

KiwiFlyer

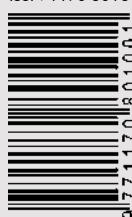
Magazine of the New Zealand Aviation Community

Issue 49 2016 #6



Build Your Own
Rohn DR-107 Project
The Autogyro Revolution
Cessna Citation Latitude Review
Training with the US Civil Air Patrol

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From the Editor

Anyone looking for some summertime aviation reading will be happy with this issue of KiwiFlyer. It's full of interesting articles, even if I do say so myself. I can in fact say that and still remain humble, given that about the only one I've written myself this time is the feature on autogyros. Fourteen different people have contributed content to this issue which has a recreational aviation focus, appropriate for the season.

With a feature on the Cessna Citation Latitude, the magazine this time isn't all about recreation, although after riding in one Auckland-Wellington last month, there's no question that the aircraft provides a far more recreational experience than the usual cattle-class arrangement one faces on such a trip. Grant Benns came along too and wrote the article with his usual enthusiasm and sense of humour, most of it directed at myself. Some editorial revenge has been exacted however – you'll find it an enjoyable read and an interesting taste of how some people do get to fly.

At the polar opposite end of the scale is our feature story on the 'autogyro revolution'. In the last five years the number of gyros on the NZ register has grown at three times the rate of other microlight aircraft. They're still a way off parity of course, but within another six or so months, one in every ten microlight category aircraft in New Zealand will be an autogyro. This shouldn't be too much of a surprise given the numerous turnkey modern variants that have become available. There are also companies that offer full-time professional instruction and whereas once your only chance of solo flight was in your own, now there are modern gyros online at Dargaville and Tauranga which are available for private hire. What was once considered a fringe aviation activity is fast becoming mainstream and it's great to see this happening.

Recreational Aviation is indeed powering ahead. As an example, congratulations are due to Solo Wings at Tauranga for their significant investment in new facilities there aimed at promoting accessibility to, and safety within the recreational aviation sector. That's one of several other articles you'll find later in this edition of KiwiFlyer.

Special thanks are owed to all the contributors for this issue. Some articles simply appeared out of the blue, written by enthusiasts who enjoyed something they had done so much, that they put fingers to keyboards and sent me their story to share. Thank you. As a result, this issue of KiwiFlyer is spilling over with enthusiasm for aviation, just the way we like it.

My very best wishes go to all readers for a Happy Christmas, prosperous 2017, and as always, safe and enjoyable aviating. Have a great holiday season.

Michael Norton

Editor, KiwiFlyer Magazine

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Front Cover: Roger Harris positions his Rihn DR-107 for Gavin Conroy's camera.





BK117 Genesys EFIS STC for Airwork

Airwork (NZ) has received a NZCAA STC for its BK117 Genesys Electronic Flight Instrumentation System (EFIS).

The first helicopter ZK-IWG, operated by Helicopters Otago, has been operationally accepted and has flown a number of missions. Providing customers with a multi-mission IFR helicopter capable of operating in today's complex air traffic environment, the Evolution's standard IDU-450 package includes four high-resolution colour displays, Genesys 3D Synthetic Vision with Highway-In-The-Sky (HTS) Navigation, Geo-Referenced Hover Vector, Helicopter Terrain Awareness (HTAWS), NVIS-A and NVIS-B Night Vision Goggle compatibility, FMS, GPS/NAV/COM and much more.

The upgrade was carried out at Helicopter Otago's facility in Dunedin New Zealand by an integrated operational and engineering team.

"The ability to upgrade one of our helicopters economically with this modern



Helicopters Otago's impressive BK117 panel at night.

technology provides us with a significant increase in operational safety, reliability and the ability to fly routes other helicopters are unable to," says Graeme Gale, Chief Pilot and Managing Director, Heli Otago. In addition to the standard EFIS package a significant re-wire, and replacement of a number of legacy avionics systems provided weight reduction and reliability improvements.

For more information about the STC please contact Simon Williams, Airwork Technical Business Development Manager at: simon.williams@airwork.co.nz.

North Island Heli Safari

Roy Crane of North Shore Helicopter Training has confirmed their 2017 North Island Safari will take place from 24th through 27th February. A night at Rotorua will be followed by the Ohakea Airshow, then on to Hawke's Bay on Sunday and home to Auckland on Monday. He promises the usual "activities and shenanigans" along the way.

Roy's original Safari way back in 2005 was aimed at enhancing private and commercial pilots' experiences in an unknown environment - with the added bonus of flying in an organised group with family and friends, plus "landing at some really cool places to enhance the fun". The very successful event has since run every couple of years with that same motivation. In 2015 two JetRangers, four R44s and an EC120 joined together for an epic trip down through the North Island, across Cook Strait, down the east coast to Wanaka, and then back up the west coast a week later. To get involved, contact Roy on 021 340 654 or email: roy@helitraining.co.nz

NZDF Excellence Award for Hawker Pacific

Hawker Pacific has been awarded the NZ Minister of Defence Award for Excellence in Auckland.

Hawker Pacific was awarded a 5-year 'turnkey' performance based contract with the New Zealand Defence Force in 2012, to

supply and provide maintenance support for four King Air B200 aircraft to 42 Squadron of the RNZAF. Prior to entering service, Hawker Pacific installed a range of modifications to the aircraft to meet operational needs of the Royal New Zealand Air Force.

The Ohakea based Hawker Pacific team work closely with NZDF to maintain the fleet. "We are very fortunate to be involved with such a professional and supportive customer. This award acknowledges the excellence of those 42 Squadron personnel and Royal New Zealand Air Force Ohakea, whom Hawker Pacific work with on a day to day basis," said Maurice Gordon, General Manager New Zealand, Hawker Pacific.

Youth Glide Camp at new Greytown Soaring Centre

Working alongside Youth Glide New Zealand (YGNZ), the newly formed Greytown Soaring Centre (GSC) recently hosted the first of many Youth Glide camps for budding glider pilots.

YGNZ is a not-for-profit organisation providing under 25s with education, tuition and training in all relevant skills necessary for gliding in New Zealand.

Nine students ranging from 14 to 22 years of age attended the camp which was organised by YGNZ Vice President Tim Tarbotton and the previous YGNZ President Jordan Kerr.

Tim said it was a weekend of hard work and determination; "With four gliders and a hardworking team of instructors and supporters we achieved far more than expected; it was successful beyond our wildest dreams. We had three students achieve their winch rating, one student went solo and one student completed their A Certificate. Another four students made great progress towards their solo pilot status. A new record for the most winches in one day was set on Saturday with 39 winch launches and a total 110 winch launches over the three days. Plenty of fun was also had with late night river swims, campfires, and delicious home cooked meals making the event even more memorable."

The Greytown Soaring Centre provides one day Introduction to Gliding courses during summer weeks with club flying and trial flights on weekends throughout the year. From mid-December the Greytown Soaring Centre will operate seven days a week. More information from www soar.co.nz or www.youthglide.org.nz or contact Grae Harrison on 027 442 9337.

WOW Flying Scholarship Winners

Air Force pilot Michael Williams from Feilding and Christchurch-based aerobatic pilot Andrew Love have been awarded the inaugural Warbirds Over Wanaka Flying Scholarships.

Michael and Andrew were selected from more than 30 applicants for the \$5,000 scholarships organised by the Warbirds Over Wanaka Community Trust. Warbirds Over Wanaka General Manager, Ed Taylor, says selecting the winners from such an impressive line-up of applicants was an incredibly hard task; "Our selection panel was made up of five people and every single one of them had trouble getting the field down to an initial short list of ten candidates, let alone the final top four and then our winners."

Ed says the aim of the scholarships is to give pilots more experience in flying Warbird aircraft with the aim that at some stage in the future, they will be displaying at Wanaka and other airshows. "There has been concern in the past at the age of many of our top display pilots but this exercise has convinced us there is no lack of younger people looking to come through the ranks."

Ed says following the outstanding success of the first scholarships the Trust is hoping to be able to award two scholarships every year going forward, funds permitting.

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Second dH Mosquito flies at Ardmore

Following a first flight at Ardmore on September 26th and freighted to the US soon after, the latest de Havilland Mosquito to be produced by the Avspecs team wasn't around for long and didn't fly any displays here, but not surprisingly Gavin Conroy did get invited along for a photo flight or two. Here are a few images from that very first flight to whet reader appetites for the full story that will appear in our February edition. Gavin writes:

September 26 2016 was another historic day at Ardmore when de Havilland Mosquito TV959 roared into the sky in the hands of Dave Phillips (Keith Skilling was in the right seat) following a rebuild that started back in 2011.

