

# KiwiFlyer™

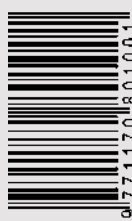
Magazine of the New Zealand Aviation Community

Issue 55 2017 #6

## Flying the MXS



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## From the Editor

There's some great photography in this issue of KiwiFlyer. By coincidence, or more likely by his work ethic and enthusiasm, it seemed that every second article to arrive came with images taken by Gavin Conroy. Then, when I happened to mention to Gavin that Grant Bennis was flying Doug Brooker's MXS for a feature story, Gavin said "I'll check for flights and come and take the photos if you like." There's no doubt that Gavin's camera skills are greater than mine, so that trip was duly arranged and the results speak for themselves. Grant rather enjoyed himself too.

Prior to that plan, we had already scheduled a feature article on Gavin's air to air photography from RIAT, the Royal International Air Tattoo, in the UK this year. For that weekend, Gavin had secured himself a place in a Skyvan, alongside which numerous military aircraft formed up on their way to the airshow. Some of them remained in place for ten minutes or more and those results speak for themselves too. Gavin needs to write another book as I could have filled the entire magazine with these images. By way of commentary, he has described the weekend in some detail and included numerous aviation photography tips and tricks for readers to experiment with.

Some of our regular content is also deserving of an editorial mention. Jill McCaw writes of the occasional very expensive glider land-out, not because of any resulting damage, but rather the necessity of a helicopter to lift the glider back out again. Don't miss the paragraph about the can of beer.

We visit Autoflight at Hamilton, makers of Dominator autogyros, aviation componentry, engines, and geared reduction drives. Who knew that an Autoflight drive connects the motors to the transmission in the world's first battery powered (and record setting) R44 helicopter? Who knew there even was such a thing?

Also in this issue, Ruth Allanson finds yet another great Place to Go. She could surely write a book about all of her adventures too. This time it's remote Okarito, a world heritage area of South Westland, and keeping with the photography theme, also home to renowned New Zealand landscape photographer Andris Apse.

We're off to print ahead of Christmas with this issue, but the vagaries of delivery mean the magazine is unlikely to arrive before then. Happy New Year therefore, and our very best wishes to all readers for a relaxing and enjoyable holiday season, and plenty of safe aviating in the year ahead.

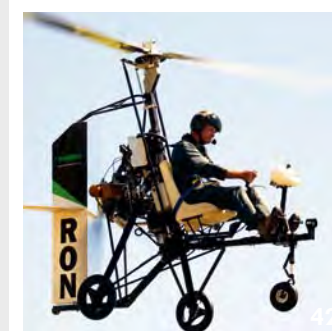
**Michael Norton**

Editor | Publisher  
KiwiFlyer Magazine



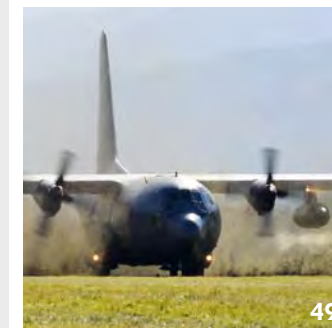
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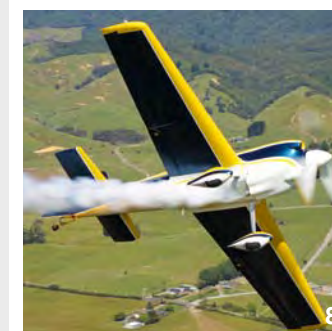
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Grant Bennis at the controls of Doug Brooker's MXS. John Kelly flew the camera plane for Gavin Conroy to take the image.





## 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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Thank you to our regular Contributors: Ruth Allanson, Bill Beard, Penny Belworthy, Grant Benns, Gavin Conroy, Steve Engle, Chris Gee, Paul Le Roy, Jill McCaw, Murray Miskelly, Frank Parker, and others.

## Proud to Support

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### Ridgztop Inserts

Farmer and recreational aircraft builder, Tony Rawlinson of Inglewood has designed a product called RIDGZTOP® that prevents birds, vermin and dust from getting into his hangar through the gaps between the hangars cladding and frame.

RIDGZTOP® is a multi-functional ridge insert that fills the gaps in the ridges of Styleline, Ribline external claddings, and when inverted 180 degrees can be used with Corrugated profiles.

Easily installed using clout nails, screws or blind rivets, the inserts can be fixed wherever required on the framing.

A polypropylene version in black or grey is lightweight, resilient to scratching and ideal for high-corrosion areas. The inserts are also available in Zincalume, which is of low profile, and highly vermin resistant. See advert on page six.

### ServiceIQ Achievers

Two ServiceIQ aviation trainees have recently excelled and are well on their way to high flying careers.

Jarrold Wood has won the gold medal, plus Best in Nation award in the aircraft maintenance category at the 44th WorldSkills International Competition in Abu Dhabi. Jarrold is an apprentice at Air New Zealand working under workplace training programmes created by ServiceIQ, the industry Training Organisation for New Zealand's aviation sector.

On the flying side of ServiceIQ's support programmes, an ambitious Year 12 student from Auckland's Green Bay High School has won a scholarship to help towards his goal of becoming an airline pilot. 17-year-old Luke Williams gained a place on the ServiceIQ Aviation Gateway programme and leapt at the chance to take his first flying lessons. Luke says, "I've caught the aviation bug." Judged top achiever on Aviation Gateway, Luke has been named the recipient of the 2018 ServiceIQ Flying NZ Scholarship which gives him \$2000 towards flight training.

Completing ServiceIQ Aviation Gateway opened-up exciting career possibilities in the air and on the ground, says Luke. "Gateway showed me how far aviation can take me as long as I am willing to work hard and to go the extra mile. I was thrilled to meet other pilots who are willing to share their flying experiences."

A self-confessed "driven person", Luke was also Best Cadet for ATC, Top Academic Year boy, and deputy captain of his club football team. Chances are he will reach all of his aviation goals too.

### Foldaway electric bikes

Solve the issue of getting from airfield to town by taking your transport with you. Central Otago based SheBikesHeBikes is offering a \$100 discount to KiwiFlyer readers on the compact and lightweight folding Tern Vektron E-bike. See advert on page 13.

### Free Wanaka Tickets

KiwiFlyer has some free day passes to Warbirds Over Wanaka to give away in a draw at the end of February. Send an email to [michael@kiwiflyer.co.nz](mailto:michael@kiwiflyer.co.nz) if you would like to enter.

### Christchurch Helicopters wins international recognition

Christchurch Helicopters winning the prestigious Salute to Excellence 'Humanitarian Service' Helicopter Association International (HAI) award for 2018 is a magnificent achievement says John Nicholson, Chief Executive of industry body Aviation New Zealand.

Christchurch Helicopters played a pivotal humanitarian role in two serious natural disasters which hit the South Island of New Zealand. Crews had major roles in the rescue and recovery effort following the Kaikoura earthquake on 14 November 2016 and saved property and lives in the Port Hills fires in Christchurch in February of 2017.

"HAI is respected and well known globally. This award will generate significant publicity for New Zealand, our helicopter industry and Christchurch Helicopters," says John, adding that "The award is not just about Christchurch Helicopters. It is also about the group of helicopter companies they collaborated and worked with. It is about the way we use helicopters in New Zealand, the training provided by our industry and the regulatory system that underpins it."

KiwiFlyer congratulates Terry and the Christchurch Helicopters Team.

### Latest Air travel growth predictions

The future demand and opportunities for pilots, engineers, and aviation support persons keeps on sounding better, with Airbus recently predicting the number of airline passengers to NZ's top three cities will nearly double to 38 million by 2036.

In its latest forecast the company says the passenger aircraft fleet above 100 seats serving Australia, New Zealand and the South Pacific region would grow by more than 600 aircraft, almost doubling in the next 20 years to more than 1350 aircraft.



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The company says New Zealanders are among the world's most frequent travellers, leading on 4.0 trips per capita in 2016, with Australia on 3.1, the United States on 1.8, China 0.4 and India at 0.1.

This is expected to grow in 2036 to 5.6 for New Zealand, 4.9 for Australia, 2.5 for the US, 1.3 for China and 0.4 for India.

In New Zealand, both inbound and outbound tourism combined has doubled every 10 years since 1995.

A doubling of the commercial fleet between 2017 and 2036 would also see a commensurate need for 530,000 new pilots and 550,000 new maintenance engineers for the nearly 35,000 new aircraft predicted to be in service.

### SRS Squirrel 'Maximum Pilot View Kit'

NZ helicopter pilot Mark Law of Frontier Helicopters at Whakatane recently sampled Swiss Rotor Solutions' Maximum Pilot View Kit (MPVK), designed to make a massive difference to the sling load viewability for Squirrel (H125) pilots. The product is so good, Mark felt compelled to share the experience with other pilots. Mark writes:

"I was offered the opportunity to fly two loads in Pascal Brun's B3 from the valley floor at Chamonix Village up to the Chamonix Mount Blanc Gondola. The loads consisted of 8 plastic drums connected on the end of a 50' line.

Flying the loads which positioned quite a way aft due to the large area catching the breeze, was literally a breeze. The team at

SRS have done a fantastic job of designing and installing a viewing area which completely changes the often awkwardness of slinging in the H125 regardless of the external load setup and or experience.

Pascal was really enjoying his new MPVK install and with 22000 hours of mostly external load flights in Lama's and Squirrel's, he is a good judge.

The floor window is huge. It's like looking out the front window but on the floor. The door window is blown outwards enough to not interfere with your head, headset or helmet. The floor window is very close to your seat and so you simply lean slightly right about similar or maybe less than the R44, Jetty or 407. You'll be astounded by the area of view on offer. You can see a long way under the helicopter to the port side and a long way back, which is perfect for managing your external load tasks.

The entire door window is free of frame and offers a really large area to match the floor size. It's blown outward enough to allow you to turn your head whilst leaning right to look both down and forward, unrestricted. The door install to the frame of the MPVK is perfect and sits snugly.

Getting into the PIC seat requires a little more care as the install protrudes out from the normal frame location so is closer to your step.

With the window located on the fuselage bottom panel there is a large void starting on the cabin floor and right to the bottom, similar to the Dart window setup.



There is a cover which covers the floor window but this is fully removed for sling work (not folded beside you).

Care is also required to ensure the seatbelt doesn't fall to the side and through the void onto the floor window.

This install offers a major advantage for ease of doing work and increasing safety for all lengths of line. It would also be ideal for less experienced external load pilots transitioning to this role or building their sling time.

The install is not permanent and SRS are currently developing a de-modification kit that will remove the MPVK installation and revert the rotorcraft to standard if required. It would seem to be the ultimate setup for living and working in the Squirrel.

Thomas at SRS would love to chat and answer questions you have, or call me if you wish."



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Gravin Conroy image

# Flying MXS: Aerobatic Pinnacle

Grant Bennis at the controls of Doug Brooker's MXS over the Hauraki Gulf. But why did he dress up as Spiderman?

KiwiFlyer readers will be familiar with the regular contributions of aerobatic champion, airline pilot, and flyer of most things in-between, Grant Bennis. And most persons familiar with aviation in New Zealand will be aware of, or have seen in action, Ardmore-based airshow performer Doug Brooker, owner and display pilot of the two-seat Tr.9 Spitfire and this MXS aerobatic aircraft. Recently, Grant couldn't believe his luck. He explains:

**Doug** to Grant: "You're on the insurance." Grant to Doug: "Really?" Doug to Grant: "So take it for a fly and tell everybody what you think." Grant to Doug: "Really?!!" (Check calendar, cancel everything, sound cool and calm,) "Yeah sure, no worries."

## Introducing Doug Brooker

Surprisingly, Doug says he got into aerobatics by accident.

An engineer by training, after getting

his PPL in 1975 Doug expressed some interest in building a plane. An enthusiast at the Auckland Aero Club pointed him to a retired Air NZ pilot who had a very low-priced aircraft kit for sale and, being of Scottish heritage (like most pilots!), he couldn't resist a bargain and bought it. It was five years later when, as the Steen Skybolt was nearing completion, he learned that it was actually a very capable aerobatic aircraft.

Despite the Skybolt being a two-seater,

Doug was mostly self-taught in the art of aerobatics, as many earlier aerobatic pilots were – most Pitts Special aircraft at that stage were single-seat, so it was a case of buy a good book, study its contents, then go and try it in your own plane. Snap rolls in particular, as anybody familiar will attest, required a large dose of courage to attempt for the first few times, let alone solo. Certainly this is not ideal, or the recommended way any longer, so don't try this without parental supervision!

Nonetheless, Doug progressed and was soon winning local aerobatic competitions in the Skybolt, ZK-JET, then later and more prolifically in his Giles G202 ZK-NUT. In between the Skybolt and the Giles he also briefly owned the prototype Pitts S2S, ZK-WIZ.

