

# KiwiFlyer™

Magazine of the New Zealand Aviation Community

Issue 85 2022 #8



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## From the Editor

KiwiFlyer turned 14 this month. Our first issue left the printers on October 3<sup>rd</sup> 2008, the day before I got married. It's thus always easy to remember our anniversary date. I just have to remind myself when KiwiFlyer started and then add a day. I'm not sure I forecast 85 issues happening over 14 years at the time but thanks to the support of our advertisers, readers and contributors, we're still here and still enjoying creating each issue. A sincere thank you to everyone that has been involved, many of you since the very beginning.

This issue is headed up with a great discussion of aerobatics by Ivan Krippner. As well as his day job flying float planes, plus instructing and competing in New Zealand, Ivan flies aerobatic displays with The Airshow Company in Australia, China and beyond. He talks about some of the questions he regularly gets asked, the value of aerobatics, managing risk, and the path to becoming an internationally recognised professional pilot. He also points out that it's paid work and how the people doing the paying have expectations which need to be met.

We have only recently come back into times of good flying weather in New Zealand so in this issue we're catching up on the last of the overseas events that our regular contributors Jill McCaw and Gavin Conroy attended over winter. Gavin ticked a couple of items off his bucket list when he managed to arrange air-to-air photo opportunities with a Skyhawk and with a Boeing 727 during a day spent in a camera plane at the Royal International Air Tattoo in England. During his downtime from that and the air show, what else would he do but hang out around the fences of some RAF bases – enjoying plenty of fighter jet and tanker activity whilst there.

Our other regular contributors also have a presence in this issue. Frank Parker writes of the NZ Warbirds Association's latest arrival, Ciaran Doolin continues with his series explaining different facets of meteorology, and Jill appears again this time talking about parachutes and gliding.

There are two more issues of KiwiFlyer still to come this year. If you're up to something that you'd like to see in print, or of you would like to contribute yourself, then do get in contact.

Enjoy reading and fly safely.

Michael Norton  
Editor | Publisher



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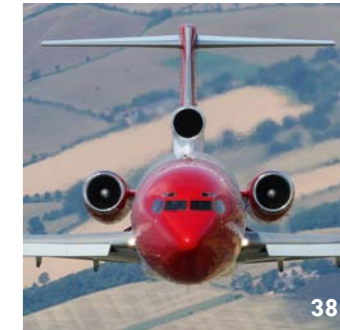
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Jurgis Kairys, in his self-designed JUKA aerobatic aircraft, forms up for a photo flight with Gavin Conroy at Warbirds Over Wanaka in 2018.

## About Us

KiwiFlyer is for and about the New Zealand Aviation Community.

A printed copy is delivered free to every New Zealand aircraft operator and aviation business. The magazine is also on retail sale.

Back issues are available for free download from [www.kiwiflyer.co.nz](http://www.kiwiflyer.co.nz)

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## We Appreciate

Thank you to our Advertisers who fund this publication. Please give them your support and let them know you saw them in KiwiFlyer.

Thank you to our regular Contributors: Ruth Allanson, Bill Beard, Penny Belworthy, Grant Benns, Gavin Conroy, Ciaran Doolin, Bill Henwood, Ivan Krippner, Joanna Lapish, Jill McCaw, Frank Parker, and others.

## Proud to Support

KiwiFlyer is proud to support: Walsh Memorial Scout Flying School, YouthGlide, and Flying NZ Young Eagles.

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### New exclusive New Zealand distributor for KANNAD ELTs

Aviation Safety Supplies Ltd., who will celebrate a twenty-year birthday this year, has announced that they have sold the distribution rights of the Kannad branded ELTs to Avcraft Engineering NZ Ltd. of Fielding. The change came into effect on 1st October 2022.

Avcraft's Mat Bailey and Trina Futcher are excited about this new opportunity and how well it fits with their wholly owned company Aviation Radio Ltd. which Avcraft purchased in July 2020 to expand the capability of both organisations.

It is intended that Aviation Radio Ltd. will become a Kannad Battery Replacement Centre in lieu of Aviation Safety Supplies Ltd.

Trina, Mat and their team do not anticipate any changes to the service that Lloyd has given to the aviation industry over the past 20 years and can now offer a full supply and fit of the Kannad ELTs in Wellington as well as Feilding, along with being the exclusive Kannad distributor for New Zealand.

This change for Kannad in New Zealand comes on top of the news that Orolia Ltd., who owns Kannad SAS in France, has been sold to Safran. For more information see [www.safran-group.com](http://www.safran-group.com)

Lloyd has represented the Kannad brand in New Zealand for over 30 years. He isn't retiring though, saying that, "I still have interests in all sorts of products for New Zealand and Australian Defence so I am not retiring, just giving Trina and Mat the opportunity to build upon what has been a very successful representation of the Kannad Brand here."

Visit Avcraft at [www.avcraft.co.nz](http://www.avcraft.co.nz)

### New HEC Dual Hook given CAANZ STC Approval

Airwork (NZ) Ltd has developed a multi-purpose dual hook for use on the BK117 helicopter and is pleased to announce this system has been approved by CAANZ. This dual hook system meets 29.865 requirements and is capable of Class B and D Human External Cargo (HEC) load combinations per FAA AC133-1B. FAA Certification is pending in 2023.

"The Airwork BK117-850D2 aircraft equipped with the dual hook provides Human External Cargo (HEC) operators with the most cost-effective solution in regard to achieving Cat A/PC 1 safety performance," says Wayne Christie,

Airwork's Director of Sales and Leasing.

The dual cargo hook system provides operational ease and versatility as the dual hook and beam assembly can be installed and removed in minutes without tooling. The approved NZ CAA STC offers multi-purpose HEC and Non-HEC capability with no reconfiguration required.

The dual hook system comes with a 1,400kg Primary cargo hook and 500kg Secondary HEC hook, giving the operator the versatility of using the system for human cargo or standard external load cargo without changing configurations. The hooks remain clear of the ground when the aircraft lands thereby reducing wear and unintended snagging (compared to underslung systems which could drag on the ground until stowed).

This system will allow operators to safely and efficiently conduct operations including EMS, firefighting, utility, powerline, SAR and personnel transfer.

Airwork (NZ) Ltd is part of the Airwork Group of Companies which is a diversified aviation business operating in multiple countries providing maintenance support, dynamic component overhaul, turbine support, as well as design and manufacture services. The company is an authorised Service Centre for Kawasaki, Airbus Helicopters, Honeywell and Breeze Eastern. Airwork also proudly owns the Soly AS350 SD1 & SD2 STCs and carries global certification for FAA145, EASA145, NZCAA145 (TC accepted), South African 145 and CASA PNG145.

Email enquiries@airworkgroup.com for more information.

### New Lightspeed Delta Zulu Headsets

The latest Delta Zulu headset from Lightspeed includes a built-in CO detector with audible and visual warnings, making it a form of wearable safety equipment. Lightspeed have also developed a customisable 'Hearing EQity' system whereby a user can create a hearing profile for themselves that covers 12 separate frequencies. This helps tune the headset to the hearing capabilities of the person wearing it, providing for an improved listening experience with clearer ATC calls and conversations. The headset also includes changeable battery packs and the Lightspeed App which allows users to review data and to record and play back all audio from the flight for debriefing purposes.

More information from [www.lightspeedheadsets.nz](http://www.lightspeedheadsets.nz)

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## Annual World Air Sports Federation Awards presented by FlyingNZ

A couple of months back, the annual New Zealand awards from the world's governing body for air sports, the Fédération Aéronautique Internationale (FAI) were presented at FlyingNZ's annual function in Christchurch. Liz King provided the following recipient citations and says that "it's very appropriate for these two gentlemen to receive this recognition at the same time – the master and the apprentice who also has become a master."

### FAI Tissandier Diploma

This Diploma, established by the FAI in 1952, is named after Mr. Paul Tissandier, Secretary General of FAI from 1919 to 1945. It is awarded to those who have served the cause of Aviation in general and Sporting Aviation in particular, by their work, initiative, devotion or in other ways.

This year a Tissandier Diploma has been awarded in New Zealand to Alan David Beard.

Alan has been a member of the Canterbury Aero Club for 35 years. He has held office as club captain, as a member of the Executive of the Club and as the manager, mentor and one of the trainers for the Club's Competition team for more than twenty years. He was awarded Life Membership of the Club in 2016.

In the Canterbury Aero Club competitions he has been awarded approximately 50 club trophies starting with the Senior Landing Trophy in 1986. He has won the instrument flying trophy on 14 occasions. He has won the Efficiency Cup awarded

annually for total aggregate points, 19 times.

He has represented the Canterbury Aero Club at Regional and National competitions over three consecutive decades. He has won numerous Flying New Zealand national trophies being the NZ Herald Trophy for senior navigation six times, the Wigram Cup Team Basic Panel Instrument Flying twice, the Wigram Cup Team Senior Landing once and the CAA Pre-Flight once.

He has represented New Zealand and won the Australian/New Zealand Wings Competition Spot Landing competition twice.

Alan has assisted Flying NZ by setting and scoring many of the last twenty years senior NZ Herald and junior Bledisloe Navigation events. He has devised and taught the use of a computerised navigation scoring system for the competitions. He has also modernised scoring systems for other competitions.

Alan has also assisted in the running of and training for Precision Flying and Rally Association events in New Zealand. He represented New Zealand and competed at the World Precision Flying Championships held in Denmark in 1989 and Argentina in 1990. He was New Zealand Team Manager in Texas in 1996. He was on the organising committee for the FAI World Precision Flying competitions in Hamilton and assisted Sweden in their scoring of the 2000 World Precision Flying competitions.

He is held in very high regard by the Canterbury Aero Club for his wise mentoring, especially of younger aviators, his commitment to aviation, and his friendly and helpful demeanour. Congratulations Alan.

### FAI Air Sport Medal

This medal was established by the FAI Council for the 100th anniversary of Lilienthal's first flights. It may be awarded, at any time, to individuals or groups for outstanding services in connection with air sport activities like work in FAI commissions, organising World and Continental Championships, training and educating new pilots, or for promoting aviation in general, especially with regard to young people.

This year an Air Sport Medal has been awarded in New Zealand to Tony Page.

Tony has been a member of South Canterbury Aero Club for 27 years, sitting on the committee for over 20 years where he has held positions of Club Captain for 18 years, Young Eagles Co-ordinator, Vice President and President.

Tony helped set up the first Young Eagles group in 1998 and has always encouraged the growth of youth flying in the club. He has been an integral part of it becoming what it is today. Tony has dedicated much personal time and money to his club's Young Eagles over the last six years with at least one South Canterbury Young Eagle receiving a FlyingNZ scholarship every year.

Tony is extremely supportive of his club's instructors and their professional development. He has nominated multiple life membership and honorary vice president roles within the club, never seeking recognition for himself.

He has also been a part of the Royal New Zealand Aero Club Executive for 14 years starting off as the Lakes Area Regional Representative 2008, culminating with Tony becoming the FlyingNZ President for 3 years from 2018-2021. He has also been in the competition advisory group for 14 years and the chairman for the past 11 years.

Tony has also been a huge advocate for recreational flying competitions, always representing South Canterbury Aero Club at the Regional and sometimes National competitions.

He is always encouraging new members to come and have a go at competitions, then helping them to get there and compete. Along with competing Tony has also held roles within the competitions such as Chief Ground Judge, Event Manager and as a member on the Safety and Appeals Committee. Congratulations Tony.



Tony Page and Alan Beard with their awards.



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## Are you using the right certification forms?



The Civil Aviation Authority's Certification Organisations Unit and Certification, Aircraft and Products Unit are under pressure with more work than they can complete in the time that they would like to do it.

This has led to delays in industry participants being certified or renewed, and with other certification tasks such as amendments. The CAA has also seen an increase in the amount of work coming through as the aviation sector rebuilds post-COVID.

David Harrison, Deputy Chief Executive Aviation Safety says that whilst the CAA will do its best to respond in a timely manner to all requests, participants can do their part to help smooth the process. Certification teams have noticed some common errors applicants are making that are slowing down certification work.

"The certification teams will only process applications that are complete and use the latest revision of the form. Partial applications and applications using an outdated form will not be processed, will be returned to the applicant and need to be resubmitted.

"The CAA is receiving many applications very close to a renewal deadline, or with a short window for a new certification. At times, we are unable to meet applicants' tight turnaround deadlines due to where your application is in the queue. To not miss your deadline please submit your application as soon as you can and tell us if there is a timeline you are seeking to work to. This allows CAA work to be programmed and for participants to be given a realistic idea of when it will be tackled and a timescale for people to work to," says Mr Harrison.