Flying closely behind the Mosquito during that first flight was chase plane, Supermarine Spitfire Tr.9 MH367 where I was fortunate enough to have the back seat from which to document this special occasion.

The Mosquito accelerated quickly and it took us some time to catch up. When we did, we flew line astern in close formation to inspect the gear - making sure it was up correctly, the gear doors had closed, there were no oil/glycol leaks, and the list goes on.



A chase plane closely followed the first flight to visually check systems.

Following that inspection Dave performed basic manoeuvres and stalling tests with different flap configurations, and cycled the gear a few times while we flew close by to keep an eye on things.

30 minutes after take-off, Dave returned to Ardmore and finished the flight off with a landing that could only be described as a greaser, an impressive feat considering his last flight in a Mosquito was in early 2013 at the controls of KA114.

After that first flight there were a few minor adjustments made, and the aeroplane then went on to fly three more times for further flight testing and photography purposes. Barely a few weeks later the aircraft was dismantled and shipped to its

new home at the Flying Heritage Collection in the USA.

It was nearly four years to the day (September 27th 2012) that Mosquito KA114 flew for the first time following similar restoration by Avspecs and Glyn Powell's team. To have two flying in such a short space of time is indeed one of the most significant triumphs in the Warbird scene to date. Hopefully local enthusiasts will get to see more of number three.



Dave Phillips at the controls of de Havilland Mosquito TV959 near Ardmore.



UK AeroSPARX Team coming to Wings over Wairarapa Air Festival

A world-renowned display team flying motor gliders with wing-tip pyrotechnic capabilities will make their New Zealand debut at the upcoming Wings over Wairarapa Air Festival. Based out of the UK, the AeroSPARX team will be a spectacular new attraction at the Air Festival being held at Masterton's Hood Aerodrome, 17th - 19th February 2017.

As part of the Wings programme they will perform two daytime displays on Saturday 18 and Sunday 19 February, as well as performing in a special one-off evening show on Saturday 18 February. Business Development Manager for the Air Festival, Yvonne Way, says that this new evening show will feature a different flying programme than during the day, "with smoke and wing-tip pyrotechnics on the gliders painting a remarkable picture in the sky for spectators."

Grob109b motor gliders are used for the displays, modified to perform aerobatics with the team's signature smoke, lights and pyrotechnics. The aircraft's obviously impressive level of glide performance helps add grace to the team's aerobatic display which is led by pilot Guy Westgate. Guy is well-known for introducing pyrotechnic displays into the UK and thrilling crowds across Europe and the Middle East in his stunt gliders, the S-1 Swift and MDM-1 Fox. Accomplished glider pilot Tim Dews flies the second aircraft in the display.

Wings over Wairarapa Chair Bob Francis is excited by the addition of the night show to the Air Festival. "For 2017 we wanted to ramp up the flying programme and bring in new features to keep our loyal fans engaged and to attract new audiences. The night show will have a very different flying programme and with

the AeroSPARX team coming over from the UK for our show, it's going to be a spectacular weekend of flying," says Bob.

AeroSPARX Team Leader, Guy Westgate says the Grob is unique amongst air show types, with special clearance to fly at night. "The Grob109b was one of the first motor gliders built in composite materials where they got the balance between power, weight and wingspan just about perfect," says

Guy. "We have GoPro cameras and the latest 360 cameras to record the action from within the cockpits, so we can provide audiences cockpit footage as well as external shots on the big screens as we carve up the Wairarapa skies."

Guy and Tim's aircraft are expected to arrive in New Zealand at the start of February.

Tickets for the Wings over Wairarapa Air Festival weekend and the one-off Night Show can be purchased at wings.org.nz

Readers can keep up to date with confirmations at the Wings over Wairarapa Facebook page and at wings.org.nz



AeroSPARX use Grob109b motor gliders modified to perform stunning and graceful evening displays with smoke, lights and pyrotechnics. The Air Festival will include an evening show on Saturday 18th Feb.

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Omaka's Dangerous Skies

OPENING to the public recently is the Omaka Aviation Heritage Centre's new World War II building. The centre is of course world-renowned for their World War I 'Knights of the Sky' exhibition, now celebrating its 10th anniversary and displaying an amazing array of exhibits, planes and some extraordinary aviation artefacts belonging to film Director Sir Peter Jackson.

The collection in the new 'Dangerous Skies' display follows on in a similar vein with the aircraft displayed in realistic dioramas. These are tailored to represent scenes where these planes may have found themselves through the various battles and theatres of World War II. There are scenes depicting the Battle of Britain and the bloody Battle of Stalingrad - this extending to an inclusive experience which gives the visitor a sense of scale and an appreciation of the horrors of war - even if the number of casualties are difficult to get one's head around.

A production team made up of paid professionals and passionate volunteers have worked tirelessly over the last eighteen months to bring these stories to life. Jane Orphan, Omaka Aviation Heritage Centre director said "We have some remarkable aviation stories to tell from WWII. Some will be familiar, such as the Battle of Britain, but we are also introducing lesser known stories (in the West) from the Eastern Front and Burma. The aircraft we have for display take the lead but the stories provide the context."

The exhibition includes a mixture of original and replica

machines, one of these being the world's only flyable Avro Anson Mk1 and a Griffon powered Mk.XIVe Spitfire. Once again mannequins from cinematic master craftsmen Weta Workshop are enhancing scenes painstakingly created by talented local artists.

The majority of the planes in the new building are privately owned and are able to fly. They have performed to large crowds at the superb Classic Fighters airshow, conveniently held just a few hundred metres away at Omaka airfield.

The opening of Dangerous Skies signifies the completion of Stage Two of a multi-stage development and is the result of years of fundraising and planning. This is a joint venture between the Omaka Aviation Heritage Centre and the Ministry of Business Innovation and Employment (MBIE). The support of the Rata Foundation, Marlborough District Council, Marlborough business community and dedicated volunteers have been integral to the success of the project.

Both the Heritage Centre and the Classic Fighters airshow are world class. The innovation and enthusiasm of this small aviation community means a visit has been a must-do for the last decade - and is even more so now. Congratulations are due to all who are involved there.

To find out more, contact the Omaka

Aviation Heritage Centre on 03 579 1305, e: info@omaka.org.nz, visit www.omaka.org.nz or better still, go for a visit. The centre is located at 79 Aerodrome Road, Blenheim which is about 5 km from town and sign-posted from State Highway 6.



The beautifully presented Avro Anson, K6183, is the only air worthy Mk.1 in the world. Behind the Anson is a Hurricane in a lot of trouble; however its Kiwi pilot was more fortunate and is depicted (upon parachuting to safety) being offered some refreshment by a lady at a party he dropped in on. This Hurricane scene depicts an actual event during the Battle of Britain.



The Stuka replica gives the visitor an idea just how big this famous aircraft is!



A shiny Kittyhawk gives off a somewhat eerie feel in a moonlit forest setting.



Lydia Litvyak stands with the Yak-3 in a frozen Stalingrad scene, the ruins of the city glowing in the background. She was the first woman fighter pilot to shoot down an enemy aircraft, but failed to return from a mission in 1943.



Spitfire Mk. XIV, NH799, served with both the RAF and the Royal Indian Air Force and is now part of the locally based Chariots of Fire Collection.

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Building Your Own

Rihn DR-107 One Design

A few years ago now, Roger Harris and Simon Paul mentioned to Gavin Conroy that they were going to build an aircraft together and had settled on the DR-107 One Design. Likely similar to many KiwiFlyer readers, Gavin wasn't too sure what a DR-107 actually was. He soon discovered it to be quite an interesting aircraft. The story of building it is equally interesting, with Roger and Simon's experience being equal parts of reality check, and encouragement for anyone contemplating similar. Certainly the result speaks for itself and is something of great satisfaction and pride for its builders. Gavin recently revisited the aircraft with an air-to-air photo shoot which prompted this article for KiwiFlyer. He introduces the project thus:

WHEN Roger and Simon said they were going to build a DR-107, I have to admit to having no idea what a DR-107 was and as you would, I congratulated them on this adventure.