Having won most of the NZ Aerobatic Club trophies over a number of years, ultimately in the top Unlimited category, Doug then channelled his years of experience into airshow display

I seem to recall at one point during the climb-out somebody yelling "yeah baby!" quite loudly, but a brief search of the cockpit reveals I am the only one present.

flying, with his latest aircraft, the MX Technologies 'MXS', being the current pinnacle of hardcore aerobatic aircraft design.

Apart from being a fantastic display pilot, Doug is also very generous and trusting, so when he offered me the keys to general aviation's hottest rod, what was I to do?

## Trepidation

The first thing was to wonder - what could possibly go wrong? So, it weighs about 1200 lbs empty – about the same weight as most 2-seat trainers. Oh, hang-on – it has 360 hp, which means it has more than three times the power-to-weight ratio of a 152/Robin/DA20. A power-loading lower than 5.5 lbs per hp of all-up weight is traditionally classed as that which is necessary to compete at unlimited level aerobatic competition. The MXS is getting down towards 4 lbs per hp. If it was a car, it would be like a modern Mini with 600 hp on tap. All of which means wickedly quick acceleration on take-off, and probably a whole lot of yaw as well. Can I think and react quickly enough? Will it bite me, bad?

## Mean

In the flesh, the MXS looks mean. Especially this one, with its cut-down undercarriage and sleek canopy, borrowed from the MXS-R racers of the Red Bull Air Race series. All MXS aircraft look like they mean business, but this one looks meaner. The drag reduction from a shorter undercarriage is obvious – less frontal area – although what will this do for prop clearance and landing speeds, I will find out soon enough. I suspect the canopy also contributes to drag reduction,





but primarily it just looks more aggressive than the often-bulbous canopies typically fitted to Extras, RVs, Giles and lesser MX aircraft. Looks matter, particularly for show planes like this. Looks create the promise of performance, and in this regard the MXS is being honest.

### Lean

Coupled with 'mean' is 'lean'. All carbon-fibre, everywhere to see, particularly on the bare instrument panel. When you poke your head in behind the cockpit and look back into the rear fuselage it is amazing how little structure is evident, especially for an aircraft that can be flown to +/- 10 'G'. No frames, no stringers, just a big empty egg-shell. Like an egg, the strength is in the shell, in this case an inner and outer layer of carbon sandwiching the foam core. The stiffness and strength gained from this style of construction allows the designer to pare away the weight, and also create the perfect, flowing aerodynamic shapes necessary to extract maximum performance. The empty weight of this MXS is 1240 lbs (563 kg), about half of which is the engine and propeller.

### Walk around

Several things stand out to me on the walk-around – the lowness of the undercarriage, the chord of the prop blades, and the aggressiveness of the cowl and canopy. Most likely, round engine air inlets are more efficient than other shapes, and they look good. Most certainly, they need to be efficient at removing the heat generated by the engine whilst minimising cooling drag, especially given the speed range of the aircraft – how many light aircraft can go from -40 knots to +240 knots in a matter of seconds? Actually, how many aircraft regularly do -40 knots (following a prolonged 'tail-slide') at all?

As with most modern, composite, aerobatic aircraft, there is very little to

look at on the walk-around. No flaps, no bracing wires, no bungee cords, no working rivets. The carbon aileron 'spades' are purely functional, their job being to lighten the stick pressures that would result from the massive ailerons being moved to full deflection at 180kts-plus. As mentioned earlier, having the ailerons come all the way to the fuselage juncture is particularly useful for when the forward airspeed is zero (or even a negative value...) and the ailerons are 'blown' by the prop-wash. Doug puts this to great effect for his 'torque-rolling tail-slides'.

This aircraft has had the rudder lengthened and enlarged, which significantly increases its area. Rob Holland has had this mod on his MXS-RH for some time and assisted Doug with advice on how to incorporate it into ZK-MXS. The effect of the larger rudder is spectacular, in the right hands (not mine) and with sufficient imagination. The aircraft is now capable of performing all manner of yaw-initiated/enhanced manoeuvres, such as a horizontal level spin called the 'Frisbee' (you can imagine what that looks like, or look for it on YouTube). You might wonder at the increase in rudder pedal forces required to move it to full deflection, but a horn-balance at the top of the rudder helps, and many of the manoeuvres are carried out at relatively low speed (albeit at high power).

The MT composite propeller is a beast, and has a somewhat larger blade chord than the propeller on Doug's previous MX2. Although the engines are basically identical, Doug describes the extra low-end thrust produced by this new prop as being quite improved and 'beneficial' for some of the new manoeuvres he uses in his airshow routine.

Having three blades and a large chord is a prerequisite when it has to absorb the 360 horsepower the monster engine produces. The stock, mild-mannered 260 hp Lycoming AIO-540EXP is

converted by US engine-builder and tuning company Ly-Con, who work their magic with improved breathing, cold air induction, high-compression pistons and a special camshaft profile to produce the perfect aerobatic engine. The big-bore exhaust mixes with high-rpm propeller-tip noise to produce an audio 'presence' – others would use different terms, like howl or bellow – that matches the dynamics of the aerobatics that the MXS is capable of. It will be a sad day for those petrol heads amongst us (guilty) when electric-powered aerobatic planes become viable. There is indeed great pleasure to be had from hearing timed explosions emanate from exhaust stacks...!

### The Office

Getting in is easy, especially if you have long legs. While standing on the seat it's worth taking a moment to briefly admire the view down the long nose to the shapely engine cowl.

Once lowered into the reclined (for increased 'G' tolerance) seat, the first thing that surprises is the room, even with the canopy closed. Headroom isn't an issue, and you are not squeezed in any way. The seatbelts are an aerobatic-standard Hooker Harness system, meaning wide webbing, five attachment points and a big ratchet for cranking down the last inch or two. This simultaneously ensures you will not get ejected through the canopy (bonus), and that you lose all sensation in your legs for the remainder of the flight!

The control stick is tall, which is normally good for leverage, not that I expect the controls to be heavy – spades, horns and servo tabs should deal to that. In-fact, if the stick was half the height it probably wouldn't matter, but perhaps a more experienced MXS pilot might say otherwise.

The instrument panel is both simple and complex, such is the way of modern multi-function displays. Doug runs me



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# The history of MX Aircraft and ZK-MXS

## Lineage

In the early 1990s, American aircraft designer Richard Giles conceived an all-composite monoplane that could be competitive at the top levels of competition aerobatics, but with just a four-cylinder engine. By the mid '90s the single-seat G200 was made available through Composites Unlimited in the USA, as a kit for amateur construction. A two-seat version followed, being designated the G202. These designs incorporated the latest advances in aerobatic aircraft design, particularly the symmetrical, blunt nose, slab-sided aerofoil. In New Zealand, we have long-time Ardmore-resident G202 ZK-NUT, originally owned by Doug, as well as G200 ZK-LGT, which lives at Wellington airport and also flies regularly in aerobatic competitions.

Around 80 G200/202 kits were produced before kit production ended.

Chris Myer, a G202 owner from the USA, had a hunger for more performance and set up MX Technologies to develop the G202 into a six-cylinder version. A new wing was designed, which was even more 'blunt' than that of the G202. The point of maximum thickness was moved further forward, to around 16% of the chord. This aerofoil allows the wing to maintain lift to high angles of attack but then stall (and un-stall) quite abruptly, a very desirable behaviour for top-level aerobatics but also a handling 'feature' which takes some getting used to. A further benefit is that once the angle of attack gets very high, in the region of 70 degrees, the aerofoil regains some lift. Although not enough to fully support the weight of the aircraft, it is enough to give an enhanced level of control and thus allow a whole new range of manoeuvres to be invented and flown. This 'new' plane was called the MX2.

An early proponent of the aircraft was American, Rob Holland, who has used the MX2 and more recently the single-seat version, the MXS, to win the US National Championship title for a record-equalling seventh time. Additionally, he has won four successive World Championship trophies in the 4-minute freestyle (airshow-type) discipline. A major airshow star in the USA, Rob pushes his aircraft extremely hard and has helped the factory develop both the MX2 and MXS into better, stronger airframes. MX Technologies are said to always be trying to build the plane 'Rob-proof'.



Ardmore resident G202 ZK-NUT.



MX2 ZK-MXT built from a kit by Avspecs at Ardmore.



ZK-MXS as N382RP when owned by Greg Poe in the US.

Locally, Doug had the desire for more performance and power too (who doesn't!), and after flying the prototype MX2 in various versions with Chris Myer he decided to proceed with the purchase of a kit. Doug actually had some input into the development of the design, suggesting full-span ailerons that come all the way to the fuselage, for better roll control at low speed, and incorporating longitudinal fuselage strengthening members to reduce flexing during snap rolls. Doug's MX2 kit arrived at Ardmore in 2007 for assembly by the Ardmore-based team at Avspecs (most famous for Warbird rebuilds), and

flew for the first time in January 2008.

The quest for performance through lighter weight and lower 'static moment' saw the development of the single-seat MXS, which also, for a time, became a popular racer in the Red Bull Air Race series. Along with other racing aircraft such as the Extra 330, the MXS-R (for Racing) has faded from that series, although the Extra 330SC is currently the most winning design at World Championship aerobatic events. Rob Holland continues to do well on the world stage in his MXS-RH (Rob Holland special), particularly in his favoured discipline of airshow-style routines, and this year won the World 4-minute Freestyle Championship in a borrowed MX2 no-less!

## ZK-MXS

Thus far, just 14 MXS aircraft/kits have flown, although a recent change of stewardship of the MX company has seen it move to Perth, Australia under the ownership of Jack Moshovis, and kit production has resumed. The sole New Zealand representative of MX aircraft is Doug's appropriately registered ZK-MXS, serial number 13, which was factory-built alongside Rob's #14 as a pair in 2011.

The first owner was US display pilot Greg Poe, and the aircraft, N382RP, was originally ethanol-powered as part of the marketing/sponsorship of Greg's airshow business. The engine supposedly ran both cooler and put out 8% more power than avgas – about 385hp. Sadly, Greg died of a heart attack not long after taking delivery of the MXS, and ownership passed briefly to another US airshow performer, Tim Weber, who repainted the aircraft in its current scheme and re-registered it N431TW.

In 2013 ownership then moved to James Maloney, an ex-US Marines fighter pilot who was winner of best pilot in his Top Gun class. Later, he was a senior pilot with Delta Airlines and an airshow performer in a Super-Chipmunk. Tragically, Jim ('Fang') was his military 'handle' was killed in March 2014 when his Chippy crashed en route to an airshow in Florida. At about this time Doug was discussing with Chris Myer the possibility of getting an MXS built and, through discussions between Rob Holland and Bully Aero-owner Eric Minnis, Doug was put in touch with Jim's estate and a deal was made to purchase #13 and move it to New Zealand.

through the main Garmin G3X display, which incorporates both the flight- and engine-instruments. Starting is a little quirky, but sensible – the starter button is on the stick, so that the stick can be simultaneously held back AND the starter button engaged, all with your right hand. The left hand is then free to manipulate the throttle and mixture. And just so you don't accidentally operate the starter with the engine running, there is an isolation switch on the instrument panel which you select 'off' once the engine starts. Easy! For such a highly-strung monster of an engine, it starts very easily (when cold...). You are, however, fully aware of the 'big-engine/little airframe' combination the moment it fires, a sure sign of fun times ahead.

Taxiing out reveals a benefit of the low 'racing' undercarriage – relatively good visibility. The engine cowls help too, seemingly shrink-wrapped around the engine. The tailwheel steers positively and I would say any tailwheel RV pilot would feel right at home. The familiarity changes somewhat during the run-up – you do the standard stuff like prop-cycling and mag checks (yup, this pumped-up Ly-con has good, old-fashion magnetos) but it is quite apparent you are sitting behind a tiger straining at its leash – the 1800rpm run-up equates to about 150hp, enough to easily get airborne on. A sure test for the brakes too, and my ability to push them hard enough to stop moving forward.

## Elation

Runup: done. Pre-flight checks: done. Runway: clear. Time to go: um, okay!

As is always the case when essentially type-rating yourself, you wonder 'how will this go?' Doug gave me some advice about the landing speeds, but not too much about the take-off – obviously it isn't a big deal. Worst-case, I haul it into the air and sort out the mayhem after that. So, my plan is to slowly ease the power on (tick), keep it straight (quite easy with slow power application and the big rudder) then at about 80 knots – hang-on, I am through 200 feet, at half throttle and climbing like crazy! Better give it the rest of the throttle, I guess. Seconds later the speed is rocketing through 140 kts, I am though 1500' and the world is getting smaller, quite quickly. My eyes are struggling to find the very small rpm and manifold pressure gauges on the G3X, but eventually I restore some semblance of order and have 2500 rpm and 25" of manifold pressure set. Levelling-off, the speed quickly settles at 180 kts and the Ardmore training area is barrelling past. I seem to recall at some point during the climb-out somebody yelling out "yeah, baby!", quite loud, but a brief search of the cockpit reveals I am the only one present.

