrod attached complete with a broken servo arm.

There was no damage to the elevator at all not even a scratch. We determined that the elevator must have loosened the hinges and became detached rather than coming out after impact. The broken servo arm would back up this theory as the elevator would have been whirling in the slipstream. Checking the other elevator with some hefty tugs showed some loosening.

The moral of this article is always do a thorough post mortem. This should always start at the crash site, just picking up the debris and dumping it in a big pile can cause evidence to be missed or lost. My reasoning for this is, so often when an incident like this happens the assumption is RADIO FAILURE, when the reality is far from the truth.

## Spinner



On a different note completely, I recently needed a spinner for my new Hurricane. I bought an aluminium one from Just Engines, I've had plenty of these before and they represent good value. However when fitted it just looked to shiny, they look fine on an aerobatic or civilian plane but not on a warbird.

Colin pointed me towards a German website called Krumscheid better known for headers and exhausts. They do a large range of spinners which I feel are made to order, the beauty of these is they have a satin finish.

The drawback with these spinners is that they come with no cut outs for the prop. I have to say that I pondered long and hard as to the best way to tackle this problem. Fortunately I had the JE spinner to act as a template. Using paper I made a template for the cut out and marked the spinner with a very fine pin, I tried felt pen but it kept rubbing off. Now to the cutting: some forums suggested a dremel but I felt it was too easy to slip and ruin the finish. My tool of choice was a jeweller's saw. I watched a couple of YouTube videos as to the correct way to use it, very helpful! After about an hour, finishing off with a half round file then needle files I'm fairly satisfied with the result. Just got to maiden it now.

Finally, I've been asked to remind all pilots that following EU regulations hard hats and Hi Vis jackets must be worn on the flight line. This starts on 1<sup>st</sup> April 2017.

## Instructors' Corner



Spring has definitely sprung and we have been blessed with some excellent flying days. The Newground field is exceptionally well drained, we have decent safe parking and we do not have to wait for a long period of drying conditions before we can fly. Some Clubs have fields which make winter flying difficult if not impossible.

However, if you haven't been down for many weeks or perhaps several months you cannot reasonably expect to pick up where you left off. We all need regular flying to maintain the "edge" - if you are a relative novice it is absolutely essential to get down as often as you can. Life gets progressively easier once you have mastered the art of proper landings; if you can't land with reasonable accuracy and repeatability you are not only missing out on the most satisfactory part of the flight but you are not a "complete" pilot worthy of basic "Solo" status.

In the "old" days most people damaged their trainer for two reasons - lack of proper orientation or a ham fisted landing attempt. The purpose of a "Buddy Box" is to avoid mishaps as far as possible and to give the Trainee the security that the Instructor is on hand to take over. However, no one is infallible and things do occasionally go wrong. Indeed, if all of us could guarantee complete success with every flight the whole hobby would be as interesting as the next anticipated reality TV show of "watching paint dry"!

See you at the field!

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# Club Training

Remember that training currently takes place at Newground with either Dave Anderson, Simon Adams or Richard Ginger. You will need to contact the designated trainer by the Thursday to confirm your interest. If the weather is looking poor for the Saturday, a call will save you travelling to find training has been cancelled. On those days which have NO designated trainer, call Toby Newton or Austen Pearce who may be able to train if they have no other commitments.

Month	Date	Trainer
April	1	Richard Ginger
	8	Dave Anderson
	15	Simon Adams
	22	Austen/Toby
	29	Richard Ginger
May	6	Dave Anderson
	13	Simon Adams
	20	Austen/Toby
	27	Richard Ginger
June	3	Dave Anderson
	10	Simon Adams
	17	Austen/Toby
	24	Richard Ginger

## Committee

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