Simon was flying WWI aircraft and thus I wondered if it would be like a Fokker Dr.1. But it wasn't! Turns out the DR-107 One Design is a high performance aerobatic aircraft with a seat for one, capable of +/-10G and with a roll rate of 360 degrees per second.

The DR-107 was the brainchild of Dan Rihn from the USA, the idea being to build an economical aircraft that could be entered in aerobatic competitions to fly against others of the same type - with winning being defined by skill rather than who had the best plane.

The Pitts Special had been popular for years but when aircraft like the Cap 202, Extra 300 and Sukhoi 26 started appearing on the scene, the Pitts began to show its age. These monoplanes had a lot of power and amazing manoeuvrability - but they were expensive and that ruled out most recreational pilots, many of whom were

flying the Pitts and wanted to move to a more modern design.

Once the International Aerobatic Club got behind the idea of the single aircraft type category, (One Design), the DR-107 became the aircraft type to be used. The type had to be low-cost but able to perform advanced and unlimited aerobatics. Dan was the man for the job. He had flown for many years and was a respected aircraft designer who came up with a stunning performer.

Subsequently and perhaps sadly, the One Design class never really took off but the aeroplane did become popular with recreational flyers wanting a high performance aerobatic machine, including several who have beaten pilots flying the newer more expensive types.

Thanks to Roger and Simon's efforts, there's a solitary Rihn DR-107 One Design on the New Zealand register. Roger picks up the story of how their project came to be:

LIKE more than the occasional aircraft acquisition these days, the story of our DR-107, ZK-XSG started innocently enough, with a little browsing on Trademe. A set of plans popped up and this led to a bit of research into the origins of the design. This made for interesting reading. Of mixed construction (wood, 4130 tube, fabric, and some fibreglass) this is an aircraft that was designed for a single-type aircraft class for aerobatic competition, able to be built on a relatively small budget (compared to the modern high performance machines such as Extras, Giles and so on). But budget should not imply any lack of performance, as it is rated to +/- 10 G and able to hold its own against some much more expensive types. Designer, Dan Rihn, also has a very good pedigree for things aerobatic, having designed a number of highly modified



Roger Harris and Simon Paul's completed DR-107 One Design, ready to go.



Recipe for fun: fly at 160 kts, climb at 2000 fpm, manoeuvre at +/- 10 G.

Pitts Special type aircraft, including Spencer Suderman's 260 hp Sunbird S-1X which was used to break the inverted flat-spinning world record recently.

So, with possibly a mix of naivety and excitement the plans were secured.

Recognising that estimated build times for plans-built projects are generally wildly inaccurate, I knew a co-conspirator would be necessary. Long-time friend Simon Paul became a partner in the project and together we worked through possibly the most important part of the project... the plan. We both thought we were probably only ever going to build one aeroplane and because of that, it should be done right. Add in the fact that I have an Aircraft Engineering background with colleagues who could potentially be quite critical at times, and it was obvious that certain standards would have to be maintained! To that end consideration had to be given to ensuring that the finished product was built for maintainability - for example, bits had to be able to be removed without the need to disassemble the whole aircraft and the use of self-tapper screws was to be substituted for screws and anchor nuts. We also looked at the best personal balance to maintain building pace within our budget and timeframe. This saw a number of items bought rather than made, such as the engine mount, canopy and turtle deck assemblies. After all, we wanted to be able to enjoy the fruits of our labour before age prevented it. Other items, such as the engine, prop, undercarriage, brakes and avionics obviously were also going to have to be bought.

Specifications and Planning

When considering the engine and propeller, we had decided that following the 'do it once, do it right' philosophy, we were going to order a new engine. A lot of options were looked at and in the end an IO-375 (205 hp) from Aerosport Power was chosen. This would probably be considered a step up from the prototype, as it had an IO-320 (160 hp), but many that have been built are currently flying with well in excess of 200 hp. Then looking at the propeller, maintainability and lower ongoing costs were factors considered when settling on a locally made wooden fixed pitch option from Brent Thompson. Brent was very enthusiastic towards our project and built us a prop that met our requirements and produced the performance he quoted.

Early on, searches of the internet turned up a number of contacts with fellow builders and pilots. Like a lot of modern aircraft designers and kit manufacturers, the One Design has a very good forum which acts as a database of knowledge for builders and pilots alike. The forum proved to be a really helpful resource, made even more so by Dan Rihn - himself regularly contributing to the forum and more recently via Facebook. With the volume of data available on the internet, some of it often conflicting, it was refreshing to receive advice from the man who designed the aircraft and whose father had owned and flown the prototype. It was also quite humbling to receive congratulations from Dan when we finished building and had flown his design!



More than 130 feet of 4130 tubing went into the frame, seen here ready for basic fit-out.



Roger and his daughter Claudia fabricating sheet metal in the workshop.



Canopy & turtle deck fit-up, with canopy closed. The engine is a 205 hp IO-375.



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Building underway

As the aircraft combines a number of different materials and construction methods, Simon and I were able to play to our own skillsets a little. This saw Simon focusing on the building of the wing and ailerons, with their all wooden, plywood skinned construction, while I took on the building of the fuselage with its 4130 tube truss structure and other systems (avionics, engine installation).

We had initially considered having the fuselage truss structure welded overseas but quickly ruled that out due to the costs involved. This saw us purchasing quantities of 4130 tubing and knocking up an assembly table in my garage. A tube notcher was bought, tubes cut and the skills of Stewart Ward employed to do the welding. Bearing in mind that quality welding was what would be required to produce

a fuselage capable of withstanding the design loads, this was no place for an amateur to be learning the ropes. An interesting side note is that it takes 11 lengths of 12 ft 4130 tubing to produce a fuselage and tail feathers for an aircraft that measures less than 12 ft from firewall to tail post!

Meanwhile, Simon was busy producing the numerous wing rib jigs required to produce the ribs, and working with Wayne Tantrum to laminate the significant main wing spar. This has to be one of the beefiest and most impressive spars to be seen on an aircraft of this size, as it is 10 inches deep and comprises 5 laminates of

spruce, each of 3/4 inch. It definitely leaves you in no doubt of its ability to handle the +/- 10 G rating. A feature of the wing in the leading edge which sees 2 layers of 3/4 inch spruce laminated together and fixed to the front of the wing ribs. These are then contoured to a D shape to form a very strong leading edge section

which, though not a spar in the true sense, contributes immensely to the overall strength of the wing. The rear spar is of slightly lighter construction.

Once the skeleton of the wing had been pieced together and the Fuselage truss fully welded, the day came to trial-fit the two together, align the wing and install the two special wing bushes to the main spar. This was an interesting exercise, as once the wing and fuselage had been aligned with a 2 inch diameter bush sitting inside a 2 1/2 inch hole in the main spar, epoxy resin was used to fill the void between

the spar and bush. This may sound like a crude set up and is more than a little messy to get done, but is completely effective, especially when considering that the bushes have a large square section thread cut into them to provide plenty of surface area for the resin to key into.

Following the wing alignment, it was back to our respective garages. Wings and ailerons had to have all the fittings mounted in them prior to the application of the final wing skins. This saw the manufacture of aileron bell cranks, push rods and aileron hinges. With the aileron hinges, we did deviate slightly from the plans and



Wing alignment complete.

had these machined by Tony Wytenberg of Classic Aero Machining Services. Aluminium conduits were also installed inside the leading edge to allow for wiring to be run through an area that would end up being completely sealed, hopefully never to see the light of day again.

The wings and ailerons then had the plywood skins glued in place and finally a layer of fibreglass applied. Many hours were then spent applying and sanding filler to create a surface that would result in an imperfection-free finish. There are a few characteristics of the wing design that are worthy of note here, as the wing is symmetrical with tapered leading and trailing edges and it also tapers in thickness from the inboard to outboard. It also is completely flat from the main spar through to the trailing edge and it is this point that in some ways simplifies construction, but enables imperfections to be very apparent.

The fuselage meanwhile, spent a long period of time buried in my garage while all the 'details' were worked through. These included manufacture of the firewall assembly, the making of the external aluminium panels between the firewall and the rear of the cockpit, the trimming and finishing of the canopy and turtle deck... The list was very much longer than this and was very time consuming. It must be said that although the plans provided proved to be very good, there is an assumption made that the builder will finish the fit-out to his/her liking - so it was a case of applying

best practice to the avionics and the engine installation. Fortunately there is a wealth of knowledge available on the internet as long as one is able to weed out the fact from the fiction or fantasy! It was only once everything had been mocked up and we were confident in the knowledge that no more little tabs would require welding to

the fuselage truss, that the fuselage got painted.

