



contributed by Grant Bennis

# Freedom of Flight

KiwiFlyer has invited NZ Aerobatic Club President Grant Bennis to become a regular contributor on the subject of Aerobatics and we're very pleased that he has accepted the offer with enthusiasm. Welcome to the team Grant. Readers can expect to see future articles on a wide range of aerobatic subjects including specific manoeuvres, competitions, human factors, aerobatic aircraft reviews, local aerobatic news, and more. To start things off, Grant ponders a philosophical discussion on 'Why Aerobatics' and then looks at some ideas on how to get started.

**MANY** things motivate us to go flying, or to have a general passion for aviation. Freedom seems to be a common recurring response to the attraction of flight – no boundaries, rules or constraints. Of course this isn't entirely true, as any aircraft will have an operating envelope dictated by structural considerations. The rule makers will and need to be involved to stop us hurting ourselves and others. You do still have to answer to the laws of physics, the insurance company, finances and time constraints.

But let's not get bogged down with such mundane thoughts, and have the dream of freedom prematurely ruined!

Perhaps it is watching birds of prey expertly manoeuvring on their quarry, or seabirds effortlessly soaring the invisible currents that gives us the notion of 'freedom of flight'. Would you believe that some people (like me :-)) actually get paid to have all this freedom?

Freedom of flight perhaps then represents freedom of movement - in every dimension. Cars give people some of that freedom, but really only in two dimensions, constrained by the road or track. The driver can affect the speed of the car, subject at the top end to pesky constraints like speed limits, limits of traction and/or bravery, but unless you're fond of pointing your car at launching ramps and pretending it's the General Lee (kids, ask your parents), the ability to go up and down doesn't particularly exist. What then defines the



XFLIGHT in Auckland offer aerobatics training and adventure flights.

difference between pilots and car drivers is our defiance of gravity, the medium that suspends us, and something invented long ago by Richard Pearce called three-axis controls, later copied by a couple of blokes in the USA.

Extrapolating our Freedom of Flight concept to the maximum, we arrive at an unlimited 360 degree range of motion. You can roll your craft through inverted until you are upright again, or keep rolling for as long as power, speed and your head will allow. Pull up and your plane goes up. Keeping pulling and you will eventually be going down. Keep pulling and you are going up again. Cool - try doing that, Bo and Luke Duke!

Now for some, the last paragraph may seem just a wee bit more than what freedom of flight means to them, which is fine. But unless you are going to embark on a sea-level around-the-world flight, at some point after take-off, you will be want to

use those three-axis controls to manoeuvre your flying machine in a manner a car driver can only dream of. Through acquiring the skills of piloting, you will carry out a balanced (hopefully), climbing (hopefully), turn away from Earth, into the wild blue yonder. If you are so inclined you will soar like the seabird, on petroleum-enhanced currents above the planet, enjoying your own freedom of flight. You might then imagine extending that freedom by climbing a bit higher, pushing and pulling at the controls a bit more, probing the flying envelope until you too have discovered an unlimited 360 degrees of motion. That's aerobatic flight - Unlimited Freedom.

Enough of the dreaming –how do you get into it?!

I was very fortunate that the plane I soloed in happened to be a Cessna 150A – 'A' for Aerobat. Faithful little Delta Mike Golf got

me through those early hours helped by the guiding hand of my instructor, Morris Tull. As luck would also have it, Mo liked aerobatics. He *really* liked aerobatics.

I think half of my PPL syllabus was spent up-side-down, which suited me because although I hadn't intended on embarking down the aerobatics track so soon, I found I really liked it too. Perhaps growing up in Papakura under the Ardmore circuit, watching Keith Trillo practicing aerobatics in the hills behind us (in the little Pitts S1 he built in his garage), had a deep, subconscious influence on me. Never mind the origins – I was into it!

That was then, so what is needed nowadays to give aerobatics a crack?