## Upside-down time

In what seems like no time, I am at 3000' and entering the Mercer area for a 'test of the aircraft's handling qualities'. HASSELL checks complete, I contemplate how much height I should allow for a loop from 180 kts – at least 1000 feet? Best I lose some height and start about 2500' – bugger, the speed is now 200kts. Oh-well, a gentle pull and let's see what happens... Whoa, all I can see are stars! A quick glance at the 'G'-meter reveals my pull was an instantaneous 7 'G', so I roll off the top of the now half-loop. Note to self – the stick pressure to G gradient is basically flat, i.e. the same at 7 'G' as it is at 2 'G'. I also notice I have gained about 1500' during this aborted loop, so have to dive down a bit lower to have another crack at it and encounter my first issue (there were many) of excessive speed build-up – 200 kts and

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Gavin Conroy image

Given this image is taken from the ground, it must be Doug Brooker in an inverted flat spin.

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increasing. Could it be possible that this plane has too much power? Banish that - what a terrible thought!

For about ten minutes I flop around the sky, with 'flop' being the operative word as I feel like a complete klutz compared to what I have seen Doug do in the MXS at airshows. The roll rate is fantastic, although probably not as fast as the G202 - not that 400 degrees or more per second is slow. The ailerons have a weird feel about them, to my mind - once again, a very flat (even negative?) pressure gradient, with little feel and almost no centring. By this I mean the stick does not come back to a central position if released from a deflected position, and it is hard to tell where the middle is. This is not an uncommon experience in aerobatic mono-planes - the Extra 300 and Giles are similar - but it is something that can be 'tuned' by the set-up of the aileron spades, or by the addition of 'wedges' at various points along the aileron trailing edges. With a lack of feel or centring, 'point-rolls' are particularly tricky, although nothing that hundreds of hours and thousands of dollars can't fix!

As well as the more hard-core, competition manoeuvres, I particularly like big, fast, elegant aros, and what better plane to do this in (short of a Spitfire... hint, hint). Too high and too fast again, I dive down to 2000' and achieve 220 kts for a barrel roll, which at this speed goes up and over through 4000' whilst never going above 3 'G' or below 100 kts - awesome!

#### How high?

I wonder what a stall turn will be like - or how tall it will be? Best I start low - 1500'. But how do I get lower without going supersonic - pull power off? NO!! Actually, 'yes' - I reduce the power a little so that I can 'go-down-and-slow-down' to start the stall turn at 1500' and 200 kts'. After a solid 5 'G' pull to the vertical, I check out the airspeed (150 kts) and wait... and wait... and wait. 100 kts, 3000' feet and still going! Finally, at about 3500', it feels like I am basically hovering, so full rudder, a rapid and clean yaw left and the nose is pointing back downhill again. Damn, the ground looks small. Pulling the power back a little slows the acceleration and buys a little more time for a reasonable downline before the speed approaches 180 kts for a pull back to horizontal.

Hmmm - I wonder how high I can



Gavin Conroy image

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Gravin Comroy image

Conditions were near perfect for Grant and Gavin's air to air photo shoot. Camera plane on this occasion was a Harvard from the NZ Warbirds stable.

vertically climb from level at 220 kts? Getting to 220 kts is easy, although I don't get as low as I want to, and start from 2000'. Another solid pull and up we go. Watching the altimeter winding away through 4000', with speed to burn and conscious of a maximum airspace height of 4500', I chicken out and pull over a 'humpty-bump' at 4300'. Okay, let's get this sorted – dive to Vne (240kts) and 1500', pull to the vertical and wait, again. This time I get to 4500' for a clean stall turn and establish - for the record – that at 75% power, a vertical up-line will extend for a least 3000'. Good to know.

I contemplate trying it at full power, but am now feeling a little bit jaded from this highly scientific test flying and figure it is time to head back to Ardmore.

#### How fast?

I have been mindful of the fuel burn (360 hp engines gulp avgas...) and the minimal fuel capacity (just 65 litres in the 'acro' tank, the same as the G202) and I would like to knock out a few circuits, mind and body willing. So, one last test – maximum speed. Having been on the ground watching Doug's performances, I am very aware of my noise 'footprint', so

hope the reasonably sparse farmland below will not result in too many ear-bleeds as I push the RPM to maximum (about 2800) and the throttle all the way forward. It takes a bit longer than I expect, and levels a bit lower than I expect too, but 200 kts would appear to be the maximum straight-and-level speed of this MXS, with this engine and prop combination. I have to remember that this wing is blunt, fat and built for going around corners at 10 'G', so a true speed demon it isn't. In the Red Bull Air Race, with engines slightly more powerful than this one, the speeds are not much higher, despite the significant effort

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put into drag reduction with the engine cowl, cooling, canopies and wing-tips. 'Diminishing returns' is a term that springs to mind, especially when dealing with the compromises of being able to pull big 'G's and roll quickly too.

### Pussy-Cat

Joining overhead for the circuit re-join takes a little forward planning - SLOW DOWN! But once settled into the circuit at 120 kts and about 18" of manifold, I can contemplate the approach setup - a curving right-hander onto runway 03 seal at Ardmore. By flying a curving approach, at about 100 kts, the visibility is excellent, and even straightening up as I cross the fence, I still get a reasonable view of the runway and touch-down zone. I am mindful of the low, racing undercarriage and the possibility of holding off for too long and crashing on the ground tail-first, as well as bouncing onto my nose and taking a few inches off the propeller tips. I keep the speed at 100 kts into the flare and attempt to float an inch above the ground until the correct three-point attitude is achieved. Success - a clean, three-pointer!

Contemplation time - I have safely

landed Doug's expensive and rare toy once, so maybe I should just quit while I am ahead. Nah, let's try that take-off again!

This time I get to about three-quarter throttle before lift-off and straight away look to my right and think about pulling the power off so as to a) remain below 120 kts (max circuit speed at Ardmore), and b) keep to circuit height. Multi-tasking is not the male domain. Fortunately, I am alone in the circuit, so 17 seconds later I am on close right base for landing number two. Same speed, same view, same result - phew. This time I am also more aware of the braking effect of closing the throttle - that huge MT prop slows the aircraft almost as well as it accelerates. I am also aware of the plane spotters watching my landings from the side of the runway, and no-doubt the Ardmore Café too - no pressure. (Ed: I thought you full-stopped it outside the café on purpose Grant. Then with a big grin, powered up and took off like a helicopter. Because you could. And everyone did indeed go wowwww.)

Last take-off - this time I will get to full power! Holding the brakes until about quarter throttle, I more-rapidly apply full throttle and achieve mission success.

Lifting off at 80 kts, I keep hauling the nose skyward and figure this must be what Doug sees as he keeps pulling up-and-over for the start of the signature starting manoeuvre of his display - the three half-loops from take-off, climbing to 2000 feet. A triumph of Ly-con horse-power over gravity.

My last landing is not the best of the three - slightly tail-first, as I get just a little slower than optimum at touch down, but no insurance paperwork is required so I still deem it a success. All-in-all, I found the MXS easier to land than either the G202 or even our trusty old Pitts S2B, ZK-MAD. Helped by a generous wing, light weight, great undercarriage and good visibility, it would almost rate as a pussy-cat, relatively!

### Contemplation

When I taxied up to the hanger, Doug understandably seemed very happy to see me. Or perhaps he was happy to see his plane back in one piece. I'm not too sure which made him happier.

First word from Doug - "Well". Not a question, just a statement.

My response - "Yup" (trying to sound cool, nonplussed).

Translation - holy smoke, this thing goes like crazy, I can't believe the power, that stick is so light, up-up-up, how much is too much?, slow-down-slow-down, yee-haaaa, I want one!

So, what can you do with the latest advances in aerodynamics, a very high power/weight ratio, oversize control surfaces, a very blunt-nosed aerofoil and a low static-moment (tech-speak for 'changes direction very quickly')? The best place to get the answer is to look up Rob's or Doug's displays on YouTube, to see what makes the MXS such a spectacle for airshow performances. The key attribute that makes the displays so radically different and advanced is the controllability of the aircraft at very low airspeeds and high angles of attack, aided by hours of intensive and focused practice. It would be inconceivable to imagine doing an end-over-end forward flip, from level flight, in any other aircraft.

Sadly, I have to admit that I didn't try these sorts of manoeuvres, so I can't comment on the ease of doing them. In fact, bottom-line is they simply aren't easy to do and require raw skill, commitment and creativity to perfect. There are very few people on the planet who can do this,

so hats-off to those who do.

Suffice to say, the MXS is way, way beyond my current skills to extract anything more than 20% out of it, which is quite humbling. Hopefully, it is also capable of more than what Doug and Rob can throw at it, which means we will be treated to more thrills and exotic manoeuvres in the future.

The MXS is basically a big, 100% scale-model aircraft, capable of near-model aircraft 3D aerobatics but with a human installed. It is clearly light years ahead of the '80s and '90s generation of aerobatic aircraft - the rumbling mass of the radial-engine Russian monsters can't compete with the dynamics of noise and motion that the modern, cutting edge MXS can deliver. Most certainly every airshow or competition has a place for gentle, graceful aerobatic displays, but, with our lust for speed and action, there is always a place for manic aircraft like the MXS. It is hard to contemplate where to from here!



KiwiFlyer is very grateful to Doug Brooker for making Grant's flight and this article possible, and to John Kelly and our friends at NZ Warbirds for facilitating Gavin's camera plane.



Grant and Doug, post-flight at Ardmore.

If you have a special aircraft that you would like to share with KiwiFlyer readers, do feel free to contact Grant, Gavin, or Michael@kiwiflyer.co.nz and discuss with us.



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### Recent M.Av Graduates

Recent graduate Lucinda Soh [BAvMan (2016); MAv (2017)] first enrolled in an undergraduate Bachelor of Aviation Management programme as an international student from Singapore.

Like a number of Massey's Singapore aviation students Lucinda had already graduated with an Aviation Diploma from a polytechnic in Singapore which allowed her to cross credit a number of courses towards her Massey University Bachelor of Aviation Management degree. This effectively shortened her undergraduate degree by one year. Lucinda wanted to make the most of this 'extra year' to add a postgraduate aviation qualification to her portfolio. She elected the Master of Aviation - Professional Practice option.

Massey's flexible learning options allowed her to commence her Master of Aviation studies in NZ as an on-campus student to maximise face-to-face contact time with the lecturers. However, in mid-2017 she was able to move back to Singapore to take up exciting a seven-month internship opportunity with Airbus Asia Training Centre while simultaneously completing the final Master of Aviation course 'Professional Practice in Aviation' - by distance learning. During her internship Lucinda worked on identifying the problems that Airbus Asia Training Centre Singapore is currently facing, identifying ways to mitigate or reduce these problems and how to improve their current existing operational processes.

This Airbus internship was a tremendous experience. It enabled her to manage and handle several confidential tasks, including amending contracts, and managing social media accounts such as



Master of Aviation Graduate, Lucinda Soh.

LinkedIn. She was permitted to partake in several meetings with Airbus clients which enhanced her networking skills but even more importantly, her negotiation and problem solving skills. She says, "Having to apply what I have learnt in school to real-world scenarios was a tremendous and value-adding opportunity for me."

Lucinda says, "With a M.Av, it does help to make your resumé a little more attractive to the employers. That being said, having work experience is still the most important factor when it comes to job applications." As she embarks on job-seeking in earnest she is optimistic that having a Master's qualification could potentially give her an edge over the rest of the other 'fresh graduates'.

Lucinda is now focussed on securing a role in the aviation industry. She says that "Goals are important, but growth is equally important as well." Her Airbus experience has firmed up her ideal aviation role as being "in the commercial sector". This is her next big project.

Other M.Av graduates such as Massey Flight Instructor and B.Av graduate Sam Dawson quote reasons for undertaking the Master of Aviation as being wanting to "further my wider aviation knowledge - especially in airport and airline management."

M.Av graduate Nick Ashley (Singapore Airlines Regional Marketing Manager South West Pacific) says, "The solid base of industry knowledge I gained through my aviation studies at Massey has been invaluable throughout every stage of my career - allowing me to keep up with the demanding roles in a fast paced industry and progress to where I am today."