As the aft fuselage and empennage assemblies are all fabric covered, these had to be completed prior to final painting. Again, Wayne Tantrum provided some much appreciated advice and assistance on this front.

Painting of the fuselage was a major milestone in the project, as it meant that items could finally be fitted and not need to be removed! It also proved to be a learning curve for me, as once the big mechanical bits such as the engine were installed and the likes of

the fuel and brake systems sorted, I needed to get stuck into the electrical side of things.

The instrument panel is probably best described as minimalist, having only a MGL Odyssey EFIS, MGL V6 Radio and small number of switches to look at. But behind the scenes there was a lot to be sorted. Our new engine is monitored by a full array of sensors, and the GPS is integrated into the EFIS, as is the transponder. Designing and installing avionics is not my forte and whilst it proved to be a challenging learning curve, this phase of the project was also quite rewarding.



Off to Omaka to join the wings.

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ZK-XSG DR-107 One Design Specifications

Crew:	One
Length:	17 feet 0 in (5.18 m)
Wingspan:	19 feet 6 in (5.94 m)
Empty weight:	740 lb (336 kg)
Gross weight:	1,150 lb (522 kg)
Fuel capacity:	19 US gallons (72 l)
Engine (XSG):	(Lycoming) IO-375 by Aerosport Power (205 hp)
Prop (XSG):	2-bladed fixed pitch wood by Brent Thompson
Max speed:	160 kt
Cruise speed:	139 kt
Stall speed:	55 kt
Rate of climb:	2,000 ft/min
Range:	326 nm
Service ceiling:	22,000 ft
G limits:	+/-10 G

With painting and as many finishing touches as possible completed, we were able to move fuselage and wing to Omaka for final assembly on the 18th of April, 2014. This was followed by the first engine run on the 23rd and a weight and balance

on the 24th. With the assistance of Jay McIntyre of JEM Aviation, the paperwork and aircraft were readied for inspection by CAA and this final hurdle was completed on the 13th of May.

Preparation proved to be the key for this final inspection and things went very smoothly. With an Experimental CoA in hand, the first flight was made with Simon at the controls, on the 17th of May 2014 and so concluded what had turned out to be a five-year project. This journey would have been much harder without the assistance of a number of highly talented craftsmen that helped us, either hands

on or with advice, along the way. If I have missed any names, my apologies to you.

The next project

With the passage of time over the course of the build and subsequent flying, circumstances have changed considerably. An aircraft hasn't been the only addition to the family and now with a 6 year old daughter who enjoys flying (I know, it's my own fault!), a single seat aircraft is



MGL EFIS and radio dominate the otherwise minimalist panel.

no longer practical. Previously, access to multiple seat aircraft via the local aero club has been easier than it currently is, so it is now necessary to find a more practical family-orientated aircraft.

We have therefore made the tough decision to sell the DR-107. As they say, our loss, your gain, etc. Enquiries are welcome and contact details are listed in the advertisement to the right.

For Sale Rihn DR-107



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Kevin Conroy



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A word from Tim Harrison of Sports Aircraft New Zealand Ltd.

I discovered Sling in 2013 and from my initial flight I knew we were onto a winner. With the arrival of the first New Zealand Sling 2, ZK-SLG, we delighted many prospective owners with demo flights. One was Jonathan Bowen, Director Oceania Aviation and his response got me thinking. What better than to get Oceania Aviation on board and use their sales and service expertise to make a quantum leap forward. My first advert description: Light and responsive together with well co-ordinated controls makes this the perfect platform for modern flight training. Wide and comfortable cockpit with the latest Garmin G3X creates an environment which prepares students for the future. Rotax 912 power ensures economy and reliability which together with a robust and strong airframe makes for high utilisation with no hidden surprises.

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750nm / 1400km Range at 75%

Sling 4

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115HP / 86kW
4 Seats

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15,000 ft Max Operating Altitude
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Take Every Opportunity - Make your Degree Work for You

Profiling Charlotte Webby - from BAvMan to CAA Policy Advisor

Often, careers are chosen based on having a general interest in something – for example aviation. Further study in that career direction then not only helps refine the selection of a particular area of the interest, but also leads to a qualification which places one well up the list when it comes time to apply for employment opportunities.

Becoming the chosen person from all the applicants for a particular job however, doesn't happen because you were lucky. Rather it tends to happen for people who have consistently made the most of their training and who have taken numerous smaller steps via any opportunities that might help lead to the greater goal.

Charlotte Webby, Bachelor of Aviation Management graduate, is a perfect example of someone who never let an opportunity go past and who made the most of her time at Massey University.

Anke Smith, Manager Business Development and International Programmes for Massey University's School of Aviation, provides an overview of the study and work path Charlotte undertook and which has led her into an important role and career with NZCAA.

Charlotte completed a Bachelor of Aviation Management (BAvMan) from Massey University in 2011.

While studying Charlotte said she enjoyed the Human Factors courses and took some Special Topic papers in the field of Aviation Psychology and Sleep and Fatigue. This then led to a post-graduation opportunity with the Sleep Wake Research Centre in Wellington, on a study to validate ultra long-haul flights. An introduction to research methods during her BAvMan studies helped Charlotte gain an understanding of the project and what was expected of her during that time.

At the end of her first year at Massey University Charlotte was given the opportunity to undertake a short internship at Jet Connect Ltd. This provided her first insight as to what it would be like to work in the airline industry. She said she really enjoyed this experience as it helped her broaden her understanding of the aviation industry during her subsequent courses at Massey University.

Outside of her busy study schedule with the School of Aviation, Charlotte joined a student organisation called AIESEC, whose main activities are youth leadership and international exchange. They provided her with some very practical business skills that she was



Charlotte airborne north of London in 2014.

able to apply to her studies - and vice versa. She was then given the opportunity to move to Mongolia where she ran an NGO (Non-Governmental not-for-profit Organisation).

In Mongolia, Charlotte's role encompassed many different responsibilities, but primarily 'people development'. Her team comprised of an international work force – all living in a foreign country, so having some background understanding of the typical behaviours and personalities of different cultures certainly helped prepare her for operating in such an environment.

During her undergraduate degree Charlotte studied papers such as 'Aviation Strategic Management' and 'Managing Cultures in Aviation' which assisted her enormously with that role. She says that "I found that knowledge gave me some idea of how to manage an ever-changing and growing organisation, as well as how to plan effectively."

From there Charlotte spent time travelling, working in different countries in a variety of roles including project management, copy writing, sales, and marketing. She also spent time in a role where she was responsible for the global policy development for AIESEC.

During her time in her many and varied roles she was exposed to different cultures and management practices and so learnt to be very adaptable and to pick up new concepts quickly. It was these skills, she says "coupled with my background and interest in aviation which helped me to get my position at the Civil Aviation Authority as a Policy Advisor." At the CAA she gets to work on a wide range of projects and engage with technical experts to help make sure New Zealand's skies are safe and that the country has a thriving aviation industry.

Charlotte is currently enrolled part-time in the Master of Aviation course at Massey University.

For more information

The dynamic, global aviation industry presents huge opportunities across many spheres for well-educated and entrepreneurial graduates such as Charlotte. Aviation 'buffs' with the passion to succeed in an exciting industry should contact Anke Smith at Massey University on 0800 MASSEY for more information, or visit: www.massey.ac.nz/bavman

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I STUDIED A BACHELOR OF AVIATION MANAGEMENT I AM A HIGH FLYER





Life in the fast lane with a Cessna Citation Latitude

Back in October, Hawker Pacific toured a Cessna Citation Latitude business jet through New Zealand and kindly invited KiwiFlyer along on an Auckland-Wellington leg of the flight. Given the Latitude places somewhere on the scale between resident KiwiFlyer test-pilot Grant Benns' usual mounts of Giles G202 aerobatic plane and Airbus A320 airliner, Grant was the obvious person to send along for the ride. And given your KiwiFlyer Editor's seemingly remote odds of future opportunities to travel in a luxury business jet, I tagged along too. Grant's article is seeded with his usual aviation enthusiasm and humour – notably directed at myself, but two can play at that game. Baron Benns writes:

HERE'S a first - or a few 'firsts', actually.
... The first business jet review for KiwiFlyer, although don't take this to mean KiwiFlyer is leaving its grassroots behind. We just thought you might like to see how the other half (of 1%) gets to fly.
... The first ride in a biz-jet for the rotary-wing flying KiwiFlyer Editor, Lord Norton of Ardmore.
... My first flight in one too. The professional pilot route in NZ rarely involves biz-jets, as there are so few in our little country compared with Oz, the USA and Asia.

