

# EFC NEWS



Christmas 2009/New Year 2010

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## *Editor's Notes*

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In the last issue of this year I have pleasure in beginning by offering congratulations to Mark Allan who passed his skills test at Perth on Friday the 4<sup>th</sup> December- well done Mark! Mark has had a key role on the committee over the last few years, ensuring that the web site is up to date, works well, and in posting the latest issues of the newsletter and archiving past issues. This is a vital role and members of the public often begin the process of buying a trial flight, or making an enquiry about learning to fly, with the words "I am looking at your website right now." The yellow pages do not cut it in this new century. Thanks again Mark for your help with this.

This last issue of 2009 has been deliberately delayed until after the December committee meeting held on the 16<sup>th</sup> of this month. As everyone will be aware, this has been a year with many challenges. The poor weather and the economic climate have resulted in us flying significantly less hours in 2009. Additionally, the Club has had to contend with new security measures (which effectively closed us down for 10 days). Thanks largely to Jack and with the help of Signature, this hurdle was overcome with new ID passes being issued, valid for five years, and subsidised by the Club to ease the pain. Prices of fuel this year have fluctuated, but have remained generally near the £1.90 mark. The maintenance costs of both Club owned aircraft, NU and GT have also risen beyond what was expected for a variety of reasons.

The committee are dedicated to ensuring the Club prospers. Overheads have been reduced by a variety of means (posting the newsletter on the website being just one of these), thus there is no current proposal to change the membership fee. In considering the flying rates, unchanged since August 2008, the committee has approved a very modest increase in the rates, of £3 per hour from the 1<sup>st</sup> January 2010, and a further £2 per hour from the 1<sup>st</sup> April. I hope you will agree that this is a reasonable approach in a difficult climate and that it will help to keep us all flying in 2010. We

need your commitment to the Club and you can do this by continuing to fly as often as you can in the coming year.

In this issue we have a profile of Bob Graham, the club CFI. As most of you know Bob is quite a 'reluctant hero' and as such does not talk about himself very much. This 'interview' was completed in one of our regular Sunday evening chats when I drop in with the weather for the week ahead, allowing Bob to plan the week's flying, one of the many things he does to make the Club run smoothly and to make our lives more enjoyable. In an early issue of next year we will feature other individuals who operate behind the scenes to make your flying as enjoyable as possible.

We also have the first of two parts by Andrew Wood about flying the seaplane at Loch Earn and some interesting facts about the aircraft in which Bob learned to fly. We also have the concluding part of the CPL inside story from Joanne Lyall.

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## *Member Profile*



**Name:** Bob Graham

**Age:** The clues are in the figures!

**Job:** CFI at the Edinburgh Flying Club. I was originally trained as a fitter/welder with the intention of becoming an engineer in the merchant navy and moved to London to further this aim but for economic reasons, ended up working in the oil industry in Norway, Libya, Brazil and Aberdeen.

I was made redundant from this when Iran and Iraq were at war and flooded the world market with cheap oil.

**Total Hours:** Around 6600 of which some 6000 of those are instructing!



**Where did you learn to fly and when?** In New Zealand (my home country) at a place called Invercargill at Southland Aero Club in an aeroplane called a Victa Airtourer. This was in 1969/70 when I was about 19 years old. My NZ licence expired and started to retrain at Aberdeen, but had noticed the Edinburgh Flying Club premises at the airport as I travelled by train to Aberdeen and completed my UK licence there in 1978/9. Since I had been made redundant, I bent to pressure from the then CFI, and trained as an instructor to complement the few part time instructors there at the time. What was meant to be a stopgap job has continued to this day and now I am CFI.