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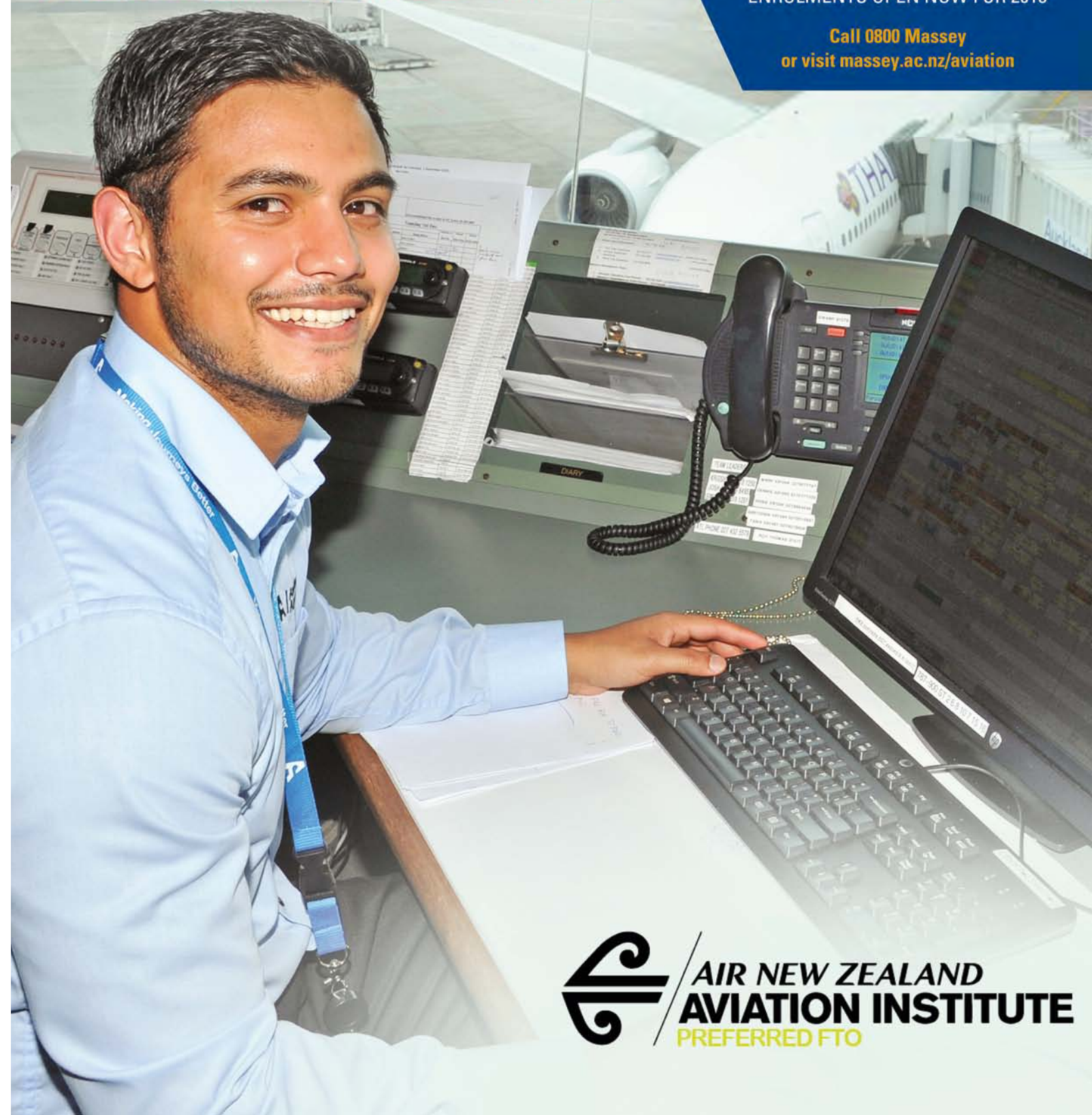
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Okarito Lagoon with township in foreground by the entrance.

# Fly yourself to Okarito

Okarito is a remote and very beautiful World Heritage area of South Westland about 25 minutes drive north from Franz Josef Glacier. For more experienced pilots it has small grass airfield of around 450 m length, with a slight bend in the middle. The field has houses sitting to the side with hangar doors and "plane driveways" instead of garages. "Just love it!" says Ruth Allanson in this regular instalment of her KiwiFlyer Places to Go series. Ruth writes:

**Flying** in to Okarito will require some bush flying skills as it is a rougher grass strip with limited approach options from the south, but clear to the north. There is a road running across the airfield and since it is an integral part of the township, do a pass over it first for a good look out of people on the field itself and for any birdlife from the nearby Okarito Lagoon.

Okarito owes its existence to the gold rush. In its heyday of 1866 there were over 4000 people living in the town and its surrounds. Back then there were 33 stores and considerably

more hotels lining the main street called 'The Strand', different from nowadays where the Paradise ducks and Oystercatchers wander along 'The Strand'. From a nature lover's point of view this is a unique and very rare place to visit. Aircraft Parking is recommended at the southwest end, off to the side near the camping ground, not at the northern lagoon end, which is a Nohoanga site. (That's a piece of Crown land recognised under the Ngai Tahu Claims Settlement as a traditional seasonal occupation site which can be used for food and other natural resource gathering.)

Okarito is also known for the nearby breeding ground of the White Heron (Kotuku). This place was discovered by an early settler called Gerald Mueller. He wrote home to his wife about the beauty of the bird and the feathers which were used to decorate women's hats. This nearly exterminated the bird, because by 1944 there were only four breeding pairs left.

Thanks to a large conservation effort there are now well over 200 breeding birds. The Waitangiroto Stream, north of Okarito Lagoon is the only place in New Zealand that they breed. Why they breed there and no where else in NZ remains a mystery. From here, the birds spread out over the country from January onwards and are often seen just as a solitary individual, before returning to the same spot for breeding from the age of 3 years old in the month of September.

If you are travelling in a group, a holiday home to rent might be the ticket: [www.okaritobeachhouse.com](http://www.okaritobeachhouse.com). Or if you carry a tent, try the local camping ground, which as mentioned is right on the airfield. They don't have powered sites or cabins but they do have a wringer washing machine and amenities for you to complete your stay. It is self-registering on arrival and you pay \$15 a night. Or try the local Youth Hostel which is the old school and has been fully restored. Both places are run by the community.

Once parked up and tied down, (the southwester can get up after lunchtime during anti-cyclonic wx on the west coast) visit the Okarito Kayak Company at the road entrance of the town for a legendary coffee and a home-made delight. Gemma and Baz offer guided kayak tours and kayak hire around the lagoon - which is the largest unmodified wetland in NZ and home to over 70 species of native and migratory birds. Family owned, this company is a wonderful introduction to the community spirit of Okarito, these days boasting 30 permanent residents. [www.okarito.co.nz](http://www.okarito.co.nz)

Visitors come to see not only our rare New Zealand birds but also international flying visitors such as the Godwit. This bird flies non-stop from Alaska or Siberia, without a rest (and not in the jet stream, as do Canadian Geese), making it the longest non-stop

journey for any bird in the world. First timers to NZ actually winter over as they have not gained enough energy over the summer of feasting to make the return journey.

If you are keen to see our iconic Kiwi bird in its own true environment, Okarito Kiwi Tours are the only company in NZ that take you out into the forest at night for you to observe their nightly goings-on. The company was started by a passionate backpacker who arrived from England to Okarito and decided not to leave. Ian Cooper has an uncanny ability to seek out the Kiwi at night, snuffling for its food and going about its affairs - and claims to have a 98% success rate of actually spotting one (with a red light) each trip out.

Okarito Boat tours are based at Wharf Street, a short walk from town and nearby the restored wharf from the old shipping days when the lagoon was the main access. They offer early eco tours starting from 7.30am, ideal for photography. Be immersed in this World Heritage Area as you witness rainforest orchids, ancient trees and multiple types of wildlife with the Southern Alps as the magnificent back drop: [www.okaritoboattours.co.nz](http://www.okaritoboattours.co.nz)

Donovan's store is the oldest building on the West Coast and proudly sits on the main street connecting the past to the present. The local community association has single handedly raised the \$100,000 to fully restore this beautiful building that was once used as a general store. Nowadays it has a fully restored library, is a venue for 'Arts on Tour New Zealand' and even hosts regular concerts with famous musicians visiting such as Don McGlashan.

There are plenty of walks at Okarito. The Trig track takes you up the steep hill, about 45 minutes to the top to view the surrounding area and the Alps. Three Mile Beach Lagoon track leads you along the Okarito Beach at low tide or through a well-formed track in the forest, 3 hours return.

Visiting the local gallery of Andris Apse is a must-do. Andris is a landscape photographer who has published many stunning books which are also available to purchase whilst there.

What is really nice about this place, is the strong community spirit with a can-do attitude, all while surrounded by the most stunning scenery in the world. If you're sitting in rush-hour traffic and wishing you were instead at a beautiful place somewhere, then think not of a Pacific Island, but 'Okarito, South Westland'.

Don't leave home until you've seen the country!



Guided tours or kayak hires are available from the Okarito Kayak Company.



Don't miss visiting Andris Apse's Okarito Gallery.



Approaching from the coast.



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## General Aviation Advocacy Group undertaking Survey of CAA customer satisfaction

contributed by Brian Mackie at the GAA

The General Aviation Advocacy Group has launched an independent survey of CAA customer satisfaction. It is the first comprehensive opinion poll of NZ CAA clients since 2003.

Back in 2003 some survey respondents were harshly critical of the authority. Subsequently, the CAA hasn't undertaken a similar survey, declining requests from the GAA and others.

In 2010, the authority was also criticised by the *Martin Jenkins Value for Money Report*. Efforts have been made at various levels since then to solicit detailed information about what the CAA has done to improve its performance, however little information has been forthcoming.

The authority is apparently now planning a series of surveys, however to our knowledge none will measure overall customer satisfaction. The first, about CAA communications, wasn't publicised to a sufficient level to come to your GAA team's attention, as we discovered it by accident. It asked, amongst other things, if users would like the CAA to use Facebook or Twitter – and surely any fit and proper person in aviation would not rely on Facebook or Twitter for communication from an organisation such as the CAA.

In an annual report, the CAA states that it spent \$40,000 on a (relatively small) Colmar Brunton survey. Colmar Brunton would of course be at 'arms length' from both the surveyor and surveyees, and need to make a profit. However by contrast, GAA volunteers are running our survey, which will be more sophisticated and comprehensive, and thanks in part to the volunteer aspect, cost about \$400.

Our *Independent Client Satisfaction Survey of the NZ Civil Aviation Authority* is modelled on the CAA's 2003 survey, updated to reflect changes in aviation (as well as other surveys including those by CASA, our neighbouring Australian authority).

It covers:

- How customers feel about their relationship with the CAA, its charges, and how complaints might be better handled.
- Service delivery and the CAA's dialogue with aviation system participants.
- The development and reform of aviation regulations, compliance with regulations, and medical issues.
- Best practice, consistency of decision-making, safety reporting and audits.

There are four parts, each of about thirty questions. One part should take between five and ten minutes to complete.

The survey is completely anonymous. It is impossible to track any participant. Results will be presented to the CAA board and management, the Minister of Transport, Parliament's Transport and Infrastructure Select Committee and the media.

One question missing from the survey is: Should the CAA run regular customer satisfaction surveys?

If enough people involved in NZ General Aviation take part in this sector-generated survey, the CAA will get the answer to that – and the bigger message.

To find out more, visit the GAA website at [www.CAA.gen.nz](http://www.CAA.gen.nz)

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# Maintenance Shop Insurance

Having purchased Aircraft Hull Coverage, you rightly assume your maintenance shop has what the industry calls "Aviation Hangarkeepers and Products Liability Insurance". The definition of this however, is not well understood. Bill Beard from Avsure explains:

Often have I heard the comment "I don't need hull cover yet as it will be covered by my engineer's insurance when it's in his hangar".

The facts are that this may not be the case. Hangarkeepers Insurance only covers the negligence and legal liability of the hangar owner with regard to aircraft held in their care and custody. If your engineering organisation denies they are responsible or the circumstances of the loss won't stand up in court, then you can't expect any compensation from their insurers. It is very important then, that you maintain your own insurance even for a construction project or lengthy refurbishment programme.

Having clarified that, let's consider a couple of scenarios that might occur totally beyond your control ie, the hangar burns down, the aircraft (or parts) are stolen or

during an engine run the apprentice taxis into something requiring a replacement prop and bulk strip (even worse if your engine is running on condition and you have to overhaul the engine).

If you have your own hull insurance, you may be reluctant to claim under your own policy as there is the policy deductible to consider, loss of No Claims Bonus, a possible premium increase next renewal and a claim that you could be accountable for, for years to come. If the shop readily admits liability and their insurers step up to the mark then it could be convenient to let them get on and rectify the damage.

However, even if there is no dispute with the shop or their insurers denying liability it's always best to lodge a claim under your own policy and let your own insurers appoint a Loss Adjuster to sort out the mess. They will do the negotiations, pay any legal fees that arise and isolate you from the nitty gritty negotiations. By assigning the claim to your insurance company you will have an adjuster that will be on your side and like you will want your aircraft repaired quickly and properly. In addition, your insurance company will have every expectation of recovering all the costs from the negligent party.

Even though the loss will be a claim under your policy, a loss due to someone else's negligence will not generally be considered adversely in future renewal evaluations. Your insurance adjuster will take charge and if necessary redirect repairs to an alternative repairer (only with your approval) who may be able to get the job done quicker. Your insurers will in turn pursue the negligent party and their insurers for full reimbursement and also assist in the recovery of the deductible and any other relevant expenses. Your insurance company assumes your Rights of Recovery when they pay the repair costs – this is called Subrogation.