Whether applying for a new certification or a renewal, use this checklist to ensure your application is processed as smoothly as possible.

- Use the correct form, these are on our website. Always use the form on the website as these are the most up-to-date versions. <https://www.aviation.govt.nz/about-us/forms/>
- Check the Licensing and Certification pages on our website to ensure you know what you need <https://www.aviation.govt.nz/licensing-and-certification/>
- Complete all relevant sections of the form. Incomplete forms will be returned to the submitter.
- Submit your application sooner rather than later.

"It will take some time for the organisation to return to ideal application processing times. We want to make the certification process as easy as it can be for both applicants and our team working on the applications. By submitting the correct information, on the correct form, ahead of deadline, helps both you and us," says Mr Harrison.

## Latest spiral bound VNC Book from AOPA including all the latest airspace changes effective 1<sup>st</sup> December will be available soon

Kiwi pilots familiar with the popular book of VNC charts published by AOPA will be pleased to know that new version will soon be available. This year's edition becomes effective from 1st December 2022.

Conceived in 2019, the VNC Book was very well received and has been produced every year since. The premise of the book was to declutter the cockpit of traditionally printed charts and to save pilots the burden of unfolding and refolding charts as their flight progresses.

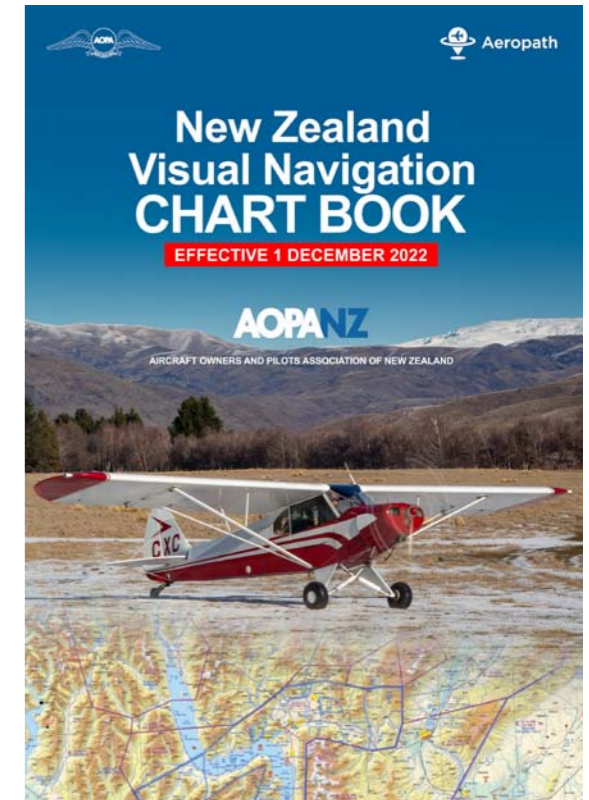
A collaboration between AOPA NZ and Aeropath, the book effectively reduces each chart into spiral bound pages of the 'folded' size to begin with. There is also the added simplicity of having all the charts together in one easy to reference booklet.

The book includes the full NZ set of B series 1:500,000 scale charts and

29 C series 1:250,000 scale charts. Changes this year include a 1:250,000 scale chart covering the Desert Road corridor (plus the mountains), Wellington CTA revisions, New Plymouth and up the coast, Military Ops areas and at least one new danger zone. Remember to comply with regulations, you must carry and use only current charts.

Chart connectivity is easily referenced with an index inside the front cover and by indexing symbols to the top of each page. Special messages, legends, and the FISCOM chart all also included at the front of the book for quick and easy reference.

AOPA members can purchase the VNC book for the discounted price of \$88 including GST and postage from [www.aopa.nz](http://www.aopa.nz). The book is also available to non-members from the AIP shop at [www.aipshop.co.nz](http://www.aipshop.co.nz)



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Gavin Conroy image

Ivan performing. On this occasion with his Pitts Special S-1 in New Zealand.

# Aerobatics with a Twist

contributed by Ivan Krippner

Ivan Krippner and his wife Kylie operate the float plane company Wings and Water at Te Anau. Ivan is also well known as an aerobatic pilot and member of The Airshow Company display team, an Australian business that provides aerobatic displays for events throughout the world. This work brings him into contact with numerous clubs and aviation enthusiasts, many of whom take the opportunity to ask questions or seek advice. Ivan shares some of those exchanges for KiwiFlyer readers here.

“How do we get pilots to join us?” This is a question I keep hearing over and over again at aerobatic clubs all around the world. There are other commonly asked questions too, so this article will cover some of these alongside my answers and a few snippets of experience which might help the thought processes of budding aerobatic pilots - as well as those who already have the bug.

First of all I believe the question is the wrong one to ask, for if something is of

benefit, value or fun then there should be no encouragement required. We should be inundated with aviators chomping at the bit to join in the excitement. So then the question becomes, why are pilots not seeing the advantages of what we do?

Now aerobatics are not for everyone, I get that, and maybe it might have something to do with two personality types, those who are Content and those who are Searchers. Content are the people that acquire or achieve a given standard,

and are happy to operate and maintain well inside the given parameters or the operating procedures. Searchers are the ones that are constantly seeking more, more answers, more ability, more confidence, more knowledge, and knowledge is power right? Much like buying a car, some are content to drive it and have no interest in what is under the hood, others are seeking to know all about it and how to get the best out of it. If you are content, then it will be hard to persuade you to venture into a realm you have no interest in. This article might not be for you. But read on anyway – there might be something within to spark an exploration of new skills and ultimately safer flying.

What are the advantages in learning and performing aerobatics? In this modern world there are some who think unless you're at 5000 ft straight and level you are “dangerous” or “writing cheques your body can't cash”. That thinking is making it harder and harder to convince folk there is a huge advantage to being acrobatically trained and proficient.

At the risk of blowing smoke up a certain pilot's chuff, I'll share here something I've been saying for years. If I was ever to be in the rear cabin of a commercial flight that had an ‘anomaly’, then if Captain Richard Hood was at the controls I would rest easy. I think most people involved in New Zealand aviation will have heard this name and if anyone could handle a problem, Richard is that person. The point being in my opinion, a proficient aerobatic pilot is well versed in dynamic situations that require quick, concise and correct actions.

### Seeing the value

Who has the most contact with the student pilot? It's the instructor. So until instructors see the value in aerobatics there



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will be little change. Back when I learnt to fly at the Waikato Aero Club in Hamilton the instructors got it well and truly thanks largely to Malcolm Glassey who was a great CFI. There are indeed now a small number of career instructors who are promoting the need for aerobatic training and leading by example. But on the other side of the coin, one of my senior instructors informed me that a C category flight instructor was complaining about me 'over training' them for their aerobatic instructors rating - if there is such a thing as being 'over trained'.

I do agree there is a lack of certified two-seat aerobatic training aircraft and suitably qualified aerobatic instructors. Does this mean we have a lack of suitably qualified Chief Flying Instructors? I recall doing spin training for my C category instructors rating many years ago, and the young B category instructor suggesting that I show them how to do it because they didn't really know a whole bunch about it. At that time I did have well over 1000 hours total time, and most of that was aerobatic flight including the last six months running a Pitts Special in Queenstown on commercial aerobatic flights for a good friend of mine.

#### Cowboys and risk

How about the misconception that aerobatic pilots are just a bunch of "cowboys". This was conveyed to me from a commercial pilot whom I was training for their aerobatic rating. The rating was completed, the student got proficient at it and we ended up going to the New Zealand Aerobatic Nationals in Waipukurau and the myth was busted. For once there, it became apparent to the pilot that the aerobatic pilots there were highly disciplined PPLs, CPLs and ATPLs all with common goals - being to enjoy and better their flying skills. It was also undeniable that some of the pilots at the top of the game were wide body jet jockeys. Two names that come straight to mind who I have flown with at the top of the international aerobatic air show circuit, Skip Stewart and Jason Newburg are the same.

Another question I was asked, "Now that you have a family and kids, why would you be performing aerobatics to ground level?" (I do have an unlimited aerobatic height endorsement attached to my CASA licence). This implied that I did not place value on the safety of my aircraft, myself or those around me. It was an absurd assumption that I still have no answer for. In truth I do find myself



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**A conversation with Jurgis Kairys**



In Ivan's article he talks about flying the Sukhoi Su-26MX in China. We haven't any on the NZ register, but the type will be familiar to Warbirds Over Wanaka visitors thanks to regular performances there by Jurgis Kairys. Jurgis holds multiple world titles in aerobatic competition and loves coming to Wanaka where he is a crowd favourite. In the same manner that Ivan speaks of travelling with The Airshow Company, Jurgis brings his plane with him wherever he goes and assumes the role of engineer to assemble it for the show and pack it back into a container afterwards.

Jurgis was one of the first to compete in the manner of what is now known as Unlimited Aerobatics, he and friend Stepas Artiskevicius also of the Soviet Aerobatic Team pushing each other to develop more difficult manoeuvres and expanding the envelope of what was considered possible in an aeroplane.

Like Ivan, Jurgis speaks of 'knowing' his aeroplane and 'feeling' what it is doing and saying to him. This is to be expected given he worked for Sukhoi as an engineer and test pilot, and helped design the Su-26, Su-29 and Su-31, then upon leaving the company he bought the project they were working on and created the JUKA, similar in looks to the Sukhoi but offering another level of performance. The cover picture of this KiwiFlyer issue is of Jurgis in his JUKA during one of his Wanaka appearances where we enjoyed watching and later interviewed him: "You have to think about lots of things, for example the first thing for me is to show a programme which is not similar to another pilots. Always managing new manoeuvres, new programmes, and something new with the possibilities I have with the new plane. I need to think about which manoeuvres I will place in my programme, and how to manage this manoeuvre with the wind, the area, the temperature... every day is a little bit different. We have the public, a deadline, we have our 'Box', and I always need to think about how I am going to put the aeroplane where and when I want it, to lead into the next manoeuvre. That's not easy, but the plane is very powerful."

After over 30 years of competitive aerobatic flying, Jurgis has seen a huge change in how aircraft are flown. "Before was very different. It was 'classic' aircraft and nicer looking moves you know, but nowadays it is Bam! Bam! Bam! Some people didn't like this. "Oh it looks bad" they would say. I can joke a lot about that. This new era was coming and it was full of life, and fun. I like it the way it is now."

"By time, by training, by practice, by repetition you become comfortable, in a competition or in a show. A show is a little bit different. In a competition my thing is to catch points, to have a result, to build a result. But in a show you have to capture the attention of the public. Sometimes I am doing it just for the professionals. When I see that some interesting pilots are coming to the show I will do things for them, but mainly it is for the public."

Hopefully the public will get to see Jurgis perform at Wanaka again in the future – and keep an eye out for Ivan too.

thinking more of the family in the build-up and preflight for an air display, but that all goes away the moment the engine starts up, for then it is game on! Risk is in fact very carefully managed.

**Climbing the ladder**

Another frequent question is "How did you get to where you are?", sometimes followed by "How do I get there?" Well, I have seen the unsightly 'lolly scramble' when there is a mention of getting paid to do aerobatics. I've indeed been a part of it in the past. I believe many things are needed; help, passion, luck, finances, time, patience, skill, self-evaluation, machinery, arrogance, humility and many other things. I have met aerobatic pilots that are better than me and yet have no interest in air show aerobatics - so you must have a desire to do it for a start. Asked if I had the chance to do it all over, would I do it again? Yes, yes I would, but, I would do it slightly differently.

First up is aeronautical discipline. I gained this at a young age from flying model aerobatic competitions. Something I would have changed if I could is that I should have contacted Richard Hood at the New Zealand Aerobatic Club back in 1991 when I first bought the Midget Mustang ZK-DDC. That would have fast tracked my direction (even though there are no short cuts) in the right way. Basically, if you want to swim faster, swim with the big fish. If you want to progress, have an aircraft that will allow you to progress. DDC was and still is fantastic bang for the buck, but I outgrew it years ago. I just didn't want to admit it because I loved her so much. I should have moved on to a Pitts Special earlier. The Pitts Special is the best value aerobatic aircraft out there in my opinion. A 1945 design, they are getting a bit harder to get hold of now but still offer the best 'smiles per gallon' and they are designed such that we will break before they do!

Do it for the passion, not the money. My YouTube channel is littered with videos depicting the glamorous side of aerobatic air show and display flying, and like most photograph albums seldom does it show the darker side of life, but there is a dark side of it so be careful what you wish for.

