

# Gliding 101

Fans of gliding say doing it well takes more skill than powered flying. Certainly, powered pilots report that a few sessions of gliding improves their flying technique. Here's what the experts say about getting started, and soaring safely.

In December 1911 – just 10 months after New Zealand's first confirmed powered flight – 18-year old George Bolt soared over the Port Hills in Christchurch in a glider he had designed and built.

It's probable that to launch, he was just shoved off the top of the Cashmere Hills. Or towed behind a Model T. That was how they did it in those days.

George Bolt's glider probably had a glide ratio of about 10:1. Today, more than a century later, 60:1 is not uncommon.

Some gliders today have motors to launch themselves. Most have an electronic variometer (which measures rate of climb or descent, producing a rising sound on climb and deepening sound on descent). Many have computers that can sense wind direction and speeds, with moving maps that display airfields and strips within theoretical gliding distance, and alert pilots to local airspace restrictions.

George Bolt would be amazed.

But he would very much recognise the passion that today's glider pilots have for what they say is 'real flying': pitting themselves and their aircraft against nature, testing their ability to soar in harmony with changing and challenging environmental conditions. That part hasn't changed a bit.

The interaction between sun, wind, and terrain, and the effect of that interaction on air mass, is what good glider pilots understand well. They also know how to use the energy of moving air to extend their flight as far, or as fast, as possible.

The South Island is one of the world's premier places to soar and New Zealanders have set world records there.

Many flights of longer than 1000 km have been flown in New Zealand, and pilots here will regularly fly up to 500 km for an international badge programme. Flights higher than 20,000 ft are also not unusual in this country.

## Launching into it

So you want to have a go.

Your first stop is the website of the national body, Gliding New Zealand (GNZ) at [gliding.co.nz](http://gliding.co.nz), which among other information, lists the details of the country's 22 gliding organisations.

Training, supervision of operations, and engineering are carried out by those organisations. But they are all affiliated to GNZ, which has been certificated by the CAA to oversee gliding operations in New Zealand under Part 149.

All clubs offer trial flights, the price of which begins at about \$100, including a short-term club membership. During the trial flight with an instructor, you will actually get to fly the glider.

It's cheaper to train to solo stage than in powered flight, particularly if you use winch launching. Aero towing is still the more popular way of getting into the air – even though it costs more. A winch launch can get you only so high – typically, up to 2000 ft. So some days, if you're relying on a winch launch, you may not be able to fly very far, unless there's lift near the airfield.

Training is done in two-seat gliders, instructor and student usually sitting in tandem. After that, a pilot continues to develop flying skills in single-seat aircraft. Sometimes their instructor or cross-country coach will fly close by, in a kind of lead and follow fashion, using radio communication between them.

"If we are aero towing, we are, of necessity, teaching formation flying from day one," says Doug Hamilton, the CAA's gliding technical specialist. "As a comparison, in the air force you don't normally learn that until you've done 100 hours."

While three or four of the larger clubs operate every day in summer, most clubs operate only during the weekends. And because the sport is weather dependent, it can take a while to learn to fly a glider.

"You can't always go down to the gliding club," says Doug, "and say you're going to do an hour's gliding. If it's a flat, calm day, taking a winch launch, you might get only 10 minutes of flying. So you might need as many as six flights to clock up a total of one hour's flying."

To become a Qualified Glider Pilot (QGP), a written exam tests your knowledge of the Civil Aviation Act 1990, Civil Aviation Rules, navigation, meteorology, glider construction and maintenance, principles of flight, human factors, and radio procedures, among other skills. Similar to a PPL, in fact.

## Where to from here?

Wellington Gliding Club President Brian Sharpe says with a QGP in hand, there are several further pathways for the pilot wanting to make the most out of their new skill.

"You might be happy to just enjoy the pleasure of being in the air and do your soaring locally. You might take up an interest in doing up, maintaining and flying a vintage glider – there is a dedicated group of such enthusiasts.

"Or there's an advanced training syllabus to get to the highest levels of skill that will enable you to soar cross country, perhaps setting your own tasks or possibly seeking an FAI (Fédération Aéronautique Internationale) Award, of which there are several, requiring increasing levels of skill.