Things naturally take an entirely different course if you or your repair shop are not insured. My best advice therefore is to firstly ascertain your maintenance provider has the necessary Hangarkeepers/Products Liability Cover and their level of coverage is enough to cover the full value of your aircraft. Low cost maintenance is a bad option when it comes at the cost of no insurance back-up.

To discuss this topic or any other aviation insurance questions, contact Arden Jennings or Bill Beard at Avsure on 0800 322 206.



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# Air to Air Photography

## A RIAT album with tips from a pro

Two French Air Force Rafales hold alongside for a few seconds before pushing the throttles wide open and heading to RIAT.

One of the best military airshows to see in the world is RIAT, the Royal International Air Tattoo held annually on the third weekend of July at RAF Fairford in Gloucestershire, England. Regular KiwiFlyer contributor Gavin Conroy's reputation has become such that this year he received an invitation to a series of air to air sorties associated with the event. The resulting images speak for themselves. In this article Gavin describes the flights he was on and offers numerous tips and advice for anyone keen to develop their air to air photographic skills. Alternately, readers can just marvel at the images of aircraft and battle technology largely unseen in our part of the world.

Some readers may remember the Avro Vulcan feature a couple of years back in KiwiFlyer (2015 #5) following a very memorable trip I made to the UK to fly with the Vulcan. This year I returned to the UK to meet up with some of the same team I flew with back in 2015.

I had already made a decision to go to Duxford to attend Flying Legends and after a few discussions with local warbird restorer and pilot John Romain, he said he would see if it was possible to fly the Bristol Blenheim for a photo flight if I could be there for the show. With that flight now in the offering and the trip still several months out, I contacted a took the opportunity to contact a few other people about events also happening over the period I would be there.

My luck was in. The organiser of the

Vulcan flight back in 2015 was planning to fly a few photo flights with some of the aircraft attending the Royal International Air Tattoo (RIAT). As we had got on well at the 2015 event he offered me a seat to observe and take some photos of my own if I wanted to go along.

The flying would take place over a three day period and we would have around 30 subjects.

The plan was to use a Shorts Skyvan as a camera plane, similar to the one we photographed the Vulcan from. It is an ideal camera plane, getting along at 150 kts with good reliability, having turbo props that can be run at high power settings for extended periods of time. The Skyvan provides for head-on photos and with good perspex windows on the side, photography from several different angles

is possible.

In the Skyvan there would be ten photographers plus the crew and we would be flying with some of the fastest aircraft in the world at nearly their lowest possible speeds. It meant everyone involved would need to be on top of their game.

### Ready to go

All of our flights were conducted from Kemble Airfield which has nice long runways, good facilities and is just a stone's throw from RAF Fairford which is where RIAT is held. The subjects would not launch with us specifically for a photo flight, but were planned to join up with us on their way to RIAT from their country of origin.

This is quite a complex arrangement

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RAF Tornado with wings in fully swept mode.



A Eurofighter from the Luftwaffe.



French Mirage 2000D.



French Air Force Rafale showing its delta wing to full advantage.



A brand new Airbus A400M from the Luftwaffe formed up for 15 minutes. The more I see of this type the more impressed I am.





Rafale pair performing an opposition break. Leading is the solo demo aircraft, with the spare following.

## Air to Air Photography

in that some fighters didn't have the best range due to weapon loads being carried to display at the show. Some had tankers up above the cloud that they would go to first, then come down to fly with us, then onward to Fairford. Thus it was quite a bit of fun waiting for the fighters to arrive so we could see what was hanging off their pylons!

Three of the organisers had been in contact with crews and squadrons for several months in the lead up as aircraft were confirmed via phone and email due to the travel distances involved. Face-to-face briefs were not possible, not to mention language barriers and other issues which all added additional challenges to the photo flights.

Our typical profile was to fly out of Kemble and head to a quiet traffic area around Gloucester where we would set up in a left hand orbit and wait for the aircraft to arrive.

The controllers at RIAT vectored the subjects to us using radar and many of the fighters actually locked onto us at they got closer – to make us easier to find - but talk about a sitting duck!

Over those three days we ended up flying 12 times, spending 16 hours in the air, and being joined by 54 individual aircraft ranging from helicopters, transports, tankers, surveillance, trainers, and of course numerous modern fighter/bomber jets.

We were very pleased to fly with so many aircraft as the target had been just 30. Even then, some subjects never made it to us due to weather, individual fuel state, etc. but fortunately 90% of the key aircraft we had hoped to see did make an appearance for us behind the Skyvan.

The following is an outline of our flights written with the photographer in mind. As well as covering the types we

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'Pinky' the RAF Tornado breaks away from the Skyvan. I've never heard - nor felt - something so loud. We wondered that the Skyvan was going to come apart. Sadly, a few weeks later this aircraft was broken down for spare parts!

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flew with and how they are best photographed, I'll explain some of the techniques employed, many of which can be used in the air or on the ground. These are not hard and fast rules, but are what I do. In reality air to air photography isn't so much different from photography during airshows or any ground based photography either. Most of the 'difference' regarding what goes into a photo flight is to do with planning and safety, and does not in fact involve the camera at all.

### Shutter Speed

The normal rule with propeller aircraft is to photograph them using a shutter speed of no more than 1/250th of a second. The lower the shutter speed, the more prop blur effect you will get.

Think of it in terms of engine RPM; a lot of aircraft typically use between 2400-2600 RPM (piston engines), hence say 42 revolutions per second. At 1/250th of a second, the camera will see the prop blurred through 60 degrees of rotation – adequate enough for a pleasing image and infinitely better than anything with ice-block stick propeller blades frozen in time.

It gets more complicated with some WWI aircraft as they have RPM settings of around 1250 RPM, in which case you do not want your shutter speed to be higher than 1/125th of a second.

### Helicopters

When flying with helicopters, shutter speed management is even more important. Rotor blades normally spin in the order of 4-500 RPM, so any shutter speed much faster than 1/125th will mean stationary blades and an image akin to a plastic model being tossed through the air!

We flew with a Finnish NH-90, German Sea King, and a USAF

HH-60 Pave Hawk.

When airborne of course, judgement also needs to be given to your ability to hold the camera still enough for a crisp image whilst dealing with air turbulence and aircraft vibration.

For all of the RIAT images I stuck to 1/125th, apart from when we had some smooth air with the Sea King when I could bring the shutter speed right back to 1/30th to get a really good rotor disc shot. Keep in mind that the slower the shutter speed you use, the more blurry the photos might be if you are not perfectly still, so practise your breathing and develop the art of being very still as you push the button.

### Prop driven Transport and Surveillance aircraft.

When it came to the join-up during our photo flights, the guys flying the 'heavies' took it easy. They would slow down from way out and steadily come in closer as they felt more comfortable.

All of the prop driven aircraft we flew with were turbo props, with prop speeds normally lower than a traditional piston engine aircraft. If I am having an off-day I will stick to 1/200th for such aircraft but prefer 1/160th or lower for an aircraft like a Hercules with four propeller blades.

Speaking of prop blades, we were fortunate enough to fly with an Airbus A-400M from the Luftwaffe and with so many blades I brought the shutter speed back to 1/80th. I reasoned it would probably be the only time I would fly with one of these so good photos first-up were a must. It also must be mentioned that the skills of the pilots were astounding!

By contrast, a week earlier at Duxford I flew with the Hispano Buchon and Blenheim. With higher RPM settings (2300-2450) there I could set 1/250th on the camera which de-risked the

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exercise and worked fine.

As an aside, if you see an RNZAF Hercules running on the tarmac you will notice the nice full prop arcs with white and read bands on the prop tips. They make for a great image, so slow your shutter speed to 1/50th and you should get a full 360 degrees of blur, but as mentioned earlier be sure to stay nice and still as a shutter speed that low means any camera shake will add the wrong kind of blur to your image.

Other prop driven aircraft we flew with at RIAT were a PC-9 from Ireland, Hercules transport aircraft from the USA (MC-130J) and Pakistan (C-130H), a Transall C-160 from the Luftwaffe, and a pair of civil Britten Norman Islanders that were fitted with special surveillance equipment.

### Fast Jets

In terms of camera set up, jets are normally easier to photograph due to the insane rpm that the fans within a jet engine turn at.

However you still need to be careful. A lot of people do not pay attention to their shutter speed when photographing jets, assuming they will always avoid the stopped propeller look. But if the light is good and your camera is on auto, you could get a very fast shutter speed of 1/8000th or higher. Sometimes when that happens, the inner workings of the jet engine can still look stationary in the photo - and like propeller aircraft you want to avoid that.

For comparison a similar analogy can be applied to photos taken at a motor sport event: With the camera set on auto you get a nice clear photo due to the probability of a higher shutter speed but it makes the cars wheels (and background) look stationary or close to it. The photo may be sharp, but lacks dynamism and any sense of the movement actually happening in the scene at the time. You could put the camera back into the mode where you can vary the shutter speed and if you drop it to say 1/400th the wheels on the car will appear to be turning. The same applies to jets; you do not need an amazingly fast shutter speed unless you have difficulty holding a camera steady. So I set up with 1/400th and go from there.

Some of the aircraft we flew with were heavily loaded with ordnance and as such they would approach slowly and fly under the Skyvan, but still quite close to us. It was very impressive to see this.



French Air Force Mirage 2000D with the sort of background that photographers dream of before each flight.



A pair of French Alpha jet trainers break on their way to RIAT.



A beautiful F-15C Eagle from 493rd Fighter Squadron at RAF Lakenheath. This machine is a double Mig Killer!

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Above and below: A Finnish NH90 joined us for 10 minutes on one flight.



Check out that gun!

The Red Arrows, Finnish Aerobatic team, the Midnight Hawks, a KC135 and two Tornados all flew this pattern. The Tornados were from Italy and the RAF, the latter being most impressive with the pilot making three passes under us and one alongside with the wings at various sweep positions. The 'pink' Tornado as it was referred to, was broken down to spare parts after RIAT so it was a happy but sad occasion for those involved.

The remaining aircraft formatted on us in the traditional fashion, indeed showing some tremendous skills as don't forget we were only flying at 150 kts.

We flew with ten F-16 Fighting Falcons, two F-15C Eagles (both double Mig killers), an F-15E Strike Eagle, five Eurofighters, a pair of F-18 Hornets from Spain, two Rafales, two Alpha Jets from France, and two Austrian SAAB 105 side by side jet trainers.

A two seat tandem Scorpion came along as well which was an aircraft I had not seen before. These are being pitched in the USA as a low cost advanced jet trainer.

Two of my favourite flights with the fighters were on day one when three Dassault Mirage 2000Ds from the French Air Force approached the camera plane. They arrived at speed and for a start I thought they were going to fly underneath us but after a few dog leg turns with speed brakes extended to slow down they formed up beautifully. It really was a sight to behold.

The other was when the two F-15C Eagles formed up, and although I did not realise it at the time due to concentrating on photographing them well, these were both 'Mig Killers'. One had shot down a pair of Mig 29s during one dog fight in Kosovo. The other shot down an Iraqi Mig 23 and Mirage F1 that were fleeing Iraq.



Another aircraft from RAF Lakenheath was this MH60 Pavehawk.



Luftwaffe Sea King. Nice to catch up with as they are soon to be retired.



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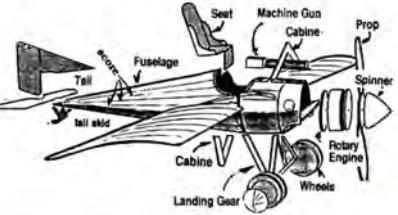


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The Legendary RAF Red Arrows, without doubt one of the highlights of the trip.

It was amazing to fly with these warbirds 'of tomorrow' and also to reflect that their future roles will be in museums, no different to how we view Spitfires and Mustangs etc. today.

### Summing up

There were certainly some magical moments in these flights. We were all getting quite tired towards the end; with the planning day and three full-on days of flying it was fair to say we got our fill. The weather played the game as well which was great, and then jet lag finally caught up with me!

We were together for 16 hours a day to get through all of the work preparing for and completing each flight, so it was very satisfying to get back home and find so many lovely photos on the memory cards.

It is a pity though that you cannot hear the sound through the photos. Some aircraft like the Tornado and Eurofighters would depart in close formation under full afterburner; the noise was incredible and impossible to describe. I could feel it right shaking my innards. It really was something else!

There are of course other considerations when taking photos above cloud, particularly to do with exposure but that's a whole other story for next time. For now, that sums up the trip, and hopefully shutter bugs may have picked up a tip or two.

The last piece of advice I have is to practise a lot and choose your own style. I prefer close-in, in your face shots. I always get the easier more traditional images first and then work on the close-in stuff second. In this regard it's the same process in the air and on the ground, as I don't want a big bunch of images that look the same.