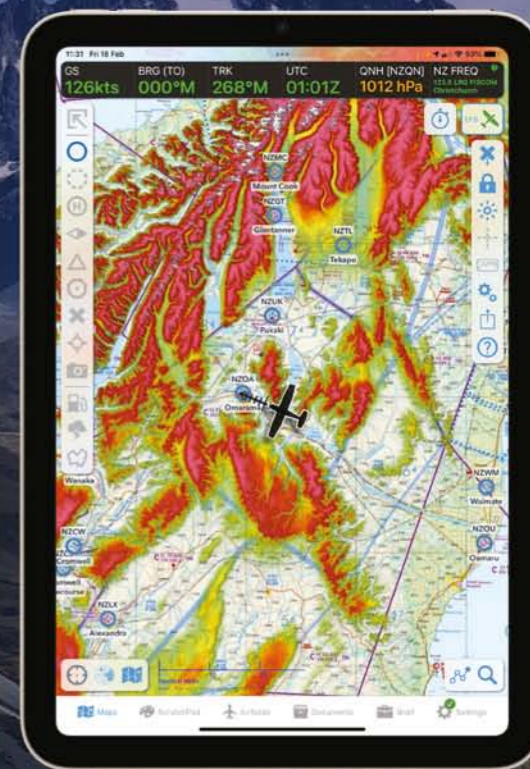
**Being the professional**

I do have some videos on YouTube from behind the scenes of our work in China and it goes something like this. Drive to Queenstown, fly to Sydney, fly to China, bus to the hotel, drop bags and go straight to the airport to start assembling all the aircraft. There are normally delays in getting to the aircraft for days, so that is the cause of much frustration; a day spent going from building to building to get airside passes, 3 days to assemble, 2 days to test fly and practice, 3 days of air shows (up to 6 flights a day), 2 days to pack the aircraft back into the containers, bus to the airport, fly to Sydney, fly to Queenstown, drive to Te Anau. In China, all of this is done in heat that moves only between 30 and 40 degrees. The weather is not very good over there either; smog and haze are the norm. I once was practising aerobatics within the circuit in the Yak-55 SP when I did a vertical roll and lost sight of the runway! Flying in that thick haze is like flying in a cylinder of somewhat clear air that is only 1 nautical mile around you and follows wherever you go - and never gets better. Also we are warned that if we fly more than 5nm from the runway, we will be 'intercepted'.

The remuneration for the work is good and Paul Goad and the rest of The Airshow Company team treat me well but it is very demanding work. We have up to six display spots a day, sometimes solo, sometimes formation. For each display spot that is missed,

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there is a ten thousand dollar penalty. I recall a time we had just completed a formation aerobatic display; I was flying the Pitts Special S2C and the formation team leader Jeremy Millar was to do a solo display in it. He flattened the battery in an attempt to do a hot start! Paul turns to me and said, "We have five minutes to get an aircraft off the ground for an immediate display, can you do it in the 26?" ( Sukhoi Su-26MX). Definitely! was my answer. He told me, "You strap in, I'll fill the smoke tank, Trent will refuel, Jeremy will check the oil. As soon as you're ready start up and launch." It was done and disaster was averted - so yes it is high pressure with large stakes.

That reminds me of when I was sitting in the 26, collecting my thoughts for my first ever solo display in it in China. Paul walked over to me before I started the engine and said nothing for quite some time, just sitting on the wing there with me, very calming. He then pipes up and said, "You right?" I replied, "Don't worry Paul, I'll make you proud". He said, "Just don't crash" with a smirk on his face so I replied, "If I crash will it make you proud?" "No!" he said. So I said "Paul, I'll make you proud." He smiled, slapped the canopy and walked off.

### Knowing your aircraft

Know your machinery and practice until it is second nature. Low level and ground level aerobatics are all about head outside the cockpit; listen to the engine, feel the control stick pressures, know where your stick stall position is, and for God's sake don't hit the ground! The aeroplane will 'talk' to you if let it, and listen to what it has to say. On the ground with my head in the cockpit of the 26, another young display pilot once came over to see what I was doing? I said I'm trying to find the balance ball. It's certified so it must have one and it's gotta be in here somewhere? He started laughing, then stopped and said, "You're serious aren't you!". I was. I had about seven hours in at the time and still hadn't found or used it.

On a similar subject, Jeremy Miller once flew the Pitts S2C after me for currency. He aborted the take-off and returned to the hangar - and we all wondered what was wrong. He said the airspeed indicator was not working, so everyone looked at me since I was the last person to fly it. I said "I don't know, I don't use it." I'd checked it in the test flight and that was about that. Upon



With the Yak 55SP in China.



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inspection the slip joint had slipped off. God knows when.

Ask any pilot what the maximum 'G' limitations are of their aircraft and they will tell you (well they should be able to) +3.8 and -1.5 rings a bell for a lot of them. But without a 'G' meter or knowing how that feels, how would you know what that is? You may as well say "Never exceed +3.8 bananas". You might say why that is so important, as long as you're not over stressing the aircraft it's no concern of mine. Well...

An aircraft will fly its fastest and slowest at full power, so it could be said that power has little to do with IAS unless you are in level flight. People rarely get into trouble in straight and level flight so I think we have that one mostly covered. Every time we create lift we create drag (Principles of Flight 101), 'G' opposes lift, so every time you produce 'G' you produce drag. When you need to slow down in a hurry, the amount of drag at your disposal in this scenario depends on the 'G' limitations of your aircraft. So why not just close the throttle? Well yes, and no, or a combination of the two... It depends on your situation. Adding power decreases the stalling speed (look it up if you need to) and this can come in handy if a lack of turning or pulling radius is available or the aircraft is prone to tip stalling/dynamic stalling. I have seen aircraft over speeding at close proximity to the ground, and when the pilot chooses to close the throttle, the extra height loss is significant.

Remember, no matter what the situation, you are never more than 180 degrees away from level flight, so once you're comfortable with rolling the aircraft over, being inverted becomes much less of a hurdle. Interesting fact: did you know that while inverted adverse yaw is reversed? Yes, right aileron and left rudder in the turn to stay in balance. It's still rudder in the direction of the turn but aileron in the opposite direction of the turn.

### Ask for help and be prepared

It's harder if you try and achieve it yourself. Ask for help, get help and be thankful for the help you receive. Accept too that sometimes the help might not be immediately forthcoming. I have admired Jurgis Kairys for a long time and tried to strike up a friendship at the Wanaka air shows we were both at for years. Finally it worked, but not before a funny story. At the time I was running a leased Yak 52 for our company. I had many questions about it and he helped a lot with that. The conversation moved onto advanced aerobatics and the advice became harder to pull from him, as he was being cautious of this relatively unknown pilot at that time. After a while he paused, looked at me and said, "How do you recover from a flat spin?" I told him my technique that on first glance may seem odd, but he smiled and (insert Lithuanian accent) said to me, "Ahh... now vic can talk, you know what you are doink."

Wait your turn and be patient. Your time will come, or maybe not. Who really knows. The point is just because you believe you have the skills (and maybe you do), the call won't come until you are needed. It's the old saying in the aviation industry... "Hurry up and wait." The only reason the door opened up at The Airshow Company for me, was that I was needed and I was recommended by a friend. Even so, my time has not yet come in NZ and I'm 50 now. Maybe it will never come but rest assured if it does I will be as prepared as I can. My advice to pilots in all situations is to be ready and rated. And never forget, you are only as famous as your last screw-up. No one talks about the great Antarctic over flights that Air New Zealand were doing, but everyone remembers Erebus.

Fly safe, fly smart.

Ivan Krippner 



Ivan with Jurgis Kairys as they were both leaving an air show in China.



Ready to fly in China. Note headwear.



A post show wave to an appreciative crowd.

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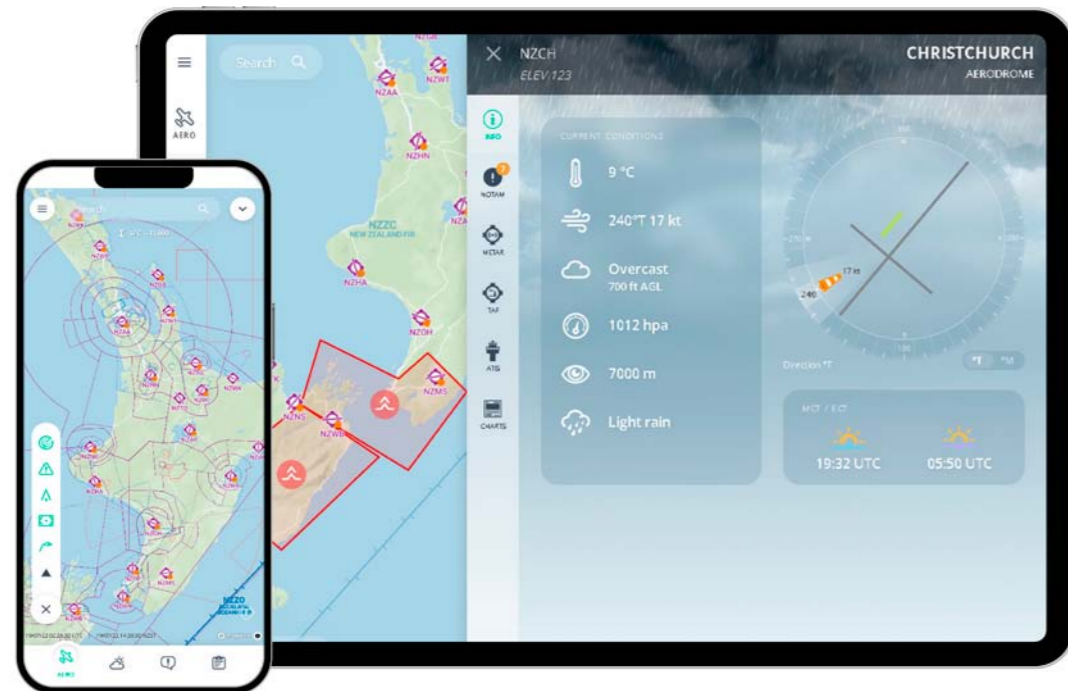


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# Avionics Trends and Oceania Aviation

Oceania Aviation's Part 145 certificated avionics capability is well known, particularly in regards to custom fit-outs and upgrades undertaken for operators, or often as part of helicopter refurbishment projects which the wider company specialises in. KiwiFlyer recently spoke to Oceania's Avionics Production Lead Christo Pretorius about his background and outlook, and about some of the projects they have recently undertaken.

*Shall we start with your background Christo – what path did you follow that led you to here?*

My aviation career started as an apprentice in the South African Air Force, qualifying on the CASA 235 and later moving to the Boeing 707 – I supported the air-to-air refuelling side with the Grippens at that stage. Furthering my career in the private sector meant obtaining my SACAA licence after which I worked on aircraft like the DC9/10, Bell430, B727, BarrenB58 and C208 Caravan. My family and I immigrated to New Zealand in 2019 and then I obtained my NZCAA licence with Electrical, Instrument and Radio group ratings. My first job here involved a variety of different installations – Radios, Sandel, FM, Medivac and ADS-B transponders on several helicopter types. I joined Oceania in July 2021 as a licensed engineer and then received a promotion to Avionics Production Lead later that year.

*There's a bit of a contrast between DC9s and the modern helicopters you're working on now. What's your take on the evolution of avionics and where things are heading?*

There was a time (before my time) when a suite of instruments consisted of an (unreliable) altimeter and compass. Then people began experimenting with radio beacon technology and in the 1930s the first instrument approach and landing was achieved. By WWII, cockpits contained basic radio and more advanced instruments allowing pilots to operate in cloud. The development of HF/VHF saw the first ILS and VOR networks developed.

Increased demand for air transport, increased aircraft performance and technological advancements have all paved the way for today's modern, solid-state electronics. Satellites have been launched for communication/navigation purposes and we now see a heavy reliance on global satellite positioning of aircraft combined with the latest technologies all working together to enhance situational awareness and expand mission capability.

Avionics capability continues to be advanced with a particular trend toward smaller, faster, lighter and more reliable devices, just as we have seen with mobile phones during the last decade. Digital is the future. The G1000, G3X with new software and GFC 500 autopilot are dominating the GA and commercial industries and we are seeing increased demand for Heads Up displays, synthetic vision, touch screen and voice control. Virtual reality is not off the table...