"There are local and international competitions, where average speed is measured over predetermined courses typically of 200 to 400 km in length. These races can take two to four hours to complete.

"Average cross-country speeds of 120 km/h are not unusual, and highly skilled pilots may exceed 160 km/h in particularly good soaring conditions.

"Finally, if you are up for the challenge, there are national and world records to attempt. A number of New Zealanders have set world records, both in New Zealand and overseas."

## Soaring safety

The safety record of gliding is "very good" according to GNZ's Executive Officer, Max Stevens.

"The 'per thousand flight hours' accident rate is actually very low. While it's not uncommon for people to do something like land in a paddock and break a wheel in a rabbit hole that they didn't see, when it comes to people actually getting hurt, the numbers are low."

Between 1995 and April 2018, there've been 132 gliding accidents in New Zealand, 14 of them fatal, and one of those resulting in a double fatality. (In the same period there have been 17 power glider accidents, two them resulting in one death each.)

"Yes, there is some risk," says Max, "as there is in any form of aviation sport, but I believe good training minimises that.

"You learn how to look out the window and fly the glider by what you see and feel, not by what you think the instruments are telling you.

"The fact that it is weather-dependent means that generally, gliders don't fly on bad weather days. That's a whole area of risk mitigated."

It's also a factor in gliding safety that almost no-one launches independently. It's not just a matter of trotting down to the Cessna to 'take her for a bit of a fly'.

Whether the day's conditions are safe for gliding is a joint decision of the pilot, the winch driver or the tow plane pilot, and club officials.

So even if the glider pilot wants to risk flying in marginal conditions, others will convince them otherwise.

Situational awareness is paramount in both gliding and powered flying, but in gliding, a slip is far less forgiving.

Doug Hamilton says he has shared a thermal with 25 other gliders during competitions.

"You have to have your eyes outside the canopy all the time," he says. "It's see and avoid. You're not looking at your instruments. It's the Mark One Eyeball.

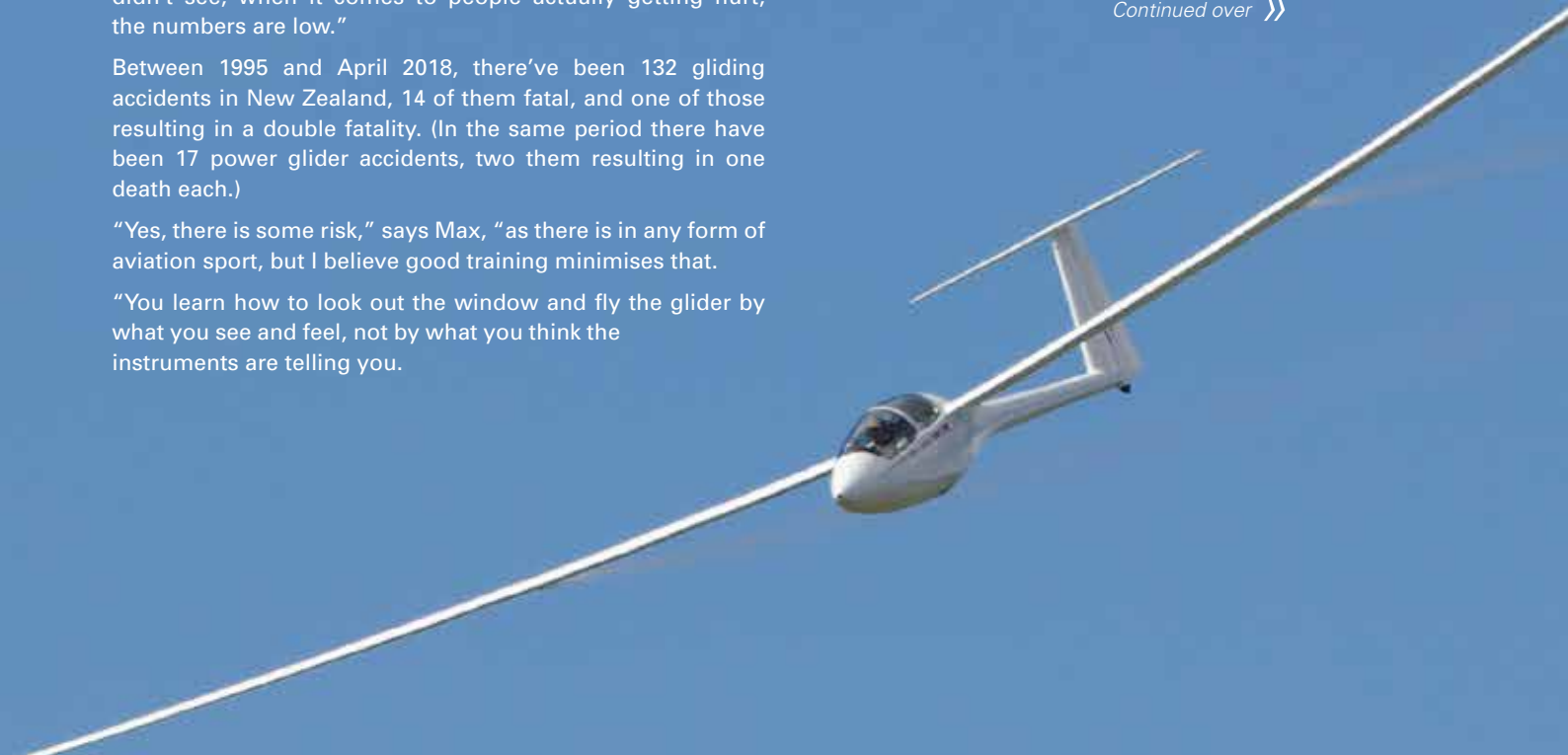
"Many gliders in New Zealand have a collision avoidance system – the FLARM or Flight Alarm – which, as long as it's been installed properly and is operating correctly, is fine. But I would never stop looking out the window and depend only on the FLARM to get me out of any trouble. Like any other instrument, you don't always know if it's operating perfectly."