**Longest Flight:** To Corsica in GT accompanying a PPL and acting as a second pair of hands.

**Favourite Routes:** Any trips up the west coast of Scotland and Plockton and Mull in particular.



**Worst SNAFU:** This was in New Zealand when I was a very new PPL. I set off from Invercargill to an unfamiliar destination on a CAVOK forecast. Because of the high mountains in New Zealand, this involved valley flying. Shortly after departing I found myself flying towards rising ground with cloud descending from the hills. I got lower and lower, until I was just scraping past going from one valley to another. Lost! I should, with hindsight, have done an early 180 – but... In the end I was lucky and by a fluke ended up back in my original valley flying towards clear blue sky back to Invercargill. There was one very lucky man who landed and tried to explain why he was back there!



**Dream:** To see a prospering Edinburgh Flying Club with no financial worries!

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### *Flying the Aviat Husky seaplane*

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As the Editor mentioned in the last newsletter I was able to arrange an introduction to floatplane flying for some members at Lochearnhead recently and have had my arm twisted to expand a bit on what is involved in floatplane flying for this newsletter. Before I do that a bit of background on how I got into flying with floats might be of interest. My first introduction to seaplane flying was actually some twenty years ago in a Piper Super Cub on "straight" (i.e. not amphibious) floats at St Fillans on Loch Earn before I even had a PPL and I really enjoyed it.



As I had done a fair bit of gliding previously I had been reassured by the instructor telling me that the Super Cub on floats handled just like a Bocian glider (A Polish built training glider I knew well) and I should have no problem flying it. The instructor on that occasion was Phil Allard who I had done some of my early gliding training with and also did some of my early PPL training flights with when I joined Edinburgh Flying Club a few years later.

Seaplanes did not feature in my flying again until 2006. The Seaplane Pilots Association of Switzerland runs a seaplane fly-in at Boenigen on Lake Brienz a few miles to the east of Interlaken in Central Switzerland and this year it coincided with the dates of our summer holiday and I took the opportunity to pay a visit. On arrival at Boenigen I was somewhat surprised to spot a G registered aircraft landing on the lake and taxiing in to the temporary seaplane base set up for the weekend. This turned out to be Aviat Husky G-WATR, which had flown down from Loch Earn for the fly in. I discovered it would be heading

back there in a couple of days and not long after returning to Edinburgh I called Neil Gregory of Neil's Seaplanes who operates the Husky from a base at the Lochearnhead Watersports centre at the west end of Loch Earn and arranged a flight. At the time I had only intended to have a familiarisation flight but one thing led to another and I went on to do a fair bit more flying with Neil.



For the first part of this article I propose to describe a typical circuit in the Husky and highlight some of the differences between flying it and flying a PA28 out of Edinburgh. Then in the second part I'll take a look at some of the more advanced aspects of floatplane flying and what is involved in getting the rating.

However before starting a quick word on terminology and the aircraft itself. A seaplane is any aircraft capable of operating from the water and if it can operate from the land as well by use of retractable wheels it is also an amphibian. Flying boats (e.g. Short Sunderland or Catalina) use their fuselage/hull and normally outrigger floats to support them on the water whereas a floatplane has a pair of separate floats attached to the fuselage to keep them afloat in the water. The Husky is a seaplane and an amphibious floatplane and is powered by an 180hp Lycoming more or less the same as the one in the Archer. It has a variable pitch propeller and although it has a cruise speed of only 100mph it can achieve 1200 foot per minute in a climb and has excellent short field capabilities.

Pre-flying the Husky is pretty much the same for a PA28/Cessna 172 although it is necessary to also check the floats and their attachments and bracing wires and make sure additional equipment such as mooring ropes, life jackets and paddles is present. Carrying a locator beacon is also a legal requirement as well as being sensible given the remote territory we could be flying over.