*You'll be getting plenty of experience with the latest technology now. Tell us about Oceania Aviation's avionics capabilities.*

Our team have over 50 years combined experience across the GA, Commercial and Military industries. Our two bases in Auckland and Hamilton combined with our install, repair,



A recent avionics upgrade completed by Oceania Aviation on a B206 Long Ranger.

maintenance and inspection capabilities allow us to carry out work of all scopes, from radio and auto-pilot installation, glass cockpit upgrades and instrument/radio maintenance checks, to more complex ADS-B integration, synthetic vision and Max-Vis installs. We stay on top of the latest aviation tech and offer cost-effective solutions tailored to the operator and aligned with their projected operational growth.

*ADS-B has been the project for everyone over the last year or two. That must have been the case for you too?*

Definitely. In NZ all aircraft operating in controlled airspace must have ADS-B fully operational by the end of this calendar year. Quite a few people have left this until the last few months and we are very busy with enquiries for these installations. ADS-B is a great example of how avionics are constantly evolving. Globally, the industry is moving away from ground-based surveillance and navigation, to a more accurate, airborne based system.

*That work aside, I know you undertake some pretty interesting projects here. Can you tell us about some?*

Our projects hangar at Ardmore specialises in the buying and upgrading of aircraft, stripping them down and reconfiguring where required to optimise them before on-selling. One of my favourite jobs was on an MD600N project heli. We installed a Garmin GTR225, GMA345 Audio Panel, Garmin GPS 660, Appareo ADS-B transponder, Whelen Anti-Col lights, FM radio and Oceania Spray System with TracMap. More recently we did a similar install on a 206-L3 with the addition of the GTX345 ADS-B.

## For more information

Contact Christo Pretorius on 09 296 2644 or 021 942 633, email: [christo.pretorius@oal.co.nz](mailto:christo.pretorius@oal.co.nz) or visit [oceania-aviation.com](https://oceania-aviation.com) for more about Oceania Aviation's extensive range of rotary and fixed-wing MRO services, including parts procurement.



Christo Pretorius



A pair of Tigers: Alpha Tango November with Alpha Tango Mike.

# A Tiger Moth for NZ Warbirds

NZ Warbirds has acquired a historically significant Tiger Moth restoration project. This is DHNZ1, the first Tiger Moth manufactured by de Havilland New Zealand at Rongotai. As ZK-ATN, the aircraft's restoration was originally commenced over thirty years ago but was discontinued with a majority of the work done when its owner sadly passed away. The project thus languished in a hangar at North Shore for some time suffering further deterioration from corrosion and age. It is intended to rebuild this aircraft with largely volunteer labour. Once completed it will add a pathway for pilots to gain experience in multi wing and tailskid aircraft, becoming a gateway to NZ Warbird Association's expanding WWI fleet. Frank Parker tells the story of Alpha Tango November.

**Thanks** to the generosity of a benefactor, NZ Warbirds acquired Tiger Moth 'Alpha Tango November' as a restoration project in November 2020. The aircraft had been with well known aviation entity Stan Smith and had reached an advanced stage of restoration before being relegated to the back burner for many years.

Befitting of any 82 year old aircraft, ATN has an interesting history, some of which is retrieved below from the ADF Serials website.

NZ 751 | DHNZ1 | The fuselage was built at Hatfield England and shipped to New Zealand where the remainder of the aircraft was constructed from local materials. The British construction

number was most likely 82713 – This would indicate that 'she' was the first aircraft constructed by the new "De Havilland Aircraft Company of New Zealand" at the purpose-built facility at Rongotai airport Wellington – now Wellington International Airport.

'751' was brought on charge with the RNZAF on 29 July 1940 and flew only 20 hours before being used as an 'instructional airframe' at No.3 Elementary Flying Training School' (EFTS) at Harewood Christchurch from 1942-1944.

Post WWII '751' was 'issued free' to Tauranga Club on 8 May 1949 and entered onto the Civil Register as ZK-ATN on 10 October 1949. She was not used by the Aero Club and subsequently on sold to R Graham for use as a top dresser on 10 October 1949. She was then sold to F McDonald in July 1957, converted back to the original two seat configuration, then sold to E Hollick of Great Barrier Island in October 1957 (see sidebar).

ATN was mortally wounded when she crashed at 'Palmer's Beach' Great Barrier on 24 April 1966 and was cancelled from the register as destroyed on 25 May 1990.

It is well accepted that cats have nine lives (therefore Tigers too) and thus the remains were bought by I Insley of Swanson and re-registered on 29 Oct 1993. Mr Insley had recovered useful remains from Great Barrier and rebuilt ATN with major components of NZ 771. The remainder of the aircraft was reportedly burnt (however there is an anecdotal suggestion that the wings ended up as 'Barrier fencing').

The aircraft was sold to M McDonald of Connecticut USA in February 1995 and in 2004 was offered again to the market as a near complete 'project'. It was bought by Brooklands Aviation Auckland in June 2004 and remained under the care of Stan Smith until purchased by NZ Warbirds in November 2020.

## Become involved

On initial inspection the aircraft appeared to be a well-advanced restoration – albeit as such things are described as 90% done 90% to go. Alas, under closer inspection there was evidence of corrosion on the fuselage frame so the decision was made: "back to square one" for a complete strip down and repaint of

## Hank Hollick

One of the owners of ATN (October 1957 to April 1966) was Mr. E Hollick also known as 'Ted' or 'Hank'. Hank used ATN as his personal commuter between Ardmore and Great Barrier Island and anecdotally was a bit of a local legend. Some of the stories researched in various Ardmore recreational facilities (Ed: Frank means bars), include:

- Hank flew most of the construction material for a Barrier 'shed' in ATN, 4x2 stacked in the front cockpit sticking above the top wing.
  - Hank flew around with his chimney sweeping brushes in the front cockpit and would land next to a rural house and convince the owner their chimney needed sweeping.
  - The Barrier was a 'dry' area. Hank would 'deliver' necessary 'supplies' from the mainland.
  - And on a more personal level, it seems Hank was a naturist and often wandered the beaches of Barrier sans clothing.
  - Or the story about the rather 'posh' American lady who made a visit to Hanks private island.
- What would life be without the occasional character?

everything. While this has added significantly to the job-list it was the correct decision and the end result will definitely benefit.


All the work is being completed by a small group of volunteers ably led by Graham Wood – AKA 'Woodsy', a well-known and respected vintage engineer and pilot.

The jigsaw puzzle is now in the paint and assembly stage and while it has taken almost two years to get here it is anticipated (planned, hoped, dreamed) it will be flying by the end of 2023.

The chosen livery is its original NZ 751 'Training Yellow' which we feel recognises the aircrafts 'roots' and complements the 'Warbird' heritage.

This aircraft will be an important addition to the NZ Warbirds fleet of aircraft. It will afford the Association the ability to introduce new pilots to the idiosyncrasies of old aircraft and provide a stepping stone to our small group of WWI aircraft types.

Of course, a project of this calibre costs money. If you would like to contribute toward returning a small piece of New Zealand's aviation history to the sky please go to the NZWA Website [www.NZWarbirds.org.nz](http://www.NZWarbirds.org.nz) for further information.

Frank Parker: [frankly@xtra.co.nz](mailto:frankly@xtra.co.nz) 



ZK-ATN with restoration underway at NZ Warbirds Ardmore home.

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# Aircraft Passenger Legal Liability Insurance in New Zealand

Bill Beard from Avsure continues his series explaining various aspects and terms of aviation insurance, including useful advice for making sure you have the coverage you need. His last paragraph in this article is particularly important but potentially overlooked. All of the previous Avsure articles are available for download from the KiwiFlyer website [www.kiwiflyer.co.nz](http://www.kiwiflyer.co.nz)

**In** New Zealand the industry standard for aircraft combined liability coverage is between NZ\$1m to NZ\$20m. Unlike the USA, Australia or Europe, the possibility of a Liability Claim arising for Personal Injury or Death in New Zealand is virtually negligible due to the implications of the New Zealand Accident/Rehabilitation and Compensation Act 1992 (also known as ACC).

In general terms, all incidents resulting in Death or Injury to persons (including

international visitors) anywhere in New Zealand are covered under this Act and there is no provision under New Zealand Legislation for Claimants to sue or issue proceedings in New Zealand Courts seeking compensation for Death or Personal Injury.

Since introduction of this Act in July 1992, we understand there have been no claims successfully pursued for passenger liability in respect of Personal Injury or Death with exception of Mental/Nervous Shock Claims not linked to physical injury which does not fall under the Legislation. In relation to Aviation Passenger Liability, this was borne out by case history in the High Court Judgement relating back to the ANSET Dash 8 accident in 1995 whereby the Court upheld and set a precedent in that there was no loop hole for passengers to sue for Compensatory Damages in NZ.

Effectively therefore the nominated

indemnity for Combined Single Limit Liability/Third Party Property Damage is the major element covered under an aircraft insurance policy – not Passenger Liability.

For commercial operators providing carriage of passengers for hire/reward it is essential to ensure that all contracts of carriage be sold direct or via a New Zealand Agent or Tour Company in New Zealand and not as part of an overseas package. This ensures the Liability Exposure is limited to fall under the New Zealand Accident/Rehabilitation & Compensation Act 1992 (ACC).

To discuss this topic or any other aviation insurance questions, or to seek quotations, contact Arden Jennings or Bill Beard at Avsure / Crombie Lockwood on 0800 322206. Full policy wordings and other information is available on our website [www.avsure.co.nz](http://www.avsure.co.nz)

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Glider pilots (here at an international competition) can find themselves in close proximity as multiple aircraft utilise the same lift source.

# Glider pilots wear a parachute

One thing newcomers to soaring can find a little worrying is that the pilots wear parachutes. If flying sailplanes is as safe as they say, why are glider pilots wearing parachutes? Jill McCaw explains.

Soaring is no more dangerous than any other aircraft flying activity. Lack of an engine arguably makes sailplanes safer: they're designed to stay airborne for as long as possible, there's no engine to have unexpected faults, no fuel to catch fire in a crash, and probably a lot of other things in their favour too. So why are parachutes mandatory for competitions, cross-country flights, and most general flying?

It's a bit like wearing a seat belt - parachutes provide an extra layer of safety. They are the back up in a worse-case scenario. And they save lives. Mid-air collisions do happen.

Soaring pilots wear parachutes for exactly this reason. We don't generally

expect to have to use them, but I personally know two people who belong to the Caterpillar Club (club motto "Life depends on a silken thread"); that is, they have used their parachute in earnest. It can happen. Your 'chute needs to be maintained, you need to be buckled into it correctly, and you need to be prepared to use it. Most soaring activities are very safe, but there are situations that can be dangerous. As soon as you get several sailplanes using the narrow band of lift along the upwind side of a ridge, or the leading edge of a lenticular, or sharing the same thermal, accidents can happen.

World level competitions can be particularly dangerous. There can be more than 25 countries competing over three classes, with around 120 sailplanes flying. That's one heck of a lot of fibreglass in the sky at one time. Organisers try to start the classes at different times in different parts of the sky, but pre-start gaggles can still contain up to forty aircraft, all trying

to climb in the rising air marked by the spiralling mass of other gliders. When you think about it, a mid-air nearly seems inevitable. Four years ago, at the Worlds in Australia there were two mid-air incidents. The first was extremely lucky, just the barest of touches of wingtips with both pilots staying in control and landing safely.

The second incident was far more serious with a high-speed impact causing one glider to lose a wing and the other breaking the tail. Both gliders were immediately unflyable and spinning. Both pilots, after what seemed a very long interval to other pilots watching from above, escaped their aircraft, deployed their 'chutes, and landed, battered but alive.

It turns out getting out a spinning glider isn't anything like getting out of a glider on the ground. A couple of years earlier, a friend of mine, Gerrard Dale also had to exit a spinning glider after a mid-air in a British competition. Due to 'G' forces his (usually, one handed and easy release) seat

straps were locked tight, and it took him nearly too long to release himself and get out of the glider. Aussie pilot, Steve O'Donnell, one of the victims of the Australia crash, later said it took from 5,000 feet to 1,700 feet to actually get out of the spinning glider. He was quick to release the canopy and straps, but it was a real struggle to get himself out of the crippled craft. He couldn't just push himself out using his arms as is done on the ground. He had to put a leg out first to get that caught in the wind, which pulled his body out of the cockpit (tearing his ligaments and hamstrings). However, not having a quick release system on his harness, the most painful injuries Steve sustained were from being dragged along the ground in the estimated 20 knot winds on landing.

Obviously, the Caterpillar Club is not a group you ever want to join but it is still better than not getting out of a disabled aircraft.

