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contributed by Jill McCaw

Answering some silly frequently asked questions about Gliding

"What happens when the wind stops?"

Indeed this is one of the most common questions I get asked about gliding, from people who can't comprehend that aircraft can fly without an engine. Personally I can't see what the wind has to do with the situation. I understand that the questioners think the wind needs to flow over the wings somehow to make it fly but the idea of the wind suddenly stopping, and well... leaving a void of air so the aircraft falls down? As Spock would say, it's just not logical.

Most readers of KiwiFlyer are pilots or involved in the aircraft industry so I know that everyone reading this understands how a wing works. Remember that whole; air is a fluid, thing and the pressure difference between the top of the wing and the bottom caused by the air/fluid moving across it and causing lift? Same for gliders, Cessnas, Globemasters, helicopters, hang gliders, wingsuits (erk) and parachutes. The degree of lift varies, the L/D is hugely variable, but the principle is the same. Those that don't have an engine to provide forward propulsion use gravity to provide it. A glider is always descending through the air, therefore creating airflow over the wing and creating lift (and drag).

So what does happen when the wind stops? Putting aside the whole bit about the wind actually just stopping; depending on which direction the glider is flying the groundspeed will either decrease or increase, but the airspeed will stay the same. In other words, the wind stopping has no real effect on a glider. It might upset the pilot, if he'd been relying on ridge or wave lift but he'll have time to adapt; the aircraft won't suddenly plummet out of the sky.

How long can you stay up there?

This one is not always a silly question, but sometimes it is. The answer is similar to, 'How far can a glider fly?' and 'How long is a piece of string?' The answer, 'It depends,' is not very helpful to the uninitiated, but it's true. It depends on lift available, skill of the pilot, availability of a packed lunch, water supply, pee bags and the arrival of ECT.

Gliders rely on the energy in the atmosphere to keep them aloft. We use thermals – columns of rising air created by the sun heating the ground and warming



The glider display at Warbirds Over Wanaka this year attracted plenty of attention from spectators.

the air above it, ridge lift – wind blowing up and over a ridge and wave lift – up drafts downwind of hills and mountains (fluid dynamics once again come into an understanding of wave lift). It is possible to use all these lift sources in one flight and to fly, weather gods willing, from dawn to dusk without landing in between. Most of us don't. Most are content to fly anything from five to five hundred kilometres in a day, just for fun. The FAI world free distance record, using up to three turn points, set in Argentina by German Klaus Ohlman stands at 3009km! The NZ three turn point record is 2500km, set by Terry Delore and John Kokshorn in December 2009. Both of those flights were flown primarily in wave lift. Terry and John's flight saw them airborne for 15.5 hours.

In contrast, my last flight sometime in August was of fifty minutes duration and covered a distance of about 5 km as I played around in weak wave above the Springfield ridge. All in all, for a winter flight, that was a pretty good time and it was very enjoyable.

How do you land?

Actually, this is a good question. Power pilots are used to controlling their descent with the throttle. Gliders don't have one. What we do have are very good spoilers/dive brakes that disrupt the airflow over the wing. Many gliders have brakes that

come out top and bottom. Some gliders have the option of landing flaps. We don't have the option to go around, so every landing must be precise and those brakes allow that to happen. Our circuit pattern is closer in than what you're used to and we're looking at our aiming point from an angle of about 30°. Unless there is a lot of lift in the circuit (and Murphy's law says that when you've finally given up searching for lift and are coming home, you'll find lift in the circuit), you wouldn't usually open your brakes until you're on final.

It takes practise, obviously, but gliders can land on a dime. That's just as well because cross country flying often results in out-landings, often on unfamiliar farm strips or paddocks, and precision landing techniques are important. So is a functioning wheel brake.

How can I learn to glide / have adventures like this?

That's not a silly question at all. Get in touch with your local gliding club. All clubs have two seater gliders and qualified instructors for training. The list of clubs and their contact details are available at the Gliding NZ website www.gliding.co.nz

I'm Jill McCaw, editor and publisher of SoaringNZ, NZ's magazine about all things gliding. Subscription details are also found on the GNZ website.