Another slightly odd 'first' is that this is a flight review that doesn't actually involve flying the plane, sadly - although I was allowed a few brief minutes 'up front' during the cruise, so long as I didn't touch anything (my reputation



Grant (Baron) Benns looking like he does this all the time.



"What's that Adam?" "It's called a fixed-wing Lord Norton."



Approaching Wellington. Watch for the hole at 200' Steve.

obviously preceded me!). Therefore, my flight review comments for this article are based on observations, predominantly from sticking my head up between the pilot seats from the luxury of the forward cabin seat. Helpfully, the Cessna demo pilots - Steve Onslow and Luke Scott, all the way from Wichita, Kansas - were a mine of information and proudly happy to answer all my questions about their baby.

We have Chris Barry from NZ Cessna distributors Hawker Pacific, to thank for this taste of the high-life. Chris facilitated the short-notice seats from Auckland to Wellington on this aircraft's brief 2-day visit to NZ. N613CL (Citation Latitude?) is number 20-something off the production line and first flew early this year. A few years in development, type-certification was achieved in 2015. Having now delivered over 40 airframes, the order book is growing rapidly. One US 'fractional ownership' operator has ordered 25 with options on 75 more.

Our particular aircraft is racking up the air-miles as it travels the world on a 3-month demonstration tour, this trip being through Australia and on to Asia and China. Spotting an opportunity to perhaps find a customer or two in New Zealand, clearly Chris had heard of the magnificent Lord Norton's desire to trade-up into something a bit more flashy that would complement his globe-trotting lifestyle. (No idea what Grant's talking about. Ed.)

Reading about the Citation Latitude, I have learned that it is a 'Super Mid-Size'



Seating for 9, capable of 446 KTAS and 2700 nm depending on load, in quiet, spacious luxury at FL420, for US\$16.8m. This is indeed a great way to travel.

business jet, defined by weight (30,000-40,000 lbs), seating capacity (9-12 pax), speed (400-460 kts), range (2700-3600 nm) and price (US\$17-26m).

The people at Cessna, and in particular traveling Regional Sales Director Adam Triolo who was with us on the flight, take pride in the 'value' proposition of the Latitude, priced at \$US16.25m. It can comfortably seat 8 (9, if somebody wants to sit at the rear on the umm... bathroom seat), can fly 2800 nm with 4 small passengers and two small pilots (454 kg total payload at max fuel) and has a comfortable 6-foot tall cabin (in the middle, of-course) and a fully flat floor - a first for a Cessna biz-jet. They have achieved this by taking the wing and some major components from a larger Cessna model called the Sovereign+ and building a new, enlarged fuselage.

By keeping the wing the same and the systems similar, the aircraft shares its type-rating with the Sovereign+ which would be handy if you have one of each. Actually, it would be very handy for large 'flight departments' that have multiple jets and dozens of pilots to rate and keep current.

Whilst not the speediest biz-jet around, the large, relatively unswept wing gives great take-off and landing performance and this is one of its prime selling features - the ability to get into smaller

airfields and thus enabling shorter point-to-point travel without the need to only go to large airports which may be more distant from 'down-town'.

The eight cabin seats (let's not count that rear seat for take-off - actually most likely the cabin-attendant's seat) include four in a club-seating arrangement that face each other, all beautifully trimmed and with ornate fold-out tables. Lord Norton certainly looked very comfortable sipping his Moët (it was lemonade, Ed., and as I recall Baron Benns was looking pretty comfortable in wealthy toff mode too) as we climbed to 26,000' en-route to fame and glory. Opposite the air-stair entry door is a comfy bench seat for two, which is where I sat for take-off and landing so as to get a better view of the pointy end. Facing sideways did create a different sensation, especially given the light weight and rapid acceleration we experienced for the light-weight take-off. In terms of range, the Latitude eats the Tasman and can do Auckland to Singapore with just one stop, or get to LA with two stops. Okay, stopping for gas is a bit of a pain, so clearly this 'Super Mid-size' is more about 4-5 hour flights - Trans-Continental or Trans-Tasman rather than half-way around the world. For that you will need to go big - a Gulfstream 650, Global 6000 or Falcon 8X, all around the \$US60m mark.



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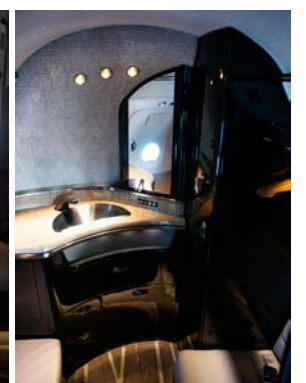
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How fast? How far?

The Latitude is quite a big step-up in size from the local population of Cessna Citations, most commonly the 6-seat Mustang of which there are four on the NZ register. (There are in fact some 80 Citation variants across both the NZ and Australian registers.) Apart from the physical size difference, range (1200 nm vs. 2800 nm) and speed are the other main differences, with the Mustang moving along at 340 kts compared to 440 kts maximum for the Latitude. Speed does come at a cost, however - you can't go 2800 nm at 440 kts (about Mach 0.80) and thus will have to slow back to around 380 kts to get the best range. Without a doubt the legroom is a bit different, but I did a quick comparison of efficiency between the Latitude and my normal mount, the Airbus A320, and found the Latitude to be a bit of a gas guzzler... kind-of. Burning around 1500 lbs per hour, at 380 KTAS (Knots True Air Speed) the 9-seat Latitude goes about 2.5 nautical miles per pound of fuel, per passenger. The 171-seat A320, burning around 4400 lbs per hour and cruising at 440 kts goes about 16 nautical miles per pound of fuel, per passenger. The A320 is over six times more efficient, although that is mainly because of the head count. To get the numbers the same, the A320 would have to seat just 23 people - now that would be luxury! This is probably not a very fair comparison (sorry Cessna), but if nothing else it shows how jets get really REALLY efficient as they get bigger, and why airfares are so much more expensive for smaller planes going smaller distances.

Inside and out

Numbers, numbers! What about the cockpit, says you - the wanna-be biz-jet pilot? Well, if you have flown any Garmin 1000-equipped aircraft you will feel quite at home. The Latitude has the big-daddy version of the G1000, called the G5000, and as you would expect is set up for two-pilot, long-distance IFR flight. Three large 14" display screens dominate the panel, with four smaller touch-displays shared between the pilots for control and display of additional information. Seemingly, anything can be placed anywhere - almost - although the Primary Flight Display information (speed, altitude and attitude) always stays in front of each pilot. Engine displays are typically on the centre screen, but this can be squeezed down in size or even transferred to another display to free up space for flight-plan or chart displays.

The control displays are very 'icon' driven, and my 13 year-old would adapt very quickly to the tablet-style interface. In fact, from



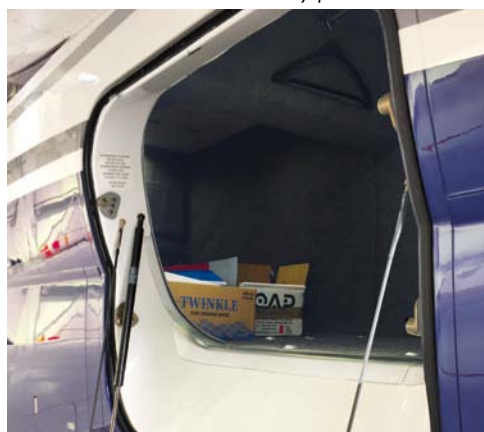
That shape may have something to do with efficiency, but also it looks very good indeed.



Plenty to see here including double pushrods on control surfaces and sturdy trailing link undercarriage..



Almost 12,000 lbs of Pratt & Whitney thrust, plus the usual central auxiliary power unit.



Plenty of baggage space, capable of holding up to 565 kg of travel necessities, or shopping.

what I could see the whole setup looked very intuitive and quite a bit more simplified than the G1000, which has been around for a while now. It always surprises me just how far ahead of the airline industry GA (General Aviation) has moved. Even the latest Boeing and Airbus models don't have this level of interaction and still rely on clunky buttons and keyboards for most of the data input. Blame 'type commonality' for this.