The main check to the floats, other than their general condition arises because the floats are of riveted aluminium alloy construction and take a bit of a pounding during take off and landing as they thump through and over the waves. This can lead to water getting between the riveted joints which needs checked for before each flight and pumped out if present. Each of the floats is divided into eight separate compartments to prevent the whole float flooding if it is damaged (e.g. by hitting a rock or floating log) and also to prevent any water picked up on take off moving from one end to the other in flight and affecting the C of G. At the top of each compartment there is a hole, leading to a tube running to the bottom of the float where the water lies, with a rubber bung in it. The bung can be removed to allow a hand operated bilge pump to be inserted. With each compartment taking up to ten strokes of the pump to empty there can be a lot of pumping to do. If any more than ten strokes is needed it could mean a serious leak which needs investigated further.

Once the pre flight is completed we put on our lifejackets, climb aboard and strap in. Internal checks and engine start are pretty standard and the advantage of the Husky being an amphibian rather than a pure floatplane immediately becomes apparent with it being possible to do power checks on land. (For a pure floatplane or where an amphibian is not parked on land, power checks are done on the move, as there are no brakes once you are on the water). The power checks include cycling the variable pitch propeller control three times to circulate the oil in it and check for correct functioning.

The Husky is normally parked in a very confined space at Lochearnhead and once the checks are complete we slowly taxi to the top of the ramp

leading to the water and stop with the nose pointing into the water.



There is no point in calling for taxi instructions; zone clearance or even departure clearance as there is nobody to give them. It's just the Loch and us and we have to make our own decisions. First of these is to establish a departure plan. It is essential to be sure that the route from the ramping area to open water for take off is clear and that we are not going to enter the water straight into a conflict with another water user who will have right of way over us. Wind direction needs to be considered as once the a/c is in the water until the water rudders at the rear of the floats (which are kept in a raised position on land) are lowered the only directional control will be the aerodynamic rudder, which at very low speeds will not be effective. Consideration also needs to be given to what will happen if the engine fails or we are unable to lower the water rudders for any reason, and where the wind will take us in that case.

Happy with the departure plan we taxi forwards, keeping straight with differential braking on the main wheels in each float, and as we start rolling down the ramp the throttle is closed allowing the aircraft to continue under its own momentum at minimum speed into the water. Once in the water the water rudders are lowered and the undercarriage raised. This is checked 'up' by confirming that the four blue undercarriage indicator lights in the cockpit are lit. Together with an external visual check of the front wheels, which can be seen directly as they are right at the front of the floats and mechanical indicators on top of each float which are linked to the main wheels themselves, hidden under the floats.

Keeping the stick fully back so that as much of the water rudders as possible is in the water to increase their effectiveness we steer away from the nearby moored boats and into open water. At

this point the weight of the aircraft is supported entirely by the displacement of the floats just like a boat. Taxiing at this slow speed in confined areas is done at idle but even that is sometimes not slow enough (even though idle speeds on seaplane engines are typically set lower than their land based equivalents because of this) and running on one magneto and /or introducing carb heat for a short period can reduce speeds even further. At this speed directional control is by the water rudders only as there is insufficient airflow over the aerodynamic rudder for it to have any real effect.

Today the wind is a light easterly so once clear of the boat mooring area we will be able to turn into wind and take off down the Loch. A westerly wind would mean taxiing far enough down the Loch to give enough space to take off once we turned back into wind. In addition to the usual pre-take off checks we use as a final check the mnemonic - **FCARS**. This stands for -

**Flaps** as required - 30 degrees for normal water take off (or landing) in the Husky.

**Carb heat** - cold.

**Area** - clear. Because there is no runway marked out other water users could be in or about to enter the area we are going to use as a runway.

**Rudders** (Water) - up. They are only used at low speed and would be easily damaged at high speed in the water.

**Stick** - fully back like a tail dragger.



Checks done we pick a point on the shore to use as a marker to help keep us straight then full throttle and right rudder to counteract the gyroscopic effects of the propeller. As the speed builds the water pressure on the bottom of the floats increases and the centre of buoyancy of the floats starts to move backwards causing the nose of the aircraft to rise. This reduces the water drag from the floats as less of them is in the water. As

more and more of the weight of the aircraft is taken by this hydrodynamic lift rather than the displacement of the floats the stick is eased forward gently to lower the nose to the planing or step attitude at about 40mph. This lifts the rear of the floats out of the water reducing the drag from them even further until the entire weight of the aircraft is supported by hydrodynamic lift.