Since the incidents mentioned, the International Gliding Commission has been implementing changes in procedure for international competitions. But maintaining an excellent lookout still remains the best defence against mid-air. In ALL of aviation.

Soaring really is a safe aviation sport. You mightn't believe me after reading this, but it is. Most of the time the parachute is just a very expensive seat cushion that absolutely cannot be allowed to have anything spilled on it. They must be treated with the utmost care and respect. On any particular soaring flight, the chances of using a 'chute in earnest is incredibly small. The chances of experiencing the joy of pure flight are huge.

Don't be put off by having to strap on a parachute as you get in the glider. Just think of how the club is keeping you safe by providing expensive safety gear they don't expect to ever see used. If you'd like to have a go soaring (with no intention of using the 'chute), contact your local club via [gliding.co.nz](http://gliding.co.nz)

Jill McCaw

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An unmistakable view of the McDonnell Douglas Skyhawk. This is an A-4N model.

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ZK-DOL in the sunshine at Paul Dolley's Cambridge property prior to being transported to Te Kowhai Airfield for final assembly, certification and test flying.

# An RV-12 takes flight

Occasional KiwiFlyer contributor and test pilot Bill Henwood recently had his first fly of a new-build Vans RV-12 at Te Kowhai. It's a popular type in New Zealand with 18 now on the register and more underway. According to Bill, the popularity is well justified. He writes of the experience here.

Ever since I was a student pilot in the 1970s, and maybe even before that, I have had an eye for the Vans RV family of aircraft. I even had dreams of building an RV-4 tandem two seat taildragger. Air Force career, learning to fly and being generally otherwise short of money got in the way of the dream though - and

building an RV-4 took a back seat.

As time went on the RV-4 (and previous RV-3) led to the RV-6, 7, 8, 9, 10, and about 2008 the all metal, low wing, nosewheel undercarriage, two seat side-by-side RV-12. The previous models were designed for the homebuilt/kit market, and apart from the RV-10

and RV-12 can be built in nosewheel or taildragger configuration. As each new model came out the availability of kits and pre-drilled components increased. The RV-12 was sized for the LSA (Light Sport Aircraft) market, and in NZ this also aligns with our microlight category. A marketing strategy used by Vans is to aim the RV-12 at schools for their STEM programmes (Science, Technology, Engineering and Maths) and there is at least one school in NZ that I know of that regularly turns out completed RV-12s in about 3 years. The RV-12 can be built from a kit, or factory built as the owner desires and currently there are 18 on the NZCAA register, with more under construction.

When the RV-4 arrived on the scene I was taken by its fighter-like lines and ability for a builder to spread out the cost of the aircraft over a period of time by building from plans on a pay as you go basis, or buying separate kits as previous ones were completed. Over the years the kits developed into more sophisticated sets of instructions and parts, still complying with the regulatory 51% build rule.

I have had passenger flights in the RV-6A, RV-7A and RV-8A (all taildraggers) but until recently haven't had the opportunity to gain a rating. That is until Paul Dolley completed his RV-12 and asked if I could test fly his one, and following on from that train him to achieve his type rating. Needless to say I gladly accepted the offer.

## About Paul

Paul holds a PPL and had amassed over 130 hours since completing his PPL training in Cessna 172 and Alpha aircraft about four years ago. He then decided to build his own aircraft as owning a General Aviation type had limitations on the age of the aircraft that he could afford, plus there was the cost of maintenance to consider. For a similar capital outlay he found he could build his own new aircraft, and save money by carrying out his own maintenance. After some research he settled on the Vans RV-12 with a Rotax 912 iS engine of 100hp, Dynon Avionics and auto-pilot. He wanted a two-seat aircraft as that was his most common mission.

Vans stood out from the crowd with its comprehensive kits and customer support. In proof of that, they were quick to supply any missing parts, or replacement parts if he made a mistake during the build process. Paul notes that the RV-12 features a well-proven engine, technology he appreciated in the Dynon glass cockpit and auto-pilot. He decided to stick to the plans without modification to keep it simple.

As there have been a number of RV-12s built in New Zealand Paul was able both to look at one under construction and also to fly a completed one at the Mercury Bay Aero Club in Whitianga. The club and local high school have a partnership programme whereby kids build the aircraft alongside club members - and so far they have built four.

## ZK-DOL

Paul ordered and received the empennage kit just before the first COVID lockdown in 2020 and completed the aircraft in 18 months instead of the three years that he expected. He also had the ability to work at his job from home so that sped up the building process.

Although Paul trained as an engineer, he almost immediately attained work in IT which has continued for most of his career. As a hobby he has restored a 1966 MGB Roadster, otherwise had not used his hands-on engineering skills since qualifying about 30 years ago. So when he started building the RV-12 he was grateful for the guidance given in the kit instructions, and the practice pieces that were included. He also bought tools that he may never need again, but which he acknowledges could be useful to other builders in the future. Paul sought and received CAA guidance about the process involved in finalising the project, including the paperwork required and the test flying requirements.

With construction completed, Paul transported ZK-DOL to Te Kowhai for final assembly, CAA certification as a Class 2 microlight and test flying. Paul had run the engine at his Cambridge home, and it was a simple matter of removing the wings (very glider like with two wing spar pins) and three trips later he had the aircraft at Te Kowhai. It took a couple of days for him to reassemble the aircraft for taxi tests, and microlight first build check (essentially the first annual check). As I also hold an



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Inspection Authorisation on microlight aircraft I was able to carry out the first annual check, and simultaneously satisfy myself of the quality of the build before flying its first flight.

With all requirements complete Paul booked CAA for their inspection. Imagine his surprise when a CAA inspector was going to be in Hamilton in two days time, and could fit Paul in. Luckily he was ready. The paperwork was duly signed, good weather ordered, and the first flight was carried out four days later.

**The first flight**

There were no engine run-in requirements on the first flight so I was able to keep it to about 30 minutes, and landed with no defects noted. We carried out another good check of the aircraft and flew it again twice the next day. The required ten hour endurance test programme went so smoothly that generally we flew twice per day and had the testing effortlessly completed in five days. The only adjustments we had to make were to the stall warning vane and the pitot tube (it goes through the propeller gearbox and out through the spinner, so you can close your eyes and imagine you are in a P-39 !!). Otherwise the only calibrations in flight that we had to carry out were to the compass and the AOA system contained in the Dynon Primary Flight Display.

The PFD displays a moving map GPS, engine monitor or combination of both. It's a good system. For engine start we used the engine monitor display, then for take-off, cruise and landing we changed to moving map, with a limited choice of the most important engine instruments. If any system faults there is a warning with appropriate display change. DOL is also equipped with an ADS-B transponder, standard radio and auto-pilot.


As for handling, it is a very well behaved and developed aeroplane. Stalling typically leads to a gentle right wing drop, and stalling in the turn resulted in a roll to wings level from turns both left and right. The aircraft stalls at 41 kts with full flaperon and 45 kts clean. The VNE dive showed no tendency to deviate from the flight path or flutter and was noticeable for a lack of appreciable stiffening of the controls. In fact the only minor criticism I might level at the aircraft is the noticeably light rudder control with very little feedback, which takes a bit of getting used to, even for a Cub pilot like myself. I questioned the lack of any spring bias in the rudder system which might have given a bit more feel. Comments on the light rudder do commonly feature in posts on the builder's website.

We achieved 95-100 knots using 4900 rpm and burning around 14 litres per hour. We regularly saw 800-900 ft/min in the circuit climbing at VY 75 of kts, and used less than 100 metres for takeoff and landing. Weight wise there was little variation in CoG position no matter what the weight. DOL has an empty weight of 750 lbs (340 kg), the aircraft easily fits two pilots, 50lbs (22 kg) baggage and 75 litres of fuel into its MAUW of 1320 lbs (600 kg).

The RV-12 features flaperons so one area of potential concern that we were aware of was lack of crosswind capability with full flaperon selected. So we tested flapless and full flap in crosswind take-offs and landings and found no undue problems. The demonstrated crosswind component is 11 kts and we both encountered no problems in that amount of wind.

After the test flying was complete, dual flying and two hours solo flying in the RV-12 resulted in Paul meeting the requirements for an advanced microlight certificate with a passenger rating.

Since completing the project Paul has amassed well over 50 hours, and is really enjoying the fruits of his labour. His next project is already under consideration.

Bill Henwood 



Riveting around the canopy after trimming to fit. Engine install mostly complete.



A tidy Rotax 912 iS engine installation.



Wiring looms being prepared for the instrument panel.

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Two Dutch F-16s were flown superbly for the camera.

All images by Gavin Conroy



Another F-16 view. I had forgotten just how loud a pair of these are with afterburner during their departure!

# Air-to-Air at RIAT

contributed by Gavin Conroy

In our previous issue of KiwiFlyer Gavin Conroy wrote of his visit to this year's Royal International Air Tattoo at RAF Fairford in England. It was the first time the annual event had been held since 2019. Gavin's reputation for air to air photography saw him once again invited to photograph various aircraft attending the show. He tells of that experience, including a memorable Skyhawk encounter, here.

In England for RIAT 2022 I was fortunate to have the opportunity of doing three full days of photo flights but this time I decided to pick only one day which was the Friday. There were a few reasons for that; I have flown with many of the types in the line-up before so it was good to make the opportunity for someone else to have a go, plus I was due to be at RIAT for the



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full three-day show which I've previously missed most of due to being in the air myself. Thus flying for just the one day this time was perfect. There were also a couple of subject aircraft I had wanted to fly with for as long as I could remember. One of which was a McDonnell Douglas A-4N Skyhawk and that was due in on the Friday - so Friday it would be.

We flew twice on the day; one flight was planned to be two and a half hours long and the other about an hour. Both flights included several different join-ups by some rare aircraft.

First up was a pair of Dutch F-16 Fighting Falcons which were posed beautifully by the pilots. They had 20 minutes worth of fuel on board for this part of their flight, so we got a good long session. Next was a Cessna O-2 Skymaster which is quite rare in these parts. We flew with that as it had been sold and was about to be flown out of the UK to its new home.

Soon after that I had everything crossed as the Skyhawk was next, but the sky was clear. Where was it? The Skyhawk did a no-show back in 2017 which I was a bit gutted about at the time. I was hoping this wouldn't be a repeat experience, then there it was approaching the Skyvan. I was wrapped!

It is a type I had always wanted to fly with due to the RNZAF operating them and due to myself growing up with them screaming around the sky. Back then I was more interested in watching and not that interested in photography so I don't have Skyhawk images in my collection and that has been a gap I've wanted to fill.

Now there was a Skyhawk gliding around effortlessly behind the Skyvan. The aircraft was flown out from its base in Germany just for the event and the pilot hung around for 15 minutes showing the machine off to best advantage. Seeing that jet really made me smile.

The Skyhawk was the last of two of the more modern ex-military types with an RNZAF connection I still had left on my bucket list. Then soon after the Skyhawk broke away the second one on the list arrived! This machine took its time forming up as it is big with swept back wings - it was a Boeing 727! This is the sort of machine that does not present itself for a photo flight very often but was on its way to RIAT. Confirming its participation involved a few weeks of



McDonnell Douglas A-4N Skyhawk formerly of the Israeli Air Force. It is now operated by Top Aces as a hireable adversary aircraft for Air Force training.



This Cessna O-2 was taken apart and sent to the USA a few weeks after this flight. It was good to be able to help the owner get some images before it left England.



Note the large boom on the back for spraying oil dispersant as demonstrated here but with water.



It took months of planning but even then I never thought I would get to photograph a Boeing 727 air to air.



One of the Hawker Hunters operated by Hawker Hunter Aviation. May they continue to fly in the UK for many years to come - a timeless design!

work but it all came together nicely. The aircraft is operated by Oil Spill Response and has a large boom on the back that is used to spray oil dispersant. This was demonstrated during the flight but using just water.

Sometimes in photo flights you can hear the engines quite clearly but not with this machine. The 727 was once an extremely popular airliner. Today only around thirty are active and none are carrying passengers any longer. They are now used for this type of role or carrying freight etc. but the high running costs are taking their toll. As the big Boeing broke away it was time to head back to refuel. We had been given more time than we had hoped by the subject pilots and the flight had lasted three hours!

Once the Skyvan had been refuelled, we had a couple of hours on the ground before flying once more to catch up with a Hawker Hunter operated by Hawker Hunter Aviation, who also supply services to the military. The Hunter is utilised as a platform to simulate attacks on British warships. With few Hunters left flying we took the opportunity to have this now rare two seat example fly off our wing for 30 minutes or so. Majestic!