For a start, if at all possible, **DO NOT DO THIS ALL BY YOURSELF.** Long gone are the days of needing to undertake self-taught aerobatics. There is a lot that can go wrong, and how do you really fancy your test-piloting skills? There





Gavin Conroy

Doug Brooker prepares to break ground for another thrilling MX2 airshow display.

are a variety of very capable two-seat trainers around the countryside – Cessna 150A/152As, Robins/Alphas, Citabrias, Pitts S2s and some interesting Warbirds types like Chipmunks, Airtrainers, Yak 52s and Nanchangs. If you really want to do aerobatics, hunt out and find the right plane.

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A flying school or aero club with an aerobatic plane will most likely have somebody who is passionate enough to insist the organisation keeps the plane, and the training syllabus. The same can be said for organisations like Warbirds, where the majority of the fleet is aerobatic to some degree.

In terms of the legal side of things, you don't actually need a Part 141/149 issued Aerobatic Rating to fly aerobatics. This may seem a bit odd, but this is one aspect of the rules that still gives you some freedom to do your own thing. However, most likely this will be in your own plane because I can't imagine too many owners that would let you do aerobatics in their plane without training or a demonstration of currency.

Also, without an Aerobatic Rating - kept current with a Bi-annual Competency Check - you can't carry a passenger, and you must also remain above 3000' AGL.

A properly structured training program will take you through the various manoeuvres and allow consolidation until you are proficient to safely head out on your own. It is likely that your first solo loop and roll will feel almost as momentous as your first solo flight. Completion of an Aerobatic Ground Course covering the theoretical and human factors aspects will result in a sticker going in your logbook, a requirement before your flight test. An experienced A- or B-cat instructor will run you through a typical range of aerobatic manoeuvres for your flight test and, once satisfied, will issue you the Aerobatic Rating – another sticker for the logbook and another rating on your licence.

An Aerobatic Rating is not the sort of thing that can be done in a weekend. But that is true of most things of value in life. However, it will unlock the door to another aspect of flying, and most likely enable you to significantly improve your knowledge and skills of aircraft handling. And let you fully experience the freedom of flight.

So if you do have an inclination then find an Instructor and give it a try. You'll likely enjoy yourself quite a lot.

## Aerobatic Snippets

### NZ Team at World Aerobatic Champs

The first-ever team representing New Zealand at a World Aerobatic Championship will be heading to Mossle Bay, South Africa, for the FAI World Intermediate Aerobatic Championships in December. Coaching and critiquing is underway for David Cranna / Zlin Z50, Steve Geard / Yak55 (pictured) and Todd Montgomerie / Slick540.

### MPM changes hands

Simon Marshall has bought Northshore-based Pitts S1 ZK-MPM as his new competition aerobatic mount, continuing the Marshall/Pitts connection.

### MXS-RH for NZ - MX2 now for sale

Soon to be seen at many NZ airshows, a mighty MXS-RH... the Rob Holland version (Google him to see what he can do in one). And now For Sale – NZ's only MX2, ZK-MXT, previously seen at many NZ airshows! Contact Doug Brooker.

## Aerobatic Calendar

- November 14-16  
Flying NZ Central Regionals, Matamata
- November 28-30  
Flying NZ Northern Regionals, Whitianga
- November 21-23  
Flying NZ Cook Strait Regionals, Hastings
- December 6-7  
Otago Aerobatic Open, Pukaki – Twizel
- February 28-March 5  
Flying NZ Nationals, Whitianga
- March 17-21  
NZ Aerobatic Club Nationals, Masterton
- May/June (TBA)  
Brian Langley Trophy, North Shore Aero Club



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**Captions:** 1. Part of the Nationals line-up of 2013 showing just what a variety of aircraft are capable of competing. 2. Steve Geard (soon to compete for NZ at the World Champs in South Africa) and his Yak55 3. Cessna 150A (A for Aerobat) 4. The mighty MXS, soon to be seen at airshows in NZ.