If the aircraft is trimmed correctly she'll aquaplane along on the step, just like a high speed motorboat, with the minimum of contact between floats and water and hands off the stick until she is ready to fly herself off at about 55mph as aerodynamic lift takes over from the hydrodynamic lift. Once off the water we keep the nose low to let the speed build up further before easing into a climb and turning gently out to one edge of the Loch so that we have the whole width of the Loch to one side of us keeping our options open in case of a problem with the engine. Flaps are reduced to 20 degrees once we are well established in the climb and we throttle back to 23 inches of manifold pressure and a prop speed of 2,300rpm to keep the noise down. Reaching circuit height of 600 feet (based on setting QFE for the surface of the Loch) we reduce power again to 18 inches of manifold pressure and assess the wind direction to set up a circuit. The surface of the water, smoke from houses on the shore, moored boats which will weathercock into wind and other clues confirm the wind direction and enables us to pick a landing direction and set up a circuit. We also do a visual check of the proposed landing area for obstacles such as other water users, floating logs and other items which it would not be a good idea to hit on landing.

Starting the downwind leg we run through the normal pre landing checks (e.g. BUMFPICH) and when we get to U for undercarriage we chant the amphibious seaplane pilot's mantra of "Gear up for water landing". The undercarriage indicator lights show four blues (blue for water, green for land) and an external visual check confirms that the nose wheels are retracted and the float-top indicators for the main wheels show them up as well. Landing on water with the undercarriage down inevitably results in the aircraft ending up on its back - with potentially fatal consequences. (See [www.youtube.com/watch?v=pucmWr55cgw](http://www.youtube.com/watch?v=pucmWr55cgw) for a good, but non- fatal, example).

Happy we won't do that we complete the pre landing check still keeping an eye on the landing area for changes in the wind, water skiers, boats,

windsurfers, floating logs and anything else that could be a problem. Just prior to turning onto base leg power is reduced to 11 inches of manifold pressure and thirty degrees flap lowered. The base leg gives us another chance to assess the wind and surface conditions before turning finals.

Established on finals at about 300 feet we run through an FCARS check again - this time the final S acting as a reminder to get the stick right back just before we touch down and keep it there so that the nose of the floats doesn't dig into the water and overturn us. A final check on the status of the wheels confirms they are up and approaching the water we adjust our position slightly to be heading directly into wind.

At this point one big advantage seaplane pilots have over their land-based counterparts becomes apparent as a seaplane pilot can see and anticipate gusts. These show up as a swirling disturbance on the surface of the water but on this occasion the wind is steady and we continue our descent to round out at about twenty feet, closing the throttle, bringing the stick back so that it is fully back on touchdown in the slightly nose high attitude we noted from earlier when we were on the plane just prior to take off. As we slow down we sink back to displacement taxi speeds and lower the water rudders to give us slow speed steering.



We have landed quite a way down the Loch and if we were to displacement taxi back to base at idle it would take an awfully long time to get there so instead we'll step taxi back. Once we have turned downwind at idle we run through an FCARS check and accelerate into wind as if we were going to take off but at around 40mph once we are on the step the throttle is partially closed so that we continue planing on the step at 40mph without taking off. Directional control is by aerodynamic rudder, which is pretty sensitive at these speeds. Approaching the boat mooring area we close the throttle gently to drop down off the step back to

displacement taxiing at idle and thread our way through the moored boats. Approaching the ramp we line up with the centre of the ramp and lower the undercarriage well in advance as it takes a few seconds to lower fully. A short distance from the ramp we increase power significantly to bring the nose up to match the angle of the ramp and give us the momentum to rise up the ramp before reducing it to idle and braking as we get to the top.