The next couple of days were spent just watching and very much enjoying the show, and after not happening for the past two years, what a show it was! (See Gavin's RIAT report in KiwiFlyer Issue 84, Ed.)

Gavin Conroy 





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The heat and intensity of the flying at Lakenheath is well demonstrated here by this pair of Strike Eagles - such powerful and capable machines.

While visiting England for RIAT, Gavin Conroy had some downtime. What to do but hang out at some Air Force bases with camera in hand. The comings and goings of such aircraft are largely ignored by locals, but to those of us without exotic fighters in our back yard, this isn't a half bad way to spend a day of your foreign holiday. Gavin's article here also includes useful tips for travellers who might be considering the same sort of entertainment.

**During** my trip to England in July I decided not to schedule too much formal photography activity and rather to have more of a relaxing time in between the planned key events and flights.

I based myself out of Duxford as everywhere I needed to go was around two hours or less each way. Two of the places I visited while in the area were RAF Lakenheath and RAF Mildenhall.

From Duxford it is around a 45 minute drive to Lakenheath, with Mildenhall a further 15 minutes down the road. Although both bases are classed as owned by the RAF, they are in fact bases operated and funded by the USAF providing fighters, transports, refuelling aircraft and other types like the Bell/Boeing V-22 Osprey.

The remarkable thing about visiting both bases is that there are public viewing areas at both which provide a fantastic opportunity to check out what is happening without attracting and attention of the military police, even though security is very tight at both locations.

The views are so interesting that you do not need to be a photographer to appreciate what is happening. You can get close enough to see the pilots in the fighters - and the afterburner sound

coming from a single F-15E Strike Eagle is enough to move one from within!

RAF Lakenheath is a fighter base. They have 50 or so of the latest McDonnell Douglas (now Boeing) F-15E Strike Eagles. They also had roughly the same number of the F-15C Eagle which is the fighter version of the Strike Eagle, but they are being retired later in the year to be replaced by F-35A Lightning II fighters. There were around 12 of these at the time of my visit.

RAF Mildenhall is where the 'Heavies' are based. There you will see types like the Boeing KC-135 Stratotankers, C-17 Globemasters, Hercules, Boeing RC-135W Rivet Joints, and V22 Ospreys. There are also plenty of military visitors passing through here on their way through Europe or heading back to the USA.

There is normally a lot more action at Lakenheath. If you plan to visit be there from 7.00am to get a good spot as aircraft are normally on the move by 7.30am. What you see can be a bit hit and miss but during the two days I spent split between bases, day one saw 14 Strike Eagles head out together by 8.00am and the second day there were 12. Those mass launches are amazing to watch. They normally fly two waves per day with the second leaving around midday, but it can vary.

Over at Mildenhall they will be supporting a lot of the Strike Eagles so the tankers will have already left and be waiting over the ocean for the fighters, many of which take off and head to the tankers for fuel, then continue their missions. Around that activity the normal transport services happen at various times, and although there are not as many movements the diverse types passing through can be interesting to see. To add even more interest at Mildenhall, they also have a squadron of V-22 Ospreys

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A Boeing KC-135R Stratotanker on its way out to fill up some thirsty F-15s.



A VIP version of the Boeing 757 leaving Mildenhall following a quick stopover.



Stratotankers flew non-stop all day when I was there due to exercises in England.



Boeing RC-135W Rivet Joint. These have been in action a lot due the war in Ukraine.



This USAF Hercules did a few circuits at Lakenheath amongst the Strike Eagles.



Strike Eagles arriving overhead Lakenheath. At low power these really howl.

on the base.

In regard to viewing, Lakenheath has a big public area which is good to view from but faces towards the sun. If you have a camera there is a small area a couple of minutes down the road that fits around ten cars and that is where the hard core photographers will be, a lot equipped with large ladders for more of an obstructed view - but they also attract some attention from inside the base. It was amazing to see how enthusiastic the guys were about the fighters at the smaller site. You could not help but feel their excitement! This spot is also right next to an open road so is noisy and quite close to the oncoming traffic. If it is an easy trip you are after then head to the public viewing area. It's actually so popular that there was a guy there selling burgers on site most days.

Mildenhall is a bit more difficult with sites on the roadside meaning fast moving traffic close by, however there is also a place called John's field. This address can be found on a GPS and is a camping ground with a large open field in front of it right next to the runway reserved for aviation fans. There is an honesty box on site and it costs only two pounds a day during which you can come and go as you please. This is a wonderful place to visit and get some peace and quiet and just watch the planes. He also has an oversized truck trailer on site with a ladder so you can get a view over the fence. I reckon he probably does well out of it. If you go, make sure you have the money with you. I saw someone go straight past and they got a visit soon after which looked a bit animated!

The military operate at random types but here's a tip on how I managed to see so much action during my time there. In the morning I would go to Lakenheath and watch the massed launch. Then I would get on my phone and look up Flight Radar 24 as the tankers can be seen most of the time and you can see the orbits they are flying. As it is only 10-15 minutes between bases there is time to head over to Mildenhall to watch the tankers return, then get back to Lakenheath to watch the second wave, I would wait until the jets came back from the second wave then head back to Mildenhall to see the tankers return and any other interesting machines that might arrive into Mildenhall. Then I'd head back to Duxford at around 3.00pm before the traffic gets too busy.

As I say it does not matter if you are a photographer or someone who has an interest; you will not be disappointed. I have made several trips there over the years and it has always been good. The reason for the title of the story is because some days it really is like an air show. Indeed sometimes with go arounds and unrestricted take-offs (vertical departure following a low transition down the runway) by the Strike Eagles it can be better than an air show - so if you are in England some time give it a go!

Gavin Conroy



This V-22 Osprey was one of three heading out on a mission from RAF Mildenhall.

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# Troughs and TROWALS

MetService Meteorologist and Adjunct Teaching Fellow at Victoria University of Wellington Ciaran Doolin is back with his regular met contribution in this issue, this time with an explanation of what to expect when the weather forecast contains a trough. As well as a technical discussion, Ciaran also explains how to recognise these weather features on a chart – so focus on those parts if you need to.

air mass is a vast body of air with near-uniform temperature and humidity.) The warm air is forced up over the cooler, denser air leading to cloud and precipitation. Across a front, significant changes in wind direction and speed, temperature, and humidity occur. Also, a trough of low pressure is coincident with the front.

A trough is only identified by meteorologists as a front when it demarcates a boundary between air masses at the surface – i.e., is characterised by strong horizontal contrasts in temperature and humidity. In many cases, troughs that affect New Zealand region, exhibit no significant difference in air mass properties across them, at least not at the surface.

The low pressure of a trough, or indeed any broad-scale region of low pressure, is associated with rising air motion in the middle atmosphere. The explanation of how this low pressure and ascending air motion comes about in the first place is somewhat complicated, but the long and short of it is that there are certain air flows in the upper atmosphere that have the effect of removing mass from the column of air above the surface, which reduces the overall weight of the column and therefore the surface pressure.

Troughs are indicated on surface pressure charts by a thick black line (on charts from other agencies such as the Bureau of Meteorology in Australia they

are marked with a dashed line). Compared to fronts, with their colourful symbology, troughs don't stand out as much on a chart which might lead one to conclude that they are rather less consequential than a front. Indeed, given the similarity of trough symbols to the thin black isobars (denoting constant pressure) one could be forgiven for confusing the two – one rule of thumb for distinguishing them is to note that in general troughs are orientated roughly perpendicular to the isobars. Nevertheless, appearances notwithstanding, a trough contains the ingredients necessary for the formation of cloud and precipitation (i.e., low surface pressure and rising air motion), which suggests that a trough has the potential to have many of the impacts of a front.

## Troughs and TROWALS

We have seen from the above that fronts are really a special case of troughs. I now want to discuss a type of weather system that is marked on New Zealand charts as a trough or sometimes as an occluded front. In discussions amongst meteorologists, these systems are referred to as TROugh of Warm air ALoft (TROWAL). The name is suggestive: a TROWAL is a stream of warm, moisture-laden air elevated above the surface. At the surface, no significant air mass difference across the feature is detectable, yet they are typically bearers of wet weather and exhibit low surface pressure.

In an earlier KiwiFlyer article on fronts (Issue 81), I discussed the Norwegian Cyclone Model (NCM). In this account, a low pressure system begins as a wave

on a front, then develops a 'warm sector' bounded by a cold front in the west and a warm front in the east, before the cold front 'catches up' with the warm front lifting the warm, moist air of the warm sector off the surface – according to the Norwegian analysis procedure, an occluded front is marked from the point of intersection of the cold and warm fronts and is wrapped into the centre of the low-pressure system. At the surface, the occluded front, unlike a cold or warm front, exhibits little difference in air mass properties across it. Arguably, the use of the term front in the phrase 'occluded front' opens the door to confusion – unfortunately scientists don't always utilise language as unambiguously as some might imagine!

In that article I pointed out that while the NCM is elegant and easy to apply, low-pressure systems observed in the Tasman Sea often don't develop according to the model; on the other hand, Norwegian-style lows are common in the Southern Ocean.

The concept of a TROWAL was developed in the Northern Hemisphere within the framework of the NCM to account for the fact that the observed

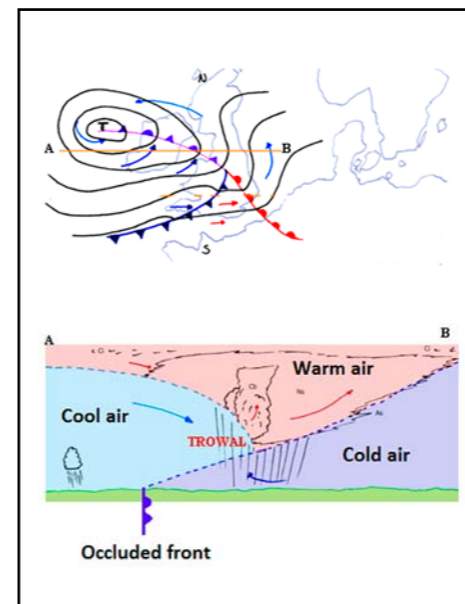


Figure 1 – An illustration of the TROWAL concept. The bottom image depicts a vertical cross section through the occluded front indicated on the chart above (top image: the occlusion symbol is in purple – note that the semicircle and triangle shapes are on the same side of the purple line; the cross section is along line A-B). In the bottom image, the TROWAL (indicated by red lettering) is significantly displaced from where the surface occluded front (indicated by purple symbol) should be located.



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The term 'trough' refers to a region of low atmospheric pressure. In conversations with aviators over the years, I have occasionally been informed that while most pilots understand what fronts entail, many are unclear exactly what they are likely to encounter with a trough. This article explores the topic of troughs, with a focus on a common type of weather feature known as a TROWAL which is often marked on weather charts with a trough symbol.

## Troughs and fronts What's the difference?

All fronts are troughs, but not every trough is a front.

In KiwiFlyer Issue 81 (2022 No. 4) I discussed the concept of a front at some length and examined a couple of cases of frontal phenomena in the New Zealand region. To briefly recap, fronts occur where different air masses interact. (An



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weather is sometimes displaced from where the Norwegian procedure suggests the occluded front should be drawn on a chart. Because the weather with an occluded front is really associated with the location of the warm, moist air aloft (i.e., the TROWAL), which is often not directly above the surface occluded front, some scientists have argued the more important information to indicate on a chart is the location of the TROWAL as projected onto the surface (see Figure 1).

However, it is possible for this phenomenon of a warm, moist stream of air aloft to occur without the interaction of a cold air mass with a warm air mass as is the case in the classical occlusion process. In the New Zealand region, currents of warm, moist air aloft often occur because of our proximity to a hot continent (Australia) and to the tropical Pacific Ocean. Northerly quarter air flows over the Tasman Sea often extend up into the tropics. In this case, very warm, humid tropical air, typically originating near the surface, is dragged south by the northerly flow. As it does so, it gradually rises while wedged between cooler and drier mid-latitude air on either side. This feature comes to physically resemble a TROWAL, while simultaneously resulting in a lowering of surface pressure.