Finally, I'd recommend to try not to be a machine gun trigger with the camera. Having good focus and patience before pushing the button is way more important. It is easy to take 10 photos quickly but if you have not considered what you're doing properly then the photos will not be what you want them to be. I take my photos in twos or threes, and push the button when the aircraft is as close to me as it is likely to be. Having the viewfinder two thirds full is a good start. Try to make every photo count, as machine gun fingers just lead to full memory cards and worn out gear. I'm still using the same camera I bought in 2012, with many thousands of photos on the clock now.

If you're a photographer or a budding one, Happy Shooting. And for all readers I hope you enjoy the photos included with this story. There's no question that I enjoyed taking them!

Gavin Conroy



A Lockheed MC-130J special ops aircraft flew with us on the last day.



BN Defenders with high tech sensor gear. Even a mother couldn't love that face.



A Transall C-160 from the Luftwaffe. It is now a static display in a museum.



One of the tankers filling the aircraft above us came down for a couple of orbits.

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# Expensive Land Outs

New Zealand Soaring contributed by Jill McCaw

Recently, another member of the Canterbury Gliding Club joined an exclusive (and expensive to join) group of pilots who have had to have their gliders helicopter retrieved. Jill McCaw explains the process with a few examples included:

**Gliders** land out, all the time. It is a fact of gliding. We train for it and can land just about anywhere flat that's wider than the glider and long enough to allow a bit of a ground roll. If you run out of usable lift, you have to land. There are many paddocks and back country airstrips that make excellent land out areas. If landing on an airstrip or a large enough paddock, and there's a grunty tow plane available, an aerotow retrieve may be an option. If not, then a crew of the pilot's mates will drive the pilot's car and glider trailer out to retrieve them. The glider will be disassembled in the paddock, put in its trailer and they all drive out. Beer and/or wine will be left to thank the farmer for his hospitality and it is mandatory to shout the crew a beer and a meal.

Sometimes things aren't so easy. Maybe the glider landed behind a locked gate and the farmer can't be found. Maybe the pilot's car hasn't quite got what it takes to get the trailer up a rough farm track to the paddock. The glider may only be 30 km away as the crow flies but there's a mountain range in between and the road retrieve will take at least eight hours. A retrieve across Cook Strait becomes an expensive mission. Or, as in the following cases, access by road might not actually be possible. These sorts of retrieves make great stories, to be told over beers for years to come, but at the time, they're not so much fun for the poor pilot who has to spend a fortune retrieving his glider by helicopter from an out of the way spot.

The Canterbury Gliding Club has a few of these stories.

On January the 10th 1965, Canterbury Gliding Club member Stewart Cain was the first unfortunate pilot to land in a tussocky gully, only one ridge from the Lindis Pass. Officially called the Saint Bathans valley, but ever after known as Stew's gully, this flat-bottomed valley with a river running through it had, when Stew landed there, no road access. His retrieve incited media interest and a television crew filmed the event as it was the first time a glider had been retrieved by helicopter anywhere in the world.

When Stew landed the club's Skylark 3f, registration GCB in the tussock, he believed there was a road into the valley because it was drawn on his map, but it didn't exist. In January 2006, when fellow club member Kevin Bethwaite landed the club's LS4-b GCC in Stew's Gully, it was on a four-wheel drive track, but road access for a glider trailer wasn't and still isn't possible. A gorge with switchbacks and steep sided fords would be impossible to tow a trailer through.

Both pilots realised they would be there for the night. There is a nice hut only 200 metres or so from where Kevin landed. In 1963 there was nothing. Stewart had a High Frequency radio that gave variable reception at the best of times. He was unable to contact home base at Omarama but could contact some airborne pilots and a fellow glider pilot in Christchurch, all of whom worked on establishing his position and passing on information to his base.

A group of friends then gathered up a tent, sleeping bag, food, a paperback novel and Stew's boots, in one of which they placed one of the new-fangled cans of beer. They used a light plane to fly over from Omarama, wave at their unfortunate friend and drop the supplies beside the parked glider. Stew found the beer in his boot and spent the next hour and a half searching for a second can that he felt certain must have fallen out of the other boot.

In 2006, Kev too couldn't call home on the radio and there was no cell phone coverage either. But there were some four-wheel drive vehicles parked outside a hut. Kev had barely got out of the glider before he had a beer in his hand. This group of hunters had a satellite phone. Kevin called his brother in Christchurch who phoned people in Omarama to explain the situation. The hunters were also well stocked with whitebait, venison, beer and wine. Stew had a cold dinner and one can of beer in his lonely tent, Kevin was very well looked after. Stew was "rescued" the next morning by friends that had walked over from Geordie Hills Station in the Lindis Pass. He had to walk out. Kev got to ride out. Both pilots left their gliders well secured, as they knew it would be sometime before they returned to them.

The retrieves forty years apart were not too different. In 1965 the club managed to track down a Bell helicopter being operated out of the Waitaki Valley by



A 2017 retrieve from Mt. White Station near Arthur's Pass, this time with an EC120 from Christchurch Helicopters.

Dick De Blicque. He was a Canadian who had both flown gliders and towed them with a helicopter so had a good understanding of what was required. It was considered too dangerous to lift the glider as it was and so it was derigged and flown out in two loads to the waiting trailer that had been driven around to Geordie Hills Station in the Lindis Pass. The wings, tailplane and rudder went on the first trip with the fuselage following.

In 2006 the procedure was nearly the same. Bruce Drake, helicopter pilot, glider pilot and repairman provided advice, comprehensive instructions and a kit containing all necessary equipment. A Squirrel and pilot were hired from The Helicopter Line. Kevin, two helpers and a load of gear flew back to the glider. Once again it made sense to take the trailer to Geordie Hills. Stew Cain was one of the crew that went with the trailer.

The fuselage went first on a long strop under the helicopter. It turned into wind and flew like a charm. Wings and tailplane went on a second trip on a rig built on the struts. Everything was secured with strops, with duct tape for extra backup. The duct tape proved a little difficult to remove at the other end but otherwise everything went without incident.

And then, this week, while flying in the Canterbury Club Competition, club member Rob Campbell landed his own Libelle glider on a rough back-country strip, on Mt White Station near Arthurs Pass. The strip was too rough to tow off and there was no road access. This time I was one of the group making up an overnight care package, to be dropped from a plane. We didn't have any beer in cans and wrapped one bottle carefully in his sleeping bag which we stuffed in a back pack. We added, cold sausages, a can of chicken, another of peaches (with pull tabs) chocolate biscuits and chippies. The biscuits, chippies, and the peaches - in the can, were completely pulverised. We probably should have put in insect repellent. Kev was one of the ones helping organise the drop. Stew Cain passed away in October this year, otherwise I'm sure he'd have been offering advice too. There was a hut across the river that Rob bush bashed to, where he spent the night. Brian Fechny, in a Cessna 185 flew in the next morning and brought him out. The next day an EC 120 helicopter from Christchurch helicopters picked up Rob and John McCaw and went in and lifted the glider out.

They derigged the glider and with much padding and lots of strops (and duct tape), strapped the wings against the fuselage (until the whole resembled a trussed caterpillar). The tailplane

went in the helicopter and the bundle was lifted out to where a crew with the trailer were waiting at the Mt White Station airstrip.

Rob's probably not feeling like it's an adventure worth retelling at this moment, but he's not actually going to have much say in that. Everyone is abuzz with the excitement of it.

The point of it all though, is that even though they were liable to a very expensive and bothersome retrieve exercise, Rob, Kevin and Stew all made the right call and they and their gliders all lived to fly another day. It is far better to land somewhere with the glider and pilot undamaged than to try to stretch a marginal glide to a better landing area. Allowing height to assess a land out area and plan a circuit makes for a safe landing. Using that height to take you somewhere that might be better, but reaching it without time to properly assess and plan your landing may end up giving you no options at all.

Meantime, Rob continued flying in this week's Canterbury competition and the other competition pilots had a bit of a whip around, to help cover the costs.

If you'd like a go at gliding, but without the back-country experience, check out the Gliding NZ website for information on your local club.



A 2006 Squirrel assisted retrieval from Stew's Gully.

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Yes, that's a made in NZ, Autoflight designed reduction drive in an (electric!) R44.

# Gyros and more from AutoFlight

As well as producing Dominator autogyros under licence, the Autoflight brand in New Zealand has become synonymous with high-quality geared reduction drives for sport aircraft. Designed and manufactured by Neil Hintz from his extensively equipped workshop near Hamilton, the company produces a wide range of gearboxes to suit different applications, supplying these to home-builders and to OEM manufacturers such as Titan Aircraft in the USA. There are also fabrication and engine development arms to the business. KiwiFlyer visited Neil recently for this update:

## Geared Reduction Drives

From humble beginnings, Neil's reputation has spread far and wide, evidenced by the call he received to design and supply a gearbox for the world's first electric powered helicopter – a Robinson R44 converted to battery power and electric drive by Tier One Engineering in the United States late in 2016. This aircraft is a development platform intended for commercial use as an electrically powered semi-autonomous rotorcraft for organ delivery. It successfully flew, setting records in the process, with development continuing through 2017 and further record

setting multiple-leg flights currently being planned. Neil says he asked the Tier One people what brought them to his door, so far away in New Zealand. The answer was, “we searched online and every track we found or person we spoke to seemed to direct us to Autoflight.” They asked Neil to design a gearbox to suit their requirements which he did, personally delivering it to Auckland Airport to get it to the States on time, where it fitted and operated perfectly – albeit Tier One engineers had neglected to consider ducting any cooling air towards it, which was easily remedied.

Autoflight geared reduction drives include output shaft offset up or down options specifically for Subaru EA, EJ and H6 series engines. A universal unit can be readily adapted to any engine up to 160hp. Mazda RX8 Renasis and 13B engines can also be accommodated as well as Suzuki and Honda V6s. Neil's latest development is a 600 hp capable unit designed as part of a V8 installation for a Titan Mustang. One-off developments can also be undertaken.

## Dominator Autogyros

Autoflight have been the New Zealand agents for Dominator autogyros for 15 years now. Neil has fabricated numerous tandem and single seat gyros in this time, powered with a variety of engines according to customer preference. Subaru variants are favoured, many being optioned with Neil's own dual ignition heads, tuned manifolds, and fuel injection systems. Aside from being very cost competitive even when fully optioned, there are substantial long term savings to be had given they run on-condition and when overhaul is required, costs then are comparable to a standard automotive recondition.

The Dominator design has long been favoured by those interested in autogyro principles of flight, nearly all aspects of the design having been specifically developed with dynamic stability, rough field operations (including crash worthiness), and light, sporty handling characteristics at front of mind. They are also a design that can be readily produced from either a kit, or supplied ready-to-fly. And a made-in-NZ tandem Dominator costs only



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around half the price of some of the currently available European gyro offerings. For very budget conscious flyers, single seat Dominator airframes can be supplied by Neil without engine in a basic kit form for as little as \$15000 depending on options. Fully completed costs can be as low as \$25k, again depending on options and how much work the owner chooses to do themselves.

Dominator gyros are essentially 'fun suspended by rotorblades'. They are safe and easy to fly, and out-maneuvre most other types.

### A new generation Two Stroke engine

During the last couple of years, as time has permitted, Neil has developed a new generation twin-cylinder two-stroke engine of entirely his own design and construction. Intended for sport aviation use, this engine is of 700cc capacity, produces 80 hp and weighs in at just 42 kg. It is water cooled, has nickel-silicon bores, case-reed induction and modern porting arrangements, with an integrated counter-balance shaft to minimise vibration, electric start and a built-in 12V charging system. The gearbox is integrated into the design, making the whole installation extremely compact. The engine also includes a power take-off shaft, ideal for an autogyro pre-rotator. Recent additions to the design include a power valve for smoother power delivery. It is also now TPI (transfer port injection) ready and will be able to run on (more environmentally friendly) ethanol. The engine is currently undergoing testing on Neil's own single seat Dominator, ZK-RON.

### For more information

Contact Neil by email: [autoflightneil@gmail.com](mailto:autoflightneil@gmail.com) or phone 07 824 1978 during business hours. [www.autoflight.co.nz](http://www.autoflight.co.nz)



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David Wilkinson in his RV8.

# South Island Akro Fest 2017

During the third week of November, aerobatic pilots around the country descended on Omapa Aerodrome to compete at the 3rd annual South Island Akro Fest. Andrew Love put this report together for KiwiFlyer readers.

The NZ Aerobatic Club runs a National Championship at Masterton during February. Akro Fest was established to provide a South Island based competition during the spring which would help pilots with competition currency leading into these Nationals.



Wednesday night's dinner function.

We were hosted by the enthusiastic Marlborough Aeroclub team at their clubrooms and hired the Aeroclub flat as operations (and accommodation) base for the week. The competition was located by the Aviation Heritage Centre, with the aircraft parked along the fence line right outside the museum. This provided extra activity for visitors of the museum to view and with the sun on everyone's backs for viewing the competition flying, there really isn't a better place to run this competition.

We had a large contingent again from the Canterbury Aero Club this year, led by experienced B Cat, Richard Collett. The



A good number of types were entered and shared between different pilots.