Hopefully this outline will have given you a taste of the challenges of floatplane flying and in the next newsletter I'll consider some of the more advanced flying techniques such as those required for dealing with rough water and glassy smooth water as well as looking at what is required to add the rating to your licence.

Andrew Wood

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### *CPL – The inside story part 3*

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#### **FTE Jerez Spain**

However, if I thought the CPL was tough, the next step was even more challenging. It was time to start the IR, where we had to demonstrate the skills of the CPL within IFR rules and “under the hood”, i.e. with screens up so you can't enjoy the views! This is done with a mix of flights and simulator sessions leading to the IR test. The test consisted of completing a departure from one airfield and making two separate IFR approaches at two different airfields.

I felt the biggest achievement out of the flight tests was passing the CPL, as I had struggled slightly with changing onto the twin, and had problems with continuity due to bad weather.

Throughout the course, performance is assessed both during ground school and during flying training. We were assessed on areas such as human factors and classroom contribution as well as on exam performance and flying ability. Each flight in the syllabus is scored from 1 to 6, with 1 being the best and a 5 or 6 requiring the flight to be repeated. At the end of the course, all the smaller reports are pulled together and a final report is produced which gives a summary of you as a person and is sent to airlines when you apply for jobs.

Following the IR, we moved onto the Multi Crew Cooperation, or MCC course. This course is most closely related to the type of flying that the majority of students are aiming to do, namely, multi crew flying in a modern airliner.

This began with developing our knowledge of generic airline SOPs (Standard Operating Procedures) and an overview of the technical systems of the aircraft. We were fortunate to be the first course to complete the MCC on the new Boeing 737-800 simulator. This is a full glass cockpit, high performance jet and is a considerable step up from the light piston aircraft flown up until this point.

This is the first occasion that we were paired up as a crew and expected to work together in order to deal with the operation of the aircraft. Whilst we did some general handling, approaches and landings, this focussed primarily on cooperation to deal with a multitude of emergencies and non-normal situations. This was both challenging and enjoyable whilst giving us a good idea of the pressures placed on a modern flight crew.

The accommodation at FTE was fairly basic, but each room is en-suite and comfortable enough for the relatively short space of time living there. The food was generally not too bad, but as with any canteen type establishment, there were good days and bad days! Sometimes there would be very strange combinations of food, deep-fried cauliflower being up there on the list. Another slightly strange thing were the uniforms. These were issued to us on the first day, but all the girls were given men's shirts and trousers, which meant that they weren't the best fit. Considering no other aspect of the school or training was overly male orientated, I was surprised at this.

The campus is very self-contained and is on the airport, which is approximately 12km from the town of Jerez. On site there is an outdoor pool, sitting area, a small gym, a bar and a TV room. Social events are organised by the committee, but due to the different timings of everyone's training, there are always people in the bar to chat to, and evenings out into town.

Having returned at the end of March, I am now hunting for that first job. As we are in the middle of a recession, there are very few jobs available and most companies are looking to employ pilots with type ratings and experience first. My immediate plans are to return to IT, and then wait to see how the airline industry picks up and take things from there. In the meantime I want to take my family and friends flying to show them what all the fuss has been about. So I'll be back battling with the good old Scottish weather like everyone else!  
Joanne Lyall

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### *Safety Matters*

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The last edition dealt with a fire on start up. Following on from this the action to be taken in the event of a fire in flight as per the instructions in Section 3 of the aircraft manual are:

**Source of fire**                      Check

**Engine fire:**

Fuel selector	Off
Throttle	Closed
Mixture	ICO
Electric fuel pump	Off
Cabin heat	Off
Defroster	Off

Prepare for a power off landing.

Expanded explanations of the above actions can be read in the aircraft manual.

Tom Ward

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### *EFC NEWS*

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