Because NCM-style low-pressure systems are irregular occurrences in the New Zealand region, it follows that true occluded fronts are also uncommon. To avoid confusion, in internal discussions

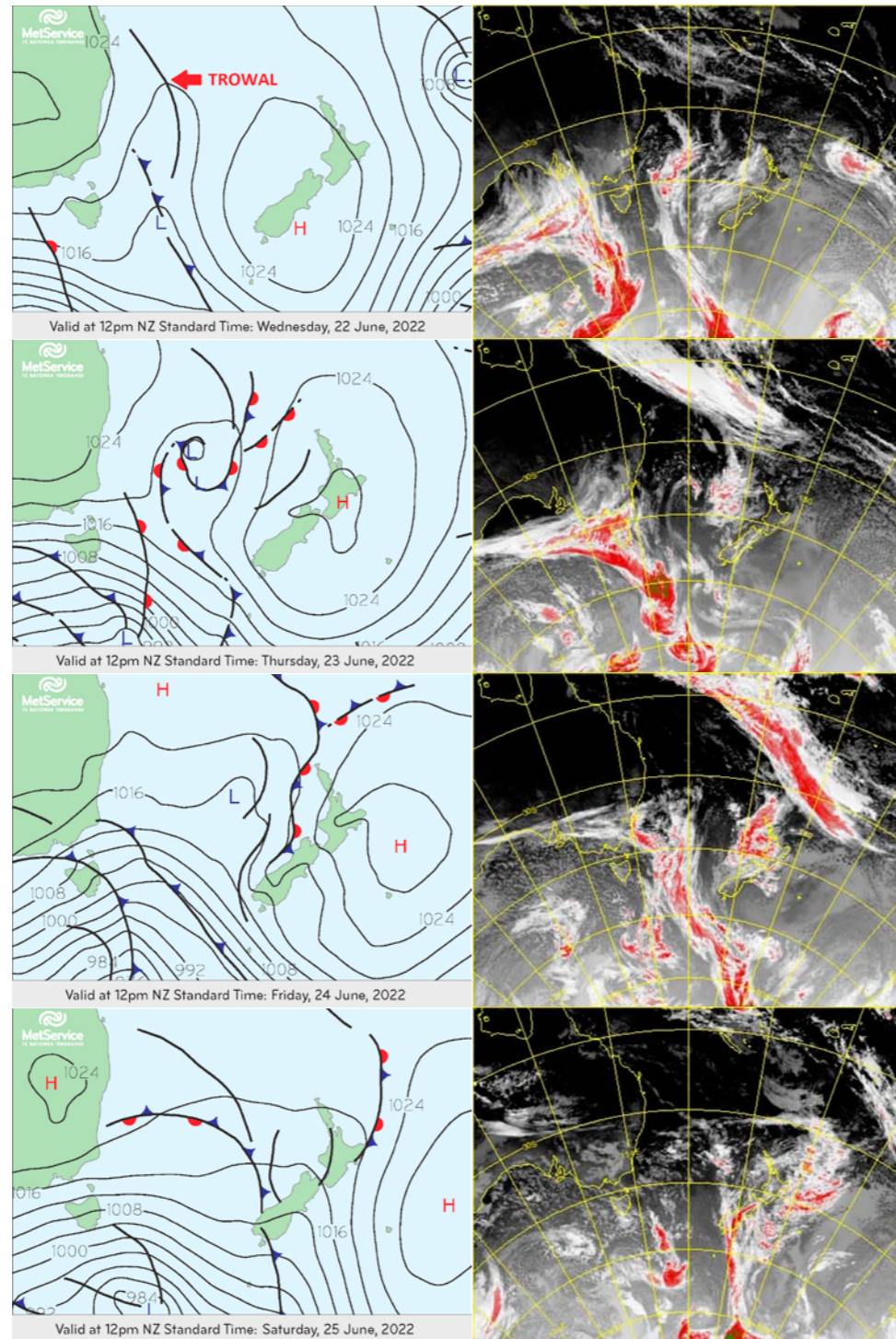


Figure 2 – The TROWAL of late June 2022. Surface pressure analyses produced by MetService meteorologists (left) and infrared satellite imagery (right), for midday 22-25 June, showing the development of the TROWAL (highlighted with red arrow in first lefthand image) in the Tasman Sea and its passage across New Zealand. Guide to interpreting satellite imagery: white/red colours = highest/coldest cloud tops; grey = low to mid-level clouds; black = land/ocean surface. Satellite imagery courtesy of Japan Meteorological Agency.

New Zealand meteorologists generally prefer to use the term TROWAL to describe the occurrences of warm, moist air aloft that have not resulted from the interaction of warm and cold air masses (and in many cases they occur without any involvement of a low-pressure system). This has the advantage of being scientifically more precise, and in focusing the forecaster's attention on the location of the significant weather impacts associated with the system.

Unfortunately, we do not currently employ a special symbol on New Zealand charts to indicate a TROWAL – they are therefore marked as a trough or an occluded front. How a particular feature ends up indicated on a chart often comes down to the preference of the forecaster who is on duty. Nevertheless, whichever way the feature appears on a chart, there is universal agreement that it should be drawn to where the weather is concentrated.

Finally, it should be noted that there are many (non-frontal) troughs that affect the New Zealand region that are not TROWALS. For example, troughs are often embedded in the southerly quarter

flow following a cold front – these have no connection to any warm air source.

For aviators, the hazards associated with a TROWAL overlap with those of frontal weather. Icing is perhaps the most significant risk; if the TROWAL has convection (i.e., towering cumulus or cumulonimbus cloud) embedded within it then there is a risk of severe icing, as well as severe turbulence, hail, and lightning. Given how moisture-laden and potentially convective TROWALS often are, they can be major rain makers, with high rainfall rates producing significant reductions in visibility.

### TROWAL in late June 2022

On Tuesday 21 June 2022 a trough crossed the east coast of Australia and entered the Tasman Sea. This trough clearly exhibited the structure of a TROWAL. As the TROWAL slowly moved east, its connections to the subtropical air over the oceans north of New Zealand strengthened. Meanwhile, the subtropical jet stream was active over the north Tasman Sea, which introduced dry air over the northern extension of the TROWAL destabilising the atmosphere

there leading to thunderstorm activity.

The impacts of the TROWAL on New Zealand began on Friday 24 June and continued into the weekend. Rain, with some thundery falls, affected many areas, especially the West Coast of the South Island and the northern North Island.

Figure 2 shows a sequence of weather charts of the Australia/New Zealand region during this event. The TROWAL was analysed as a trough (thick black line) in the first chart, but after that as an occluded front. This change is simply due to the different preferences of the forecasters who were on shift.

Troughs are a class of weather system that affect New Zealand frequently, and TROWALS are a particular type. Icing, turbulence, lightning, hail, and visibility reductions in heavy rain are the hazards aviators may encounter with a TROWAL. MetService meteorologists are experts at identifying TROWALS and their associated hazards for aviators. Aviation weather forecasts can be found at <http://metflight.metra.co.nz/> and <http://metjet.metra.co.nz/>.

Ciaran Doolin 



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Clockwise from top: MiG-15, Red Arrows, Typhoon, Tempest.

# What I did on my holidays

In our last issue we included some overseas show content on the basis that with travel restrictions gone now, heading offshore in winter is again a possibility and what better thing to do while you're away than to visit an aviation event. Here's one more such story, this time from regular contributor Jill McCaw who managed to fit some aviation into a trip to the UK and Ireland for her son Alex's wedding to his Irish sweetheart.

We arrived in London at the end of the heatwave and drove south through baked brown landscapes more reminiscent of Australia than the expected 'Green and pleasant land'. It was a Friday, and we were to be staying with friends in Hampshire (near the Lasham gliding site). As we left the motorway the satnav sent us down a series of ridiculously tiny back roads. Scared of getting the rental car jammed between stone walls we ignored it and worked our way back towards the main road – only to end

in an unexpected traffic jam. People were parking up and walking with deck chairs and picnic rugs.

There was something going on.

We crawled back onto the main road and spotted a sign for RAF Odiham Air Force Base. A bit of quick Googling told us there was a 'Family Day' happening and the Red Arrows were due to display in about 20 minutes.

We took a quick left up another side road and then another left into a farmer's stubble paddock, where we joined three or four cars already parked. People were set up with their chairs, waiting. Across a shallow valley we could see the Air Base's perimeter fence. We couldn't quite see the runway.

In about 20 minutes we heard jets spooling up. And then... the Red Arrows took off in formation climbing out across the valley. We were right under the flight path as they roared back towards the crowds who I assume were just out of sight. The display went on for 20 to 30 minutes with one of their staging areas just slightly south of our spot. We watched them form up right above our heads. We were probably closer than the people on the flight line. It was absolutely exhilarating and such an unexpected treat.

When it was over, we said goodbye to our new friends in a random farmer's wheat stubble paddock in the English countryside and continued on our way.

The following day we got up early and drove for two hours, then walked for another to get to the beach (beach is a very loose term for the acres of shingle banks that makes up the sea front) to see the Annual Eastbourne International Airshow on the Sussex coast.

This turned out to be another day of glorious sunshine and some lovely aviation displays. The air show is free and was much less full on than shows like Wanaka or Omaka. The beach front was packed with thousands of people and the displays took place over the sea. The highlight for me was the Lancaster Bomber. It felt quite moving to see this aircraft flying over the English coast from whence hundreds flew and less returned. History felt very close. Also displayed were a restored Tempest (John's father had flown the type near the end of the war but we'd never seen one flying) and the RAF's Typhoon. Climbing above the crowd at full noise, that was phenomenal. At a more leisurely airspeed were two good old-fashioned wing-



Stearmans with wing-walkers.



On the 'beach' at Eastbourne.

walkers on Stearman aircraft. It was hard to see with the naked eye, but the girls weren't just standing on top of the aircraft, they were performing trapeze type stunts. Good fun.

The day culminated with a display by the Red Arrows, but after yesterday's treat, it wasn't quite as exciting as it might have been.

The next day saw us on a personal tour through the Vintage Gliding hangars at Lasham and the following day we visited the Naval Fleet Air Arm Museum. We touched on our own family history with a visit to the excellent little Tangmere Military Aviation Museum, near Chichester. RAF Tangmere played a pivotal role in the Second World War, especially during the Battle of Britain. In 1939 the airfield was enlarged to defend the south coast against attack by the Luftwaffe and was also a secret base for the Special Operations Executive (SOE), who flew agents in and out of occupied France to strengthen the Resistance. But we were here because, John's Dad, Jim McCaw was stationed here towards the end of the war. Decommissioned in the '70s, there is very little remaining to suggest that there was a huge airfield here, but the museum holds a surprisingly good and diverse display of aircraft from all the eras the airfield was operational. The volunteers involved in running the museum do an excellent job of preserving and displaying the history of the many squadrons who operated off the field. Tell them that you're a descendant of someone who was here in the war – and you may never get to leave.

When in England, if you have even a small interest in aircraft, you will find plenty to keep you interested, in between the obligatory castles and gardens that you also must visit!

Jill McCaw

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### ZK-RMT Cub Crafters EX2



Imported by Russell Thorne of Papakura ZK-RMT is only the second Cub Crafters CCK-1865 kit to be brought into New Zealand. This is the first homebuilt aircraft that Russell has built and he says he has enjoyed it very much thanks to being straightforward to construct with easy to follow manuals supported with detailed photos. There is also a very helpful internet forum to answer any questions that arise during the build.

The Cub Crafters Carbon Cub EX (EX - Experimental) is an American amateur-built aircraft, designed and produced by Cub Crafters of Yakima, Washington. A taildragger, it features a

strut-braced high-wing, tandem enclosed cockpit that is 61 cm wide. The airframe is constructed from welded 4130 steel tubing, aluminium and some carbon fibre and the wings have an aluminium spar and ribs, then everything is covered in poly fibre fabric.

Russell started to build this aircraft six years ago and said when we spoke that it will be finished in a few months. The kit is essentially a modern version of the traditional Cub, but 300 lbs lighter with larger flaps and ailerons. Russell has done all of the work himself which included building a rig to rotate the fuselage while he was covering and painting it, opting for the standard blue and white colour scheme.

ZK-RMT is powered with an 180hp Titan 340 cubic inch engine of four cylinders, being horizontally-opposed, air-cooled and providing direct-drive to the prop. Russell expects to see a cruise speed around of 100 kts with a stall speed around 35 kts. Congratulations Russell, we look forward to hearing of your first flight.

### ZK-BEE Fusioncopter JK-2 Nano



The Fusioncopter JK-2 Nano is the first of its type in New Zealand and was imported by Stuart Parker of Ohaupo. Stuart has flown just about all types of aircraft but not a gyroplane so made the decision to purchase a new Fusioncopter JK-2 Nano from Poland. He says the design appealed to him because it is semi-enclosed, nicely engineered and has a single-seat. He placed an order in August 2021 and once built and test flown in Poland, his aircraft was shipped to New

Zealand arriving earlier this year.

