



Summer is shaping up to be a busy time, with coaching events organised right across the country. Make sure you keep an eye on the GFA web site for details, under the Sport/Coaching link. I have a feeling we are in for a good soaring season too, with some great days already passed.

This month I have an article about finding and using the best thermals. I think we all know that this is one of the “secrets”, but not an easy one to teach.

Finding (good!) Thermals

So, we know that the greatest improvement in our achieved cross-country speed will come from increasing our average rate of climb, but how can we work towards that aim? In reality, once a thermal has been found and centred, most pilots will climb at around the same rate, and (contrary to popular belief) most gliders are reasonably similar in performance. So what is it that the fast pilots are doing that the others are not? What are they looking for, and what techniques are they using to help find these stronger thermals? This is an area that is particularly difficult to teach, as it is almost impossible to analyse exactly what the decisions are that are taking place in the mind of the successful pilot at these most critical times.

Maintain a positive outlook. Be positive about finding the next thermal, and be positive about it being a good one. This will help if you are getting slightly low, in preventing going into total wimp mode too early, and it will help with being more selective in the thermal you next choose to use. However the most important thing about staying positive is that it will ensure that you maintain a systematic approach to your thermal search. Avoid waffling; aim directly for your next chosen lift area possibility and go there.

Keep a constantly running record of the previous 15 to 20 minute's history in your mind. Where have you been finding the last few thermals? Have they been of similar strength to those previous? Is the countryside you are flying over changing? Does the weather ahead look like that behind? Be constantly inquisitive. Why does the sky ahead look better or worse? Exactly where are the better thermals coming from? Is it from tree lines, big paddocks, broken ground, scrub or crops? These records will help you to decide where to track next, and how fast to go there. If the sky ahead is pumping and the last couple of climbs have been 10 knotters, then perhaps the stick can go forward. If the countryside ahead looks different and the sky has softened, then tread a little more cautiously. If what you have been doing for the last twenty minutes is not resulting in finding good thermals, **THEN DO SOMETHING DIFFERENT.** Start looking in places that you have previously ignored.

The thought processes and decision-making should be happening continuously. There is no time to switch off when flying cross-country, and I think that a number of pilots do not realise how much hard work is involved in doing it well. The graceful



movements of our gliders belie the continuous high workload going on in the cockpit. Being relaxed is essential, but this certainly doesn't mean that your mind has come to a halt. Staying relaxed will help good information gathering and will avoid rushed decision-making, as well as aiding physical and mental stamina. This state of comfortable relaxation whilst maintaining a high workload is the subject of another article, but suffice to say you should put effort into physically relaxing your body while flying, and in keeping nutrition and hydration levels up.

So, some of the groundwork is done and we have placed our glider in a likely search area. Now where are those good thermals? Pay attention to your external environment. Watch the clouds closely, and I do mean closely. Really look at them. Where are the bases most solid? Where is all the activity at cloudbase? If you are very high, you may notice tendrils of cloud hanging out of the base ("daggage" as a French friend so fondly calls it!). If you are lower, this may refract light and appear as a lighter area in the cloudbase when viewed from underneath. When you do find a good climb, study the cloud above very carefully as you ascend, and note your position in relation to the cloud. Usually this will remain the same for most of the day, as will any shear levels. This information can be very useful in locating good climbs later in the flight.

So what if there are no clouds? Usually to simply fly along and hope for good fortune will not provide the best results, though there are some days when this certainly works. Look for irregularities in the ground below, and always take note of where the thermals are coming from when you find them. People often underestimate the distance a thermal will drift during its lifecycle, even in a light breeze. Of course the lower you are, the more attention you will need to pay to the ground below.

Probably the greatest factor in successfully finding good climbs is using the "feel" of your glider to best effect. Being familiar with your own glider is vital, as is a basic understanding of thermal structure. This understanding does not need to be too technical, but it is useful to know what a typical airflow pattern around a thermal is likely to be, and more importantly what this airflow will feel and sound like from inside your cockpit. The sink surrounding a lift area will feel dead and heavy. As you progress closer to the lift you will pass through the turbulent zone where there is some strong shear happening between the sink and the lift. This area will feel bubbly, with a transition from a down indication to up. Shortly after this turbulence you will feel a strong, smooth surge as you enter the main laminar flow of the thermal core. Inside the cockpit this will sound quieter and the controls will feel to be "biting" and working well, as the airflow over them is smooth and organised.

Obviously these indications will only occur as described if you manage to fly directly into the centre of the thermal, which might happen once a year! What is really important is to recognise quickly where you are in relation to the good bit by feeling the characteristics of the air you are in. We all know that we need to turn towards the rising wing, but sometimes if you only hit the outer part of a thermal you may not get a good indication of which way to turn. Don't hold the stick too firmly, don't have the



vario turned up too loud so that it is impossible to hear the airflow around the cockpit, and look up and outside. Look, listen and FEEL. This is not easy and takes some time and dedication to master, but any effort you put in here will be rewarded.

For example, if the day is providing consistent eight-knot climbs, and having flown under a promising fresh cumulus, you are rewarded with an erratic six knots that feels rather bubbly. The astute pilot will realise that indeed there is a good climb quite close, but that they are currently positioned in the shear layer on the edge of the thermal core. They will recognise, by carefully paying attention to the feel of the different parcels of air as they circle, in which direction they must move to find the best lift. This may be just a moment of smooth air to centre towards, or a section of the turn that is more turbulent, to move away from. This is not easy... it is something that takes a very subtle feel and very intense concentration, but we can all learn to do it. Another good hint is a nearby glider going up faster... Don't become so engrossed in your own efforts that you stop looking out! Remember we are looking for that smooth, laminar core that gives a big push from below.

Fly safely.