## South Island Akro Fest 2017

## Results

## Recreational Overall (Omaka Cup)

- 1st Jerry Chisum – RV3  
 2nd Austin Jones – R2160  
 3rd Alex Philpot – R2160

## Recreational Unknown

- 1st Jerry Chisum – RV3  
 2nd Wayne Edwards – Tiger Moth  
 3rd Alex Philpot

## Sportsman Overall

## (Marlborough Aero Club Cup)

- 1st Ryan Southam – DR107  
 2nd Grant Benns – RV7  
 3rd Richard Collett – R2160

## Intermediate Overall

## (Pam Collings Trophy)

- 1st Morris Tull – Pitts S1S  
 2nd Andrew Love – Pitts S1S

## 160hp Challenge

## (Recreational class only)

- 1st Austin Jones – 2160  
 2nd Alex Philpot – 2160  
 3rd Jason Smith – 2160

## Rangitata Island Trophy

## (Highest scoring biplane)

Morris Tull – Pitts S-1S

## Best Newcomer

Wayne Edwards – Tiger Moth

## Most Improved Pilot

Jason Smith – 2160

## Paul Marshall Award

Cathleen Heslan (most helpful person)



Morris Tull's Pitts S-1S.



A view of the aerobatic area from Harvard XSA.

tradition of our club aerobatic trainer, the Robin R2160 ZK-RBN being flown by capable young pilots has continued both at the Akro Fest, and at the Flying NZ Alpine Rally recently held at Motueka. The results at Akro Fest speak for themselves.

From further north, we had a number of pilots from Auckland, North Shore and Tauranga flying RVs, Pitts, Robin, Tiger Moth, One Design and a Yak 52 among others. My aim with establishing this event was to encourage more grassroots aerobatic competition and we have begun to succeed with a dozen pilots in the recreational classes. We had also initially fielded a large contingent in the intermediate category but this was whittled down from six to two due to aircraft serviceability. It was left to myself and Mo to compete in his beautifully presented Pitts ZK-FRJ, which he completed a ground-up restoration of in 2010.

We rounded off a busy practice day where everyone grabbed as much time in the 'box' as they could, with dinner in town. The Aero Club put on a BBQ and some cold drinks at the end of the first day of competition on Thursday. Following the last day of competition on Friday, we were catered for by Roast on the Run and it was

a great meal – I would highly recommend this company to anyone. By the time prize giving began in the evening, we were all pretty parched and exhausted. It had been a busy week of flying our own signatures in the sky in what was a very competitive competition that also helps to promote our Nationals Competition (coming up in February).

Standouts during the competition were the way Steve Geard went from his standard mount, a Yak 55M, to a Yak 52, a type which he hadn't ever competed in, yet did so with the usual exuberance and theatre that only he can deliver in a Yak. Grant Benns, our club president, was as consistent as usual in the aeroplane at his disposal, in this case David Cranna's RV7, which David also competed in, when he could get Grant out of it. Ryan Southam was incredibly steady with his scores in Simon and Roger's beautiful One Design; Intermediate category at the Nationals Ryan?

Jerry Chisum returned this year to give Recreational another crack and did so with much success. It must be time to compete at Sportsman level in February, Jerry? Then we have Wayne Tantrum flying his Citabria and Wayne Edwards in

his Tiger Moth ZK-BEC; both were first time competitors and from the beginning of the week, when critiquing kicked off, to the end of the event, one simply wouldn't have recognised them as being the same pilot, such was the improvement of the sequences they were flying. Picking the best newcomer was nearly impossible.

Everyone seemed to enjoy themselves – and that is the essence of any event which involves the NZ Aerobatic Club. We have a wide variety of members, competitors and aircraft, all with the same thing in common: their obsession with tipping aircraft upside down for fun.

A huge thanks to Raylene, Marty, John and everyone at the Marlborough Aero Club for being such incredibly good hosts and allowing us to enjoy your airfield again this year. There's no other place quite like it. Also a big thankyou to Graham and Jane Orphan for being supportive of the event and allowing us to more or less take over their flight operations area outside the museum for the duration of the event.

Next on the calendar is the National Championships, at Hood Aerodrome, Masterton, February 21st-24th 2018. See you there.

Andrew Love  
 Vice President, NZ Aerobatic Club



David Wilkinson leads this formation in his RV8. His wingman is Desmond Barry flying an RV7.



Although the Nanchang flown by Mark O'Sullivan was not in the competition it was nice to compare airframes as Steve Geard flies alongside in a Yak 52.

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# Southern Katipo 2017

RNZAF NH90s from 3 Squadron were very busy during Katipo. Here soldiers are headed to Ward which was heavily involved in the first part of the exercise.



**Exercise** Southern Katipo is New Zealand's largest military exercise, held every two years in varying parts of the country. This year, SK17 was run during October and November at locations across the upper South Island, which collectively became the troubled 'Becara' region. This was a carry-over from SK15, Becara still suffering from political instability and unrest - and with New Zealand being requested to assemble and lead an Intervention Force comprising a coalition of Pacific Island Forum Member States. Soldiers from Tonga, Papua New

Guinea, Fiji, Brunei, Malaysia and Timor Leste all participated alongside NZ with small contingents from Australia, Canada, USA, France and Britain also taking part. The main contingent for the exercise arrived at Blenheim Airport in military fixed wing transport aircraft. RNZAF NH90 and A109 helicopters were based out of Omapa Airfield. Gavin Conroy spent a day with his camera at these locations, capturing the activity shown. Several Navy ships located off the coast with other elements arriving by sea over the beach in Okiwi Bay and across the



RAAF C-27J Spartan on its first overseas exercise since being introduced.



RNZAF Hercules saving tyre wear on the grass runway at Woodbourne.



RNZAF B757 takes off from Woodbourne. Large aircraft always impressive there.



RNZAF P-3K2 Orion from 5 Squadron lining up at Woodbourne.

wharf at Picton. These included trucks, Light Armoured Vehicles, plus Medium Heavy and Light Operational Vehicles. Members of the public enjoyed the opportunity to get up close and personal to some of the activities at the various dispersed sites of the exercise by playing the role of citizens of Becara. This is quite a unique aspect to the exercise, very few countries having the privilege of exercising among their own population. Briefing notices were issued to the public to explain each local 'situation' and provide guidance to appropriate interactions.

For example in Westport, the public were asked to "strongly disapprove of the hate speech being pushed by the Westportian People's Party and the Westportian Freedom Army, to fear a return to the 2015 unrest, and to seek security and support to get on with their lives." Reefton residents were asked to "make the bad guys feel safe among their population and to resist the efforts of the New Zealanders and their allies." Picton residents were asked to be "concerned for their safety and welcoming to the Coalition's protection." In Kaikoura,

residents were invited to keep a lookout for bad guys and share what they knew about them. One expects they might have had the most fun role to play. The exercise provides an important component of the realistic training which must be regularly undertaken by all the Forces involved, bringing together multiple challenges and requiring the full gamut of NZDF assets, all in coordination with a truly multi-national operation to bring peace to the region of Becara. But will Becara be finally under satisfactory democratic rule by this time in 2019? 

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The USAF C-17 Globemaster operated from Woodbourne during a 10 day period at the start of the exercise. Judging by the amount of cars at the airport every time it arrived, it would be fair to say it was the most impressive thing to happen in Blenheim for a long time! And I can fairly say this - because I live there!



## ZK-EAA Van's RV-12



The Van's RV-12 is an American two-seat, single-engine, low-wing, all aluminium homebuilt aircraft, sold in kit form or as a complete ready-to-fly aircraft by Van's Aircraft of Aurora, Oregon. It is powered with a Rotax 912 engine and should cruise around at 105-110kts.

ZK-EAA is another product of Mercury Bay Area School's very successful RV-12 aircraft building programme. Via their Mercury Bay Student Aviation Trust, this is the third year the programme, available to year 11-13 students, has been run. Interested students are selected for involvement by the school and are supported by Tech/Engineering teacher George Fletcher and IT teacher Patrick Pfister. Every Wednesday afternoon the selected group of students head to Jim Evan's shed, adjacent to the Mercury Bay Aero Club. There they work in pairs with a mentor from the local aviation community to progress a part of the plane. Each aircraft takes the students about 18 months to build. This time there were ten students that were selected (nine boys and a girl) but by the end of the project this was down to six, the attrition resulting

from those who left at the end of last year having completed their Year 13.

Many of the students involved with building these aircraft have also taken advantage of the opportunity to learn to fly with Mercury Bay Aero Club.

George says the biggest pleasure for him was watching the faces of the students light up with ZK-EAA took to the air for the very first time in the safe hands of Jim Evans on 15th November.



Students and members of the Mercury Bay Student Aviation Trust would like to thank John Gemmell and his family for providing the opportunity to build them an aeroplane. A new crew of students have already been selected to build the next MBAS RV-12 aircraft in 2018.

## ZK-MEF TechPro Merlin 100 UL

A first of type for New Zealand is this TechPro Merlin 100 belonging to Alan Cameron of Mangawhai.

The TechPro Aviation Merlin 100 is a Czech amateur-built aircraft, designed and produced by TechPro Aviation of Olomouc. It is a single-seat cantilever high-wing (no struts) aircraft with a tricycle undercarriage. The airframe is all

metal with fibreglass main landing gear and steerable front wheel. The Merlin's wing has Fowler (slotted) flaps and ailerons on the trailing edge and integral fuel tanks in the leading edge. ZK-MEF will certainly be easy to spot in its striking orange paint scheme.

This particular aircraft was completely built in the factory for Alan on the understanding that they could display it at the Aero Friedrichshafen in Germany before it was sent out to New Zealand. Alan is very impressed with the quality of the build and says the aircraft has extremely good handling characteristics. Alan also says he was impressed with the price and admits that was one of the main reasons for purchase.

ZK-MEF is powered by a HKS 700E engine - a horizontally opposed twin-cylinder, four-stroke, carburetted aircraft



engine manufactured by HKS, a Japanese company also noted for its automotive racing engines. Since this aircraft only weighs 400 pounds it has very short take-off and landing distances and will cruise at a respectable 90 kts.

...ctd over

## ARRIVALS - October/November 2017

|     |                           |                                  |
|-----|---------------------------|----------------------------------|
| ALG | Pietenpol Aircamper       | Mr G F Doran                     |
| AZK | Cessna 195                | Mr T F Hall                      |
| CBT | Cessna U206F              | Westland Air Charter Ltd         |
| CEC | Aeroprakt A-22LS          | Mr K J Campbell                  |
| EAA | Vans RV 12 UL             | Mr J S Gemmell                   |
| EVE | Tecnam P2002 Sierra MK II | Mr I A Anderson                  |
| FIS | Piper PA-42-1000          | Airways Corporation of NZ Ltd    |
| GHA | Rolladen-Schneider LS 1-f | Mr C Derold                      |
| HAM | Eurocopter EC 120 B       | The Alpine Group Limited         |
| HGQ | Eurocopter AS 350 B2      | Helilink Limited                 |
| HHK | Eurocopter AS 350 B3      | Mr B J Comerford                 |
| HHN | Rotorway Exec 162F        | Mr D S Buchanan                  |
| HJW | Eurocopter EC 130 T2      | North Shore Helicopters Limited  |
| HLA | Bell 206B                 | Hewletts Road Machinery Limited  |
| HWV | Eurocopter AS 350 B3      | Skywork Helicopters Limited      |
| ICE | Eurocopter EC 120 B       | Action Helicopters Limited       |
| ICM | Eurocopter EC135 P2+      | Helicopters Queenstown Limited   |
| III | McDonnell Douglas 500N    | CVI Aviation Limited             |
| III | Schweizer 269C            | Mountain View Helicopters Ltd    |
| IIW | Bell 206L-4               | Salt Air Limited                 |
| IOB | Eurocopter AS 350 BA      | Murchison Heli Tours Limited     |
| IOX | Hughes 369E               | Cranswick Enterprises Limited    |
| IXX | McDonnell Douglas 500N    | Mr B J Comerford                 |
| KHV | Cessna 182T               | Mr B L Cameron                   |
| MCI | Cessna 208B               | Milford Sound Flights Limited    |
| MEF | TechPro Merlin 100 UL     | Mr A R Cameron                   |
| MSR | Murphy SR2500 Super Rebel | I & P Stephens                   |
| MXM | Maule MX-7-180A           | Craig & Laing Partnership        |
| NZL | Boeing 787-9              | Air New Zealand Ltd              |
| NZM | Boeing 787-9              | Air New Zealand Ltd              |
| ORZ | Piper PA-46-310P          | Heli Lease Limited               |
| RDC | AutoGyro Calidus          | Aerosport Aviation Limited       |
| RDX | Sport Copter Vortex M912  | Sportcopter New Zealand Limited  |
| RJZ | Cessna 525B               | Tirohanga Holdings Limited       |
| RUR | Air Tractor AT-402B       | Rural Aerial Cooperative Limited |
| SEL | Cameron N-90              | Azure Ballooning Partnership     |
| SLD | Gippsland GA8             | Southern Lakes Aviation Ltd      |
| SVR | Dedalus Model 1           | Mr A Fillery                     |
| TLT | Tecnam P2008              | Tecnam Australasia Limited       |
| UPC | Rans S-6ES Coyote II      | Mr M Sullivan                    |
| UPA | Zephyr Airworks Mule SPA  | Zephyr Airworks LLC              |
| VHC | Aeroprakt A-32 LSA        | Hawera Aero Club Inc             |
| VZM | Cessna 206H               | Miplane Limited                  |