Fusioncopter say the JK-2 Nano project was created on the basis of experience accumulated during research and development of their larger, dual engine four-seat aircraft which is still a work in progress. Their reason to commence development of the Nano is said to be the introduction of new regulations whereby it is now permitted to fly machines with a take-off weight of up to 200 kg (in Poland), 220 kg (in most of EU countries) and up to 254 pounds (empty plane weight according to Part 103 in USA) without a pilot licence.

The JK-2's fuselage, main gear leaf spring and tail are all constructed of carbon fibre while the main rotor blades are aluminium. The kit comes with either a 38 hp Italian Polini engine or a 50 hp Hirth, and includes instruments and interior. The fuselage and tail arrive already painted in your selected colour. A pre-rotator is provided for the initial rotor spin up. For ease of hangarage the Nano can be disassembled to then occupy no more space than a motorcycle. ZK-BEE is powered with the Hirth engine option and has a two hour range from its 30 litre tank.

Stuart says it took only four hours to re-assemble out of the container and then needed an initial and annual inspection by an IA which has been completed. He has undertaken flying instruction in a two-seat gyro in Matamata and now has the Nano hangared at Te Kowhai where he is building hours before taking it to his home strip. The Nano will have a cruise speed of around 50 kts. Stuart describes it as fun flying rather than fast flying and looks forward to regularly dropping in to Raglan for a coffee.

#### RECENT ARRIVALS

AEL	Waco UOC	WACO Partnership	Blenheim	Aeroplane
BEE	Fusioncopter JK-2 Nano	Mr S Parker	Ohaupo	Microlight Class 1
DMP	Aero Designs Inc. Pulsar III UL	Mr D M Preston	Te Anau	Microlight Class 2
HTW	Airbus Helicopters AS 350 B3	The Alpine Group Limited	Wanaka	Helicopter
IHW	Hiller UH-12E	Heliwing Limited	Gisborne	Helicopter
LFL	Beech B200	Air Freight NZ Ltd	Palmerston North	Aeroplane
LJY	Griff Italia Nano Trike/Zip Wing	Mr L Jordaen	Red Beach	Microlight Class 1
RAX	Magni Gyro M24 Plus	Mr I R Bodmin	Napier	Gyroplane
REB	Murphy Rebel	Mr D M Capell	Richmond	Amat Built Aeroplane
RIK	Cessna 182S	Benn Road Bee Trust	Hamilton	Aeroplane
RMT	Cub Crafters CCK-1865	Mr R M Thorne	Papakura	Amat Built Aeroplane
ROW	Cessna 208B	Finbar Airways Limited	Napier	Aeroplane
SFX	Cub Crafters CCX-2000	Mountain Aire	Queenstown	Amat Built Aeroplane
SNP	Just Aircraft SuperSTOL	Mr P C Sleers	Hastings	Microlight Class 2
XTA	Zenair CH750 Cruiser	Kramer Family Trust	Te Puke	Microlight Class 2

#### RECENT TRANSFERS

ARM	De Havilland Canada DHC-1A-1	Patchett Ag-Air 2015 Limited	Blenheim	Aeroplane
CAD	Avid Mark IV	Mr S B Fraser	Hawarden	Microlight Class 2
COA	Beagle A.109	Mr N R Kruse	Blenheim	Aeroplane
FEO	Cessna U206G	PB & DV Holdings Limited	Rotorua	Aeroplane
FRH	Micro Aviation B22 Bantam	Mr O J Mounsey	Huntly	Microlight Class 2
GHD	Schempp-Hirth Standard Cirrus	Mr Best	Auckland	Glider
HDL	Airbus Helicopters AS 350 B2	The Helicopter Line Limited	Queenstown	Helicopter
HFS	Bell 206B	Alabaster Helicopters Limited	Taihape	Helicopter
HGY	Bell 206L-1	Sam Contracting 2000 Limited	Seddon	Helicopter
HHC	Bell 206B	Kahu NZ Limited	Whakatane	Helicopter
HMH	Robinson R22 Beta	Heliflite Charter & Training Limited	Papakura	Helicopter
HNB	Airbus Helicopters AS 350 B2	Southern Farms NZ Limited	Invercargill	Helicopter
HOE	Hughes 269C	Morven Hills Limited	Tarras	Helicopter
HOX	Robinson R44	Maungawera Valley Holdings Ltd	Wanaka	Helicopter
HWJ	Guimbal Cabri G2	Wyndon Aviation Limited	Christchurch	Helicopter
IEW	Canadian Home Rotors Safari	Mr B A Stevenson	Warkworth	Amat Built Helicopter
IIB	Guimbal Cabri G2	Wanaka Helicopters Limited	Wanaka	Helicopter
IKJ	Airbus Helicopters AS 350 B3	PB & DV Holdings Limited	Rotorua	Helicopter
IMJ	Airbus Helicopters AS 350 B2	Marlborough Helicopters 202 Ltd	Blenheim	Helicopter
IVA	Airbus Helicopters AS 350 B2	PB & DV Holdings Limited	Rotorua	Helicopter
JPZ	RANS S4 Coyote	Mr R K Sutherland	Waikari	Microlight Class 1
JTF	Aeroprakt A-22LS	Mr T R Hardwick-Smith	Eltham	Microlight Class 2
LFD	Aeroprakt A-22LS	Private Owner		Microlight Class 2
MCV	Cessna A185F	Mr T R Delaney	Twizel	Aeroplane
NDS	P & M Aviation QuikR	Mr G Gross	Whangarei	Microlight Class 2
NGZ	BRM Aero NG5	Mr N D J Clasper	Hamilton	Microlight Class 2
NSC	Cessna A152	Twinstream Air Charter Limited	Pokeno	Aeroplane
PAI	Cessna TU206A	Rural Air Work Limited	Otane	Aeroplane
PLR	TL-Ultralight TL2000 Sting UL	Mr C N Bellingham	Pukekohe	Microlight Class 2
RBC	Aviat A-1B	Airlift New Zealand Limited	Auckland	Aeroplane
RMM	Mooney M20C	Mr P A Seymour	Great Barrier Island	Aeroplane
RSR	Titan Tornado II	A G Carter & K B Carter	Murupara	Microlight Class 2
SAJ	Aeroprakt A-22LS	Mr G M Pyle	Hamilton	Microlight Class 2
SJK	Cessna 170B	Mr C E Draper	Dafield	Aeroplane
TFB	Dyn'Aero MCR ULC	Manawatu Aviation Club	Feilding	Microlight Class 2
TFP	Vans RV-12 UL	Mr G F Gimblett	Dannevirke	Microlight Class 2
VAS	De Havilland Canada DHC-3	PB & DV Holdings Limited	Rotorua	Aeroplane

#### RECENT DEPARTURES

AMD	DHC-2 Beaver Mk 1	Auckland Seaplanes Limited	Auckland	Aeroplane	Exp
GNO	Grob G102 Club Astir IIIB	Auckland Gliding Club (Inc)	Drury	Glider	Dest
IDL	Schweizer 269C-1	Lee Logging Limited	Rangiora	Helicopter	W/d
KMF	Cessna 210-5A	Mr L W Sutherland	Hastings	Aeroplane	W/d
MOM	Curtiss P-40E	Pioneer Aero Limited	Papakura	Aeroplane	W/d
NOC	Cessna U206G	Stationair II Limited	Drury	Aeroplane	Exp
OKD	Boeing 777-219	Air New Zealand Ltd	Auckland	Aeroplane	Exp
OKE	Boeing 777-219	Air New Zealand Ltd	Auckland	Aeroplane	Exp
OKG	Boeing 777-219	Air New Zealand Ltd	Auckland	Aeroplane	Exp
TAT	Cessna 172R	Ardmore Flying School Ltd	Papakura	Aeroplane	W/d

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**ZK-SNP Just Aircraft SuperSTOL**



Pete Steers of Hastings can't wait to get flying in his new Just Aircraft SuperSTOL which he has been building for the last fifteen months. He hopes that he only has four months to go before it's finished. Pete plans on having lots of fun landing on riverbeds, beaches and farm paddocks.

The Just Aircraft SuperSTOL is an American amateur-built aircraft, designed and produced by Just Aircraft of Walhalla, South Carolina. The SuperSTOL is a development of the Just Highlander and differs by the addition of automatic leading edge slats, robust landing gear with long stroke air shocks and up to 29 in (74 cm) tundra tires, Fowler flaps and a newly designed tail plane. The enclosed cockpit has side by side seating. The aircraft fuselage is made from welded 4130 steel tubing, while the wing uses an

aluminium spar and aluminium ribs, all covered in doped aircraft fabric.

Pete said that the Highlander Super STOL was a tough build because of its part aluminium part fabric construction. He found the fabric work to be a challenge and quite time consuming and says that whilst he learnt a lot, he said he would not be keen to build another fabric plane.

Pete chose the Rotax 915 iS engine with turbo giving 135 HP. The kit comes with different tyre options – Pete opted for 26 inch to lessen the weight and drag. A colleague at Hawkes Bay and East Coast Aero club Bridge Pa has the same aircraft with 29 inch tundra tyres and Pete says they seem huge. He has nicknamed the plane Snoopy hence the registration of SNP and plans for a decal of Snoopy to sit on the tail. ZK-SNP is finished in a striking orange and blue colour scheme which Pete said is called "Tangerine dream". As STOL is all about weight Pete has gone with a minimalistic approach with the instrument panel by having an MGL EMS for engine management plus analogue airspeed and altitude instruments with Garmin selected for radio and transponder.

**Pride, commitment and the Honourable Company of Air Pilots**

contributed by John Burley and Mike Zaytsoff



As a pilot, do you have anything in common with 14th century English masons, goldsmiths or wheelwrights? "Not much" might be your initial response, but on closer inspection you share many timeless characteristics with these craftsmen, such as skill, pride in a job well done and a love of your chosen profession.

These craftsmen formed professional associations called Guilds (or Companies) which were recognised by the City of London and set the standards of pay, workmanship, and training in their particular fields. Over the years, these guilds helped the members exchange ideas, adopt best practices and deal with what we now call technological change.

In particular, the guilds regulated training and apprenticeship programmes so that professional standards were continually improved and, ultimately, governments came to rely on the guilds as a source of expertise and practical advice.

The guilds were not entirely Better Business Bureau organisations but also had an important Rotary Club element too. Competitors could meet after a day of trying to outmanoeuvre one another, to spend time together in a purely social setting. Each guild would also undertake benevolent work, offering scholarships and mutual aid to its members.

As might be expected, in 1929 the Guild of Air Pilots and Air Navigators (GAPAN) was formed to protect the interests of aircrew and to benefit them just as the guilds had historically served other skilled groups. Then, as now, the Guild was working hard to improve safety through consultation, raise professional standards and influence aviation legislation.

Decades later, the Honourable Company of Air Pilots (HCAP, as GAPAN recently became) has thousands of members in the UK, Australia, New Zealand, Hong Kong and North America. Our members are found in every major airline, with every manufacturer, and serving with the world's leading military squadrons.

New Zealand's incorporation into the Guild was formally completed in 1938. The Guild has standing committees on Technical Safety, Flight Training, Human Factors and even Space, which are plugged

into the Air Pilots' regional worldwide efforts to improve the profession.

We ensure New Zealand excellence is celebrated too. Awards have been consistently won by RNZAF personnel and even entire squadrons. Most recently, the entire crew of 3 Squadron RNZAF NH90 NZ3301 received the Grand Master's Award for gallantry and exceptional piloting skills during the recovery operation following the tragic volcanic eruption on White Island. Sir Peter Jackson, ONZ, KNZM, received the Jean Batten Award for his outstanding contribution to the preservation of vintage aircraft.

To be clear, the Air Pilots is not a union that negotiates contracts for a particular group. We are a vehicle for those who wish to actively improve the profession or who would share wisdom and experience with the next generation arriving on the flight deck. In short, we are pilots helping pilots.

The Honourable Company of Air Pilots (New Zealand) exists as a forum for all pilots who share the New Zealand skies, whether they fly privately or earn their living through commercial, military, or government aviation. At the heart of the matter is the premise that as New Zealand pilots, we are bound together by ties that are stronger than the differences that seem to separate us.

Clearly, there is strength in unity and it's as true for us today as it was for those craftsmen eight centuries ago.

Air Pilots membership is available for less than the cost of a weekly cup of coffee. For more information visit [www.airpilots.org](http://www.airpilots.org) or contact the Administrator at [admin-nz@airpilots.org](mailto:admin-nz@airpilots.org).



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