The rest of the cockpit is very cleanly laid out, with all controls coming nicely to hand. What surprised me was the manual flight-controls, with the only hydraulically-assisted control being the spoiler system. I guess I was surprised because I figured a jet this size, capable of doing over three-quarters the speed of sound, would need some hydraulic assistance to keep the control forces sensible, but obviously this isn't the case. Through the careful use of gearing and control tabs, even a 14000 kg jet can be flown on human muscle alone.

A walk-around of the Latitude shows some interesting features, most of which are typical of biz-jets but certainly a little different from what you see on your usual aero-club mount.

The wing is long, sleek and quite low, a benefit of having high, rear mounted engines. The graceful curve of the wingtips is undoubtedly there for aerodynamic efficiency, but I suspect aesthetics has just as much to do with it - they look great.

The low wing also enables a very sturdy and short trailing-link main undercarriage to be used. This layout is generally quite flattering to the pilot when landing.

The various tabs on the control surfaces have double pushrods, most likely for security and rigidity, as flutter at 400 kts wouldn't be pretty.

Unlike the T-tail of many biz-jets, the Latitude has a cruciform design akin to its big-brother Citation Sovereign+. Beneath the rudder is the exhaust for the APU (Auxiliary Power Unit) - a small gas-turbine engine that supplies high pressure air for ground air-conditioning and engine starting.

Two large strakes are fitted on the aft-lower fuselage, most likely to tame or improve low-speed and/or stall characteristics.

Just forward of them, on the port side and beneath the engine, is the access door to the rather large baggage locker - Lord Norton doesn't travel light - capable of holding up to 565 kg of his bullion. (There's some bull-something going on here, but he's right - there's plenty of space. Ed.)

The engines are made by Pratt & Whitney and put out a maximum of 5907 lbs of thrust each. That's almost 12000 lbs

total, for a plane that has a maximum take-off weight of 30,800 lbs - a very handy thrust-to-weight ratio, as was demonstrated on our full-thrust (and much lighter-weight) take-off from Auckland... yeah baby! Looking down at the disappearing runway from our

perceptibly rather steep deck angle, we could imagine the pilots lining up behind in the Beech looking at each other - Whaaat was that?, they were saying.

The main selling feature of biz-jets is the comfort of the interior. It's very comfortable! By placing the engines well behind the cabin, much of the noise is effectively 'left behind' and this how it felt during our flight. Conversation in the cabin was easy and the engines were certainly super-smooth. Looking in the rear of the engines it is evident there has been plenty of effort made to mix the cold-air of the fan and hot, high-speed air coming from the engine core, in an effort to reduce the typical roar of a jet - a well-proven technique.

Adam says the Citation Latitude is quietest-in-class. Combining that with large windows for natural light (as well as the view) and a cabin altitude of only 5000 feet at FL420, pretty much assures that passengers will always arrive at their destination refreshed and ready for work, or play.

Speaking of play, en-route we asked Adam how common it was

for owners to be rated on the aircraft. It depends on the region - in the States it's considered 'cool' to fly your own biz-jet, but in the Philippines you'd be laughed at. Business jets in NZ and Australasia are most commonly privately owned, but run and flown by management companies.

Auckland - Wellington, in style

Watching the pilots set up the flight plan in the Garmin 5000 system then brief the departure for our flight to Wellington had elements of familiarity for me (the route and charts) mixed with elements of wow - the ability to quickly and easily push and pull data, information and Jeppesen 'plates' around the various screens. The system also allows for quite a bit of personalisation, either by the pilots or to a standard 'company' set up, in the

way information is presented across the different displays.

Our flight south departed runway 23L at Auckland Airport at 8.30am, with the aforementioned max performance take-off. Although the rate-of-climb wasn't as spectacular as I expected, settling at about 3500 feet per minute, it was the angle and relentless pull that made it impressive - we crossed the end of the runway climbing through 3000' feet and crossed the edge of the Manukau harbour going through 8000'. Our final cruise altitude of FL260 was reached in rapid time, although what should have been a quick



Garmin G5000 offers three 14" customisable displays. Note the four in-built 'tablets', all very intuitive and quite ahead of any new airline offering.



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trip to Wellington was slowed by ATC asking us to enter a holding pattern to the northwest of Paraparaumu for five minutes due to congestion ahead.

Subsequently, we left the hold and continued with radar vectors for a bumpy and windy approach (who would have thought?) onto runway 34. Neither Steve nor Luke had experienced Wellington on a bad day before, but they - and the Latitude - took it in their stride for a very nice touchdown and surprisingly short landing.

The big wing of the Latitude, and resultant low approach speed of not much over 100 kts, coupled with effective reverse thrust, ground spoilers and four meaty main-wheel brakes, gives the aircraft great short-field performance. Stopping in about half the available length, we turned left directly into the apron area in the front of the imposing ExecuJet hangar facility.

We descended the Latitude staircase and were warmly greeted by ExecuJet staff, as was the aircraft which was soon attached to a remote controlled tug and towed into their cavernous hangar.

By now Adam and Chris had realised they'd have to trade-in something with rotor-blades and pistons if KiwiFlyer was going to buy one, so they excused themselves to attend to business with alternate customers - leaving us to ponder our experience and hitch a ride back to Auckland in the back of an Airbus. Thanks guys - it was great while it lasted!

Grant Benns

For more information

For all Cessna aircraft enquiries in New Zealand contact Chris Barry at Hawker Pacific on 027 808 3335, email: chris.barry@hawkerpacific.com More details can be found at www.hawkerpacific.com or www.cessna.txtav.com



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Training with the US Civil Air Patrol

Earlier this year Murray Miskelly earned the opportunity to attend the Training Academy of the US Civil Air Patrol. He had an excellent time there, met many new friends, learned plenty, and wrote a fascinating account of the experience for KiwiFlyer readers, as follows:

AS PART of the recognition of being awarded "Coastguard New Zealand Volunteer Of The Year" for my work with the Northland Coastguard Air Patrol (NorthCAP) I was given the opportunity to attend a personal development course of my choosing.

Previous Air Patrol volunteers who had been given the same opportunity had opted to attend a training academy in the United States, run by that country's Civil Air Patrol. I therefore started investigating that event to see if it would benefit me, and also to find out about the Civil Air Patrol (or CAP).

Like our own Coastguard Air Patrol, CAP is an organisation of volunteers, but in their case they are closely aligned with the country's Air Force, and get funding through that connection. They have over 8,000 members nationwide, and they operate the largest fleet of Cessna aircraft globally with over 550 branded aircraft, predominantly C182s, but also C172s, C206s, and 8 Gippsland Airvans. They run a very rigid structure with each State operating as a 'Wing' comprising of any number of Groups, which in turn comprise of several Flights.

Each Wing holds its own training events, but the most important is a two-week National Emergency Services Academy run in July each year near Indianapolis, Indiana. The Academy operates with a separate intake of students for each of the two weeks. The attendees come from a wide variety of backgrounds and can choose

from a variety of courses run at the Academy. NESA is split into the ICSS (Incident Command System School), GSAR (Ground Search & Rescue School), and MAS (being the Mission Air School).

Given my work as a pilot with NorthCAP I opted for the Mission Air School. I found that this was also divided into streams for Mission Scanner & Photographer, Intermediate Pilot & Observer, Aircrew Survival Course, GEIIP Operator (real time photo & video downlink systems), and Advanced Pilot & Observer. Having read the synopsis of each course on the NESA website I felt that the

Advanced Pilot course would be of most benefit. With that in mind I contacted Lt. Col. John Desmarais—the Head of Operations for CAP—who in turn put me in contact with the person running the Mission Air School—Lt. Col. Eric Templeton. I enquired whether as a non-national I could attend the training, and if I was able to participate in the advanced stream. The feedback was very positive, as previous attendees through Coastguard NZ had obviously left good impressions with the CAP operation.

Signing up for Civil Air Patrol

Eric informed me that to attend the course I would have to be a signed up member of the Civil Air Patrol, and that would entail doing a number of induction training courses available online. In addition, as CAP get involved with assisting many national organisations in the US I would have to go through the FBI vetting process.

While this was going ahead I started looking at the possibility of not only attending the school, but maybe to get 'stick' time while I



Murray Miskelly about to carry out a sortie in one of the CAP fleet.