## TRANSFERS - October/November 2017

|     |                           |                                      |
|-----|---------------------------|--------------------------------------|
| ARD | Rans S-6ES Coyote II      | Mr M A Bichan                        |
| BKV | Piper PA-18               | North Taranaki Aero Club             |
| BQM | Taylorcraft 20            | Mr P M Wilby                         |
| BSP | Cessna 180                | Mr A Meighan                         |
| BTU | Piper PA-18               | Wanganui Aero Club (Inc)             |
| BWG | Piper PA-18               | Southern Aircraft Syndicate          |
| CCF | Cessna 172C               | Mr T J Williams                      |
| CER | Rans S6S Coyote II        | JR & EM Hart Syndicate               |
| CNC | Piper PA-25-235           | Piako Gliding Club (Inc)             |
| COS | Cessna 172S               | Tauranga Aero Club (Inc)             |
| CWD | Cessna 172S               | Aerohire Limited                     |
| CXY | Thatcher CX4              | Mr A W Payne                         |
| CZA | NZ Aerospace FU24-950M    | Rural Aerial Cooperative Limited     |
| DAX | Diamond DA 42             | Leadstone Limited                    |
| DFM | Jodel D.11                | Mr G B Taylor                        |
| DJT | Micro Aviation B22 Bantam | Mr G W Breaker                       |
| DNS | Cessna 172M               | Southern Wings Limited               |
| DOK | Piper PA-30               | DOK Partnership                      |
| DYH | Cessna A185E              | Lake Heron Ventures Limited          |
| ELF | Cessna 172N               | Enfield Holdings Limited             |
| END | North American Harvard 3* | Kapiti Warbirds Limited              |
| ETA | Cessna 172N               | Classic Flights Limited              |
| ETI | Cessna T210N              | The Alpine Group Limited             |
| ETZ | Cessna 152                | ETZ Limited                          |
| EWV | Cessna 172RG              | Dennis Thompson International Ltd    |
| FRV | Zenair Zenith CH-200      | Mr K N Haldane                       |
| FSS | Gippsland GA8             | Glenorchy Air Services & Tourist Co. |
| GBZ | Schempp-Hirth Ventus-2cT  | Woodlands Trust                      |
| GHQ | Slingsby T.59D Kestrel 19 | Mr P N Dew                           |
| GVZ | Jonker JS1-C 18/21        | Mr P C Driessen                      |
| HCC | Eurocopter AS 350 B3      | South Pacific Helicopters (2016) Ltd |
| HCY | Robinson R44 II           | Mr M K Gray                          |
| HEF | Eurocopter AS 350 B3      | Reid Helicopters Nelson Limited      |
| HGL | Robinson R44              | Alabaster Helicopters Limited        |
| HGG | Hughes 369D               | Wairoa Aviation Ltd                  |
| HHY | Hughes 369HS              | Mr W R Hales                         |
| HIH | Eurocopter AS 350 BA      | The Alpine Group Limited             |
| HIY | Eurocopter AS 350 BA      | Fox Franz Heliservices Limited       |
| HJW | Eurocopter EC 120 B       | North Shore Helicopters Limited      |
| HMO | Hughes 369E               | Ranger Helicopters Limited           |
| HMX | Schweizer 269C            | Honeydew Farms Limited               |
| HSC | Hughes 369E               | Christchurch Helicopters 2001 Ltd    |
| HUV | Hughes 369D               | Ranger Helicopters Limited           |
| HVG | Guimbal Cabri G2          | Murchison Heli Tours Limited         |
| HVO | Schweizer 269C-1          | White Star Honey Limited             |
| IBZ | Robinson R44 II           | Gisborne Helicopters Limited         |
| ICF | Robinson R44 II           | Hill Country Helicopters (1986) Ltd  |
| ICP | Robinson R44 II           | T & P Williams Limited               |
| IDR | Eurocopter AS 350 B2      | Heli Tours Limited                   |
| IDS | Hughes 369E               | Precision Helicopters NZ Limited     |
| IEZ | Robinson R44 II           | Gisborne Helicopters Limited         |
| IGA | McDonnell Douglas 500N    | Christchurch Helicopters 2001 Ltd    |
| IGA | McDonnell Douglas 500N    | CVI Aviation Limited                 |
| IJS | Bell 206B                 | Wairarapa Helicopters Limited        |
| ILS | Robinson R44 II           | Mr S H W Mccowan                     |
| IMK | Eurocopter AS 350 BA      | Kershaw Aviation Group Ltd           |
| IOP | Eurocopter AS 350 BA      | Nelson Tasman Air Limited            |

continued next page...

|                 |                                  |                       |
|-----------------|----------------------------------|-----------------------|
| Queenstown      | Te Awamutu                       | Amat Built Aeroplane  |
| Pictou          | Westland Air Charter Ltd         | Aeroplane             |
| Huntly          | Mr K J Campbell                  | Microlight Class 2    |
| Auckland        | Mr J S Gemmell                   | Microlight Class 2    |
| Auckland        | Mr I A Anderson                  | Aeroplane             |
| Wellington      | Airways Corporation of NZ Ltd    | Aeroplane             |
| Wellington      | Mr C Derold                      | Glider                |
| Wanaka          | The Alpine Group Limited         | Helicopter            |
| Auckland        | Helilink Limited                 | Helicopter            |
| Porirua         | Mr B J Comerford                 | Helicopter            |
| Wellington      | Mr D S Buchanan                  | Amat Built Helicopter |
| Auckland        | North Shore Helicopters Limited  | Helicopter            |
| Wellington      | Hewletts Road Machinery Limited  | Helicopter            |
| Mount Maunganui | Skywork Helicopters Limited      | Helicopter            |
| Warkworth       | Action Helicopters Limited       | Helicopter            |
| Queenstown      | Helicopters Queenstown Limited   | Helicopter            |
| Queenstown      | CVI Aviation Limited             | Helicopter            |
| Christchurch    | Mountain View Helicopters Ltd    | Helicopter            |
| Christchurch    | Salt Air Limited                 | Helicopter            |
| Pahia           | Murchison Heli Tours Limited     | Helicopter            |
| Richmond        | Cranswick Enterprises Limited    | Helicopter            |
| Tolaga Bay      | Mr B J Comerford                 | Helicopter            |
| Porirua         | Mr B L Cameron                   | Aeroplane             |
| Te Puke         | Milford Sound Flights Limited    | Aeroplane             |
| Queenstown      | Mr A R Cameron                   | Microlight Class 1    |
| Mangawhai       | I & P Stephens                   | Amat Built Aeroplane  |
| Tauranga        | Craig & Laing Partnership        | Aeroplane             |
| Dunedin         | Air New Zealand Ltd              | Aeroplane             |
| Auckland        | Air New Zealand Ltd              | Aeroplane             |
| Auckland        | Heli Lease Limited               | Aeroplane             |
| Taupo           | Aerosport Aviation Limited       | Gyroplane             |
| Cambridge       | Sportcopter New Zealand Limited  | Gyroplane             |
| Blenheim        | Tirohanga Holdings Limited       | Aeroplane             |
| Wellington      | Rural Aerial Cooperative Limited | Aeroplane             |
| Pahiatua        | Azure Ballooning Partnership     | Balloon               |
| Hamilton        | Southern Lakes Aviation Ltd      | Aeroplane             |
| Queenstown      | Mr A Fillery                     | Microlight Class 2    |
| Wellsford       | Tecnam Australasia Limited       | Aeroplane             |
| Papakura        | Mr M Sullivan                    | Microlight Class 2    |
| Temuka          | Zephyr Airworks LLC              | Aeroplane             |
| Wellington      | Hawera Aero Club Inc             | Aeroplane             |
| Hawera          | Miplane Limited                  | Aeroplane             |

|                     |                     |                      |
|---------------------|---------------------|----------------------|
| Balclutha           | Inglewood           | Microlight Class 2   |
| Christchurch        | Christchurch        | Aeroplane            |
| Blenheim            | Blenheim            | Aeroplane            |
| Wanganui            | Wanganui            | Aeroplane            |
| Invercargill        | Invercargill        | Aeroplane            |
| Greymouth           | Greymouth           | Aeroplane            |
| Timaru              | Timaru              | Microlight Class 2   |
| Matamata            | Matamata            | Aeroplane            |
| Mount Maunganui     | Mount Maunganui     | Aeroplane            |
| Whakatane           | Whakatane           | Aeroplane            |
| Auckland            | Auckland            | Microlight Class 1   |
| Pahiatua            | Pahiatua            | Aeroplane            |
| Auckland            | Auckland            | Aeroplane            |
| Mossburn            | Mossburn            | Amat Built Aeroplane |
| Opotiki             | Opotiki             | Microlight Class 2   |
| Invercargill        | Invercargill        | Aeroplane            |
| Hamilton            | Hamilton            | Aeroplane            |
| Ashburton           | Ashburton           | Aeroplane            |
| Mosgiel             | Mosgiel             | Aeroplane            |
| Porirua             | Porirua             | Aeroplane            |
| Wanaka              | Wanaka              | Aeroplane            |
| Wanaka              | Wanaka              | Aeroplane            |
| Hamilton            | Hamilton            | Aeroplane            |
| Papakura            | Papakura            | Aeroplane            |
| Lincoln             | Lincoln             | Amat Built Aeroplane |
| Queenstown          | Queenstown          | Aeroplane            |
| Tauranga            | Tauranga            | Power Glider         |
| Omarama             | Omarama             | Glider               |
| Auckland            | Auckland            | Glider               |
| Kaikoura            | Kaikoura            | Helicopter           |
| Wakefield           | Wakefield           | Helicopter           |
| Taihape             | Taihape             | Helicopter           |
| Wairoa              | Wairoa              | Helicopter           |
| Hammer Springs      | Hammer Springs      | Helicopter           |
| Wanaka              | Wanaka              | Helicopter           |
| Franz Josef Glacier | Franz Josef Glacier | Helicopter           |
| Auckland            | Auckland            | Helicopter           |
| Christchurch        | Christchurch        | Helicopter           |
| Whatareia           | Whatareia           | Helicopter           |
| Christchurch        | Christchurch        | Helicopter           |
| Christchurch        | Christchurch        | Helicopter           |
| Richmond            | Richmond            | Helicopter           |
| Coromandel          | Coromandel          | Helicopter           |
| Wanganui            | Wanganui            | Helicopter           |
| Taupo               | Taupo               | Helicopter           |
| Queenstown          | Queenstown          | Helicopter           |
| Blenheim            | Blenheim            | Helicopter           |
| Gisborne            | Gisborne            | Helicopter           |
| Christchurch        | Christchurch        | Helicopter           |
| Christchurch        | Christchurch        | Helicopter           |
| Masterton           | Masterton           | Helicopter           |
| Matakana            | Matakana            | Helicopter           |
| Methven             | Methven             | Helicopter           |
| Motueka             | Motueka             | Helicopter           |

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06 359 0452 | [sean@fieldair.co.nz](mailto:sean@fieldair.co.nz)



## A large, light-colored wooden biplane is displayed in a museum. The aircraft features a radial engine, a high-wing configuration, and a tail boom. It is mounted on a landing gear with two main wheels and a tail wheel. The aircraft is shown from a side profile, highlighting its wooden construction and structural details.

At time of writing, Greg says the Pietenpol is nearly completed with the final rigging just left to do. He expects to be test flying early in the new year.

|               |     |
|---------------|-----|
| Aeroplane     | W/d |
| Aeroplane     | W/d |
| Microlight C2 | Exp |
| Aeroplane     | W/d |
| Helicopter    | Exp |
| Helicopter    | Exp |
| Helicopter    | Exp |
| Helicopter    | Exp |
| Helicopter    | Exp |
| Jetpack       | Exp |
| Jetpack       | Exp |
| Aeroplane     | Exp |
| Aeroplane     | Exp |
| Aeroplane     | W/d |
| Aeroplane     | W/d |
| Aeroplane     | Exp |
| Aeroplane     | Exp |
| Balloon       | W/d |
| Aeroplane     | Exp |

Add your event. E: [michael@kiwiflyer.co.nz](mailto:michael@kiwiflyer.co.nz)

## A yellow M-G-N trike is shown in flight against a blue sky with light clouds. The aircraft has a high-wing configuration and a large vertical stabilizer with the letters 'M G N' printed on it. A pilot wearing a red helmet and goggles is visible in the cockpit. The trike is moving forward, as indicated by the blurred background.



T H E 2 0 1 8

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