## Buying your own

While clubs have gliders for hire, some enthusiasts want their own, possibly as part of a syndicate so costs are shared.

Most people buying their first glider probably buy them second-hand.

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"But it's amazing how well modern gliders can last," says Max Stevens. "The fibreglass gliders started to replace wood and fabric about 50 years ago, with a 3000-hour life. That means at 3000 hours, it gets a special inspection for structural fatigue. Now, many of the schedules go out to around 12,000 hours."

Before buying a glider, talk to everyone you can: at your club, at other clubs, their instructors, GNZ and their engineers.

"The community is relatively small in New Zealand, everybody seems to know everybody else," says Max.

"When people know that somebody is looking for a particular sort of glider, there's lots of people who'll help them out with advice."

Buying an older glider that is perfectly airworthy, and while not being high performance, quite safe to use, may cost anywhere between \$10,000 and \$20,000. Or a 'direct from the factory', two-seat, high performance motor glider might cost around \$500,000.

When you have settled on the glider you want to buy, you have 14 days from the date of the purchase to submit to the CAA a change of possession form completed by you and the seller. There's also a fee, which is the seller's responsibility. A new Certificate of Registration will then be issued.

This change of possession process is not red tape. As the registered owner, among other safety notices, you could be sent important airworthiness information. You'll also be easier to contact in an emergency.

## Maintenance

Gliders are a standard category aircraft, so those fresh from the manufacturers will have full certification, with the exception of one or two brands that are listed in the microlight category.

Training gliders have to be inspected every six months. For single-seaters, it's 12 months. That must be done by a GNZ-approved engineer to an approved maintenance programme.

After inspection, the glider is issued with a release-to-service document. It cannot be flown without one.

Qualified glider pilots can do some straightforward maintenance tasks, if they're also the owner or operator of the aircraft, but only those tasks listed in the GNZ Manual of Approved Procedures.

## Peace. Quiet.

For GNZ president Karen Morgan, no other form of aviation comes close to gliding.

"On the one hand, gliding offers transferable skills that will help a pilot in any other form of aviation," she says.

"But it also, more than any other form of aviation, makes the most of New Zealand's environment.

"Only glider pilots – and to a lesser extent, balloonists – get to see so much of the country's beautiful scenery in such peace and quiet.

"And in circling flight, we get to enjoy New Zealand's mountains, lakes, and farmland, for so much longer." ■