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was there, so I approached the US Federal Aviation Administration to see about if I could get my New Zealand CPL validated for use in the US. My initial communications with FAA indicated that such a process could take between 45–90 days once they had confirmation from our own CAA that my licence was current & valid. As it was just over three months to the commencement of the school I was worried about this not happening in time, so I phoned CAA directly and was given information as to what correct forms needed to be completed for the NZ end of the process. I completed the online form, submitted it to CAA, and got an automated reply that the process could take ten business days. (My mental arithmetic put resolution at 10+90 days, or after the academy had started).

The next morning, I had an email from CAA saying that my form had been validated and had been dispatched to the FAA, and fourteen days later I had an email back from the FAA saying that my application had been successful, and I would have to have an interview at the Indiana Flight Standards District Office to complete the process. My faith in bureaucracy has been reinstated.

I amended my travel details to spend my first night in the US right beside Indianapolis International Airport, so I could visit the FSDO.

The adventure begins

So with all the pre-planning done it was a matter of biding my time until the day of departure came, when I headed off on my adventure enjoying the comforts of our national airline. Due to timezone changes I was due to leave Kerikeri at 5:30pm, and arrive in Indianapolis at 11:30pm on the same day (admittedly after a fair few hours travelling), but due to aircraft malfunctions for the last leg I didn't get to my destination until 2am.

Early the next morning I struggled to the FSDO and put on my best persona for the interview. This must have been good enough, as an hour later I walked out with the ink drying on my temporary US Pilot's Licence.

I contacted the NESA administration to let them know I was in town and ready, and they despatched a CAP van to pick me up and drive me the 40 minutes south to Camp Atterbury, where the Academy was being held.

Camp Atterbury is a fully operational army base where US troops are assembled prior to deployment. This was an introduction to armed forces facilities as seen on television—platoons quick marching down the road, followed by a convoy of Hummers, and the occasional Military Police patrol passing by.

CAP had access to a few of the barracks areas for administration, and for housing the cadets who were participating in the Academy Schools. The older members were housed in the Visiting Officer's Quarters, or VOQ. I was given a tour of the 'CAP Designated' area before being transported about 30 minutes away to Columbus Municipal Airport—the base for the Mission Air School.

When organising to attend, I had asked what previous NZ's had done for accommodation, and had followed their precedent and booked a hotel room at a nearby town of Edinburgh. As it transpired I was the only attendee staying there, which meant my nights were quiet, and though I could studiously read the required materials I felt a bit isolated. If I redid my trip I would prefer to have stayed at the VOQ—equivalent accommodation, with the rest of the crew, and a quarter the price.

As I arrived on the Friday I was able to watch the last day of the first week's intake as they completed the final exercises in their



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Initial briefing at the Mission Air School.



Traffic signs at Camp Atterbury.



Other traffic hazards at Camp Atterbury.



The 'dungeon' flight planning room.



The snack table in the dungeon was kept well stocked to keep one's blood sugar level up.


Left: Lt. Col. Eric Templeton
Right: Lt. Col. John Desmarais

individual syllabi. Most of this was administration and planning carried out in what became affectionately known as the dungeon, or bunker. I found that Indiana is one of the States that regularly has tornadoes go through so buildings are built with a room that can act as a tornado shelter. At the airport one such room that was below ground level acted as the central planning room. Once each crew had completed planning their sortie they moved onto the apron and into the 40° heat. Here CAP had assembled a fleet of 20 aircraft from the nearby wings. Again most were Cessna 182s, but there were a couple of 172s, 206s, and a Gippsland GA-8.

I finally got to meet with Eric Templeton—the camp Commandant. He was very interested that I had been issued with a US Pilot's licence, but pointed out that there was another layer of bureaucracy and requirement to fly a CAP aeroplane. I would be required to sit an 'Initial Form 5' flight check. The Civil Air Patrol is recognised as training at FAA standards, so their Form 5 check is equivalent to our Biennial Flight Review, and the initial check is like a hybrid with a BFR and PPL flight test. After completing the ground syllabus and test, I was able to complete the Form 5 check and get certified as a 'CAP VFR Pilot'. This enabled me to complete the NESA course as pilot in command of the exercises.

I then found that even though I was the fourth Kiwi to attend the NESA Academy, I was the first to get anointed as a CAP Pilot.

Training commences

Most of the ground training was conducted at Purdue University, adjoining the airport facilities. As it was semester break the Mission Air School had access to many of the rooms and lecture theatres. At the morning briefing held in the main lecture theatre I heard reference to the necessity to check the 'P' chart during the day and prior to departure. Given the high temperatures I naturally assumed that this meant we would be required to calculate take-off and landing distances using a Performance Chart. It took me a while to realise this was actually referring to a 'Pee Chart' to ascertain your hydration level by the colour of your urine.

After the day's ground tuition, we migrated to the airport terminal to start sortie planning in the 'dungeon'. CAP run a very tight program with every flight requiring a full sortie briefing to be prepared, and for that to be audited by a flight release officer prior to getting to the aircraft. This process alone took some getting used to, with five pages of details (in duplicate) requiring completion each time. One of these sheets was a 'Thermal Stress Evaluation' form—NESA is held at the height of summer, and in the Indianapolis area this meant temperatures approaching 40°C. Every flight also required each crew member to take a bottle of iced water with the for rehydration.

Flying activities were conducted out of Columbus Municipal Airport. This was an ex-military field having been built during WWII for training and staging for departure. It was built with two large perpendicular concrete runways. This meant that it was available in all wind directions. It was a controlled field, and I had to get used to the American radio terminology early on in the training. CAP aircraft have specific designators made up of their Wing (State), and aircraft number. I would call in "CAP Flight forty-two twenty-seven on the ramp with the numbers" meaning I was ready to taxi, and had listened to the ATIS. No read-back of the QNH, or persons on board, and if the air pressure was given it was in inches of mercury.

I might have had a hard time getting to understand the controller's accent and phraseology, but I had to have some

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sympathy for him, as in our course he had to deal with a Czechoslovakian, a Scotsman with a broad accent, and me. Initially there seemed to be a pause between each part of the communications as we each had to 'translate' what we were hearing, but by the end of the week on landing I was hearing "OK Kiwi, take the first left and return to the ramp via Alpha and Delta". I guess he had got used to me.

The Advanced Course: GPS SAR flying

The advanced course was structured around the use of installed GPS units for accurate Search & Rescue pattern flying. In the CAP fleet there were a number of different GPS models in use, so we were being schooled in the Garmin GX55, the Garmin G400, and the Garmin G1000.

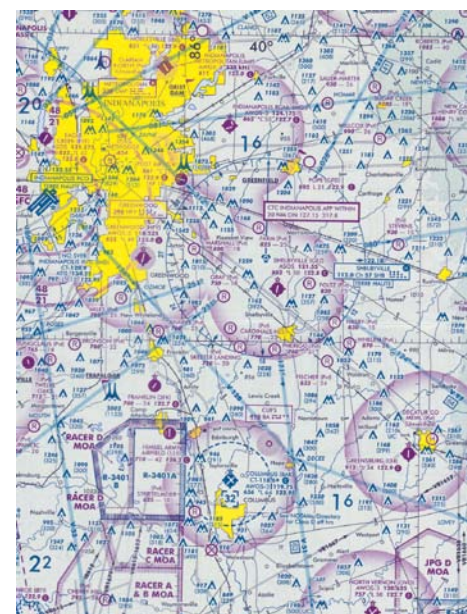
Depending on the type of search required there are different methods of approach; if a target has gone missing on the way between two points we may initiate a 'route search', if an approximate location is known for the target a parallel line search covering the area may be more appropriate, or if a probable point of location is known then a sector search may be required. Each pattern has a specific use, and the ability to fly them accurately both ensures that the required area is covered, and gives the on-board observers the greatest chance to cover the search area completely.

CAP have their own 'grid mapping' system for the United States, dividing the country into 30 minute by 30 minute grids which are further subdivided into 15 minute by 15 minute quadrants. When planning parallel line searches this was again divided into half giving a 15 nm by 7.5 nm search area. Once an appropriate search pattern has been chosen, entering it into the specified GPS unit needs to be as efficient as possible, especially if the location is transmitted to the aircraft transiting to the search area in rough weather.

The method of flying the patterns with the GPS involved setting an initial course on the unit, and then using cross-track (XTRK) error values to parallel the required track. Required track spacing was 1 nautical mile. At close range (sub 10 miles) the XTRK values are presented on the GPS display in 0.01 nm increments. It became a challenge to fly the patterns with the XTRK not exceeding 0.01 from requirement—implying no more than 60' away from path, and coupled with that we were flying at a nominated height $\pm 20'$ at 110kts. Maintaining the correct speed was also important both if using the plane as a platform for continual aerial photography (one of the tasks that CAP get called on to do), but also when turning, by using a Rate 1 turn we had a turning radius of very close to 0.5 nm, meaning a return track was at the required spacing. There were discussions of the combinations of airspeeds and angles of bank needed if the required track spacing was different (30° at 100 kts for a 0.25 nm radius, 45° at 92 kts for a 0.125 nm radius).

Cell phone forensics

One of the more modern search requirements is what was known as 'cell phone forensics'. Cell phone towers have a number of 'receptor panels' that pick up transmissions from mobile phones. In the case of a missing person or aircraft having made a cell call it is possible to ascertain which of the panels on a cell tower received the call. This can narrow down the location of the cell phone to a 60° arc from the tower. Coupling that with the maximum range each tower can reach phones (about 8km) gives a maximum limit away from the tower to start the search. From there a search pattern can be established with two OBS bearings to the cell tower to give radial limits of the pattern. This is similar to flying repeated DME arcs with steadily reducing radii.



Indiana sectional chart. MAS was conducted from Columbus, lower mid centre of the chart.



An instructor's private aircraft, a Ryan Navion.



Some of the CAP fleet picketed on the apron.



As well as a large aircraft fleet CAP have a comprehensive ground fleet for support and ground searching.



A fleet of nearly 100 vintage Cessna aircraft assembled at Columbus as a staging post for Oshkosh.

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Extra stop offs

As I was a 'foreigner' and appreciated seeing a bit of the country, for each of our sorties (rather than flying to a designated training area to complete the required exercise and return) the instructors for the advanced school got me to plan two sorties each time and to schedule a mid-sortie stop off at some of the many small airfields that dotted the mid-west. Each of these airfields was run by an 'FBO' (fixed base operator) who would come out to the plane on shut down to offer fuel, refreshments, and most often bearing a complimentary bottle of iced water. It was quite heartening to meet people with a genuine affection for aviation, and most were surprised at the strange accent emanating from the 'CAP crew'.

The week drew to a close too rapidly, and I was faced with completing all my training to the programme. The advanced class completed our training on the Friday afternoon, so arranged a bit of a social gathering at the Service Club at camp Atterbury. For this I had to request a designated driver to come and pick me up, and afterwards drop me back in Edinburgh. As always there was no problem getting any of the team to go out of their way for me.

Graduation surprise

This brought us to the Saturday graduation ceremony where all those who had completed the syllabus received awards and certificates. This ceremony was held in full uniform for CAP members, but as a foreigner I had dispensation to wear NZ Coastguard uniform. Along with other pilots from the Advanced Pilot School I was presented with my certificate of achievement.

Then Lt. Col. John Desmarais - the Head of Operations for CAP took the podium and started calling out individuals for outstanding achievement. I wasn't paying close attention, but one

of my classmates prodded me and said I had better return to the front as I had just been named top graduate of the Advanced Pilot School. I was presented with the coveted Distinguished Graduate Medal, and given the offer to return to the School any time. Maybe not Top Gun, but I guess it's the closest I will ever get!

On that high, after the ceremony I returned to Columbus airfield with some other members who were not returning home immediately, and assisted in disassembling the Mission Air School base, and preparing it for storage for the next 50 weeks. Eric Templeton approached me and said that after consultation with my instructors he had authorised an additional CAP rating for me, and I was now signed off as a CAP Transport Pilot. When I enquired why, he gave me a task briefing to deliver another CAP pilot to an airfield to the north of Indianapolis, and then to return to Columbus. This required a full knowledge of the local 'Sectional' charts—a tad more cluttered than our VNCs! So, there I was a week after stepping on US soil flying solo cross-country through the built-up areas of Indiana.

It was a great trip. I learnt some excellent methods and applications relative to my Coastguard role and I made many great friends while there. It was a wonderful opportunity, and I must give heartfelt thanks to Coastguard NZ, the Civil Air Patrol, and to Lt. Col. John Desmarais and Lt. Col. Eric Templeton who facilitated my attendance. My only regret is that I couldn't do what many of the other instructors there were doing, and move straight from the Academy to attend Oshkosh the following week to continue the aviation experience. Maybe next year...

Big congratulations from KiwiFlyer Murray and thanks for sharing the story. There will surely be high expectations for the next participant!



Alpi Pioneer 300 Kites Available Now

ACQUIRING a new aircraft often requires placing a large deposit and then waiting for the overseas factory to build it, then waiting for the ship to arrive, then waiting again while it is customs-cleared, assembled, certificated and test flown before delivery to its patient new owner. That's not the case at Alpi Aviation NZ who has two Pioneer 300 Kites in stock and available now for summer flying.

Both are 100 hp Rotax 912 powered, one with a carburetted ULS engine and the other with a fuel-injected iS variant.

Owner of Alpi Aviation NZ, Logan McLean says there are currently 46 Alpi Pioneer aircraft on the New Zealand register, about evenly split between the 200 and 300 models. The 300 Kite is the non-retractable gear version of the 300, providing a cruise speed of 120 kts (stall is at 35 kts), a climb rate of 1000 fpm, and a range of 480 nm. Empty weight is 315 kg and max take-off is 560 kg.

Although most are privately owned, several Pioneers in NZ are utilised in training roles. Two such examples are ZK-LPA and ZK-LPK, both operated by the Fiordland Aero Club. President and Senior Instructor Murray Hagen says that two years ago the club decided to purchase new aircraft. They had been using two Pioneer 200s which were "extremely capable as a trainer and cross-country club aircraft". He adds, "Logan had been meticulously servicing our aircraft and although we initially enquired about purchasing a new 200, Logan suggested that a 300 Kite may be more ideal for our requirements. We went ahead with the purchase of LPK which came with the fuel-injected engine option. This aircraft now has 150 hours of new pilot training in its logs and has exceeded our expectations. LPK is a very stable platform with a solid feel on the controls and responds very well to trimming - ideal for training. The stable stall and 120 knot cruise inspire confidence for our new trainees who in fact have got on so well with the aircraft that we are now using it for all aspects of our training programmes."

An Instructor's view

Rod Hall-Jones instructs in the Pioneer 300 Kite and although he points out that his microlight flying time is limited to a few hundred hours, he does have many thousands of hours flying General Aviation fixed-wing and helicopters over a 50 year period, most of it whilst earning a living.

Rob writes: "Alpi's Pioneer 300 in my view is an amazing little aircraft and far superior to any General Aviation trainer. It has a constant speed prop, a fuel-injected engine (smoother running and no carb icing), and also comes with a retractable undercarriage as an option for those that need a little more speed.

The engine is run and monitored by two computers who talk to each other. If one starts telling lies, the other will take over and keep things turning. I do note that a standard magneto switch has unfortunately been used for the computer switch so GA pilots

must resist the urge to check 'mags' on run up as that could cause problems!

Elevator and aileron trim is standard, and rudder trim is fitted (but is an option) should you want to control it from the cockpit.

Being a microlight, the aircraft has very little inertia which can work in the Instructor's favour if a student messes up a landing and it's a case of 'there I was with nothing on the clock...'. All the Instructor has to do is firewall the throttle and you're off like a startled cat!! In comparison a GA aircraft would fall from a great height before inertia could be overcome!

It would be very easy to write a small book on this great little aircraft but suffice to say it is very fast and a marvellous little trainer. It's also very noticeably more stable than Alpi's Pioneer 200, making it easier to train and instruct on."

For more information contact Logan on 027 490 1553, email: jenandlogan@xtra.co.nz

www.alpiaviation.co.nz



Logan McLean hands the keys for LPK to Murray Hagen and Ian Remnant of the Fiordland Aero Club.

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The Autogyro Revolution

COMING up five years ago, in one of our regular KiwiFlyer autogyro articles we noted that if you filtered the NZ aircraft register for microlights and the separate category of 'gyroplanes', there were around 1040 aircraft altogether in those groupings. 80 of those (or about 1 in 13) were autogyros. Today's numbers are about 1150 aircraft (a 10% increase) and wait for it... 107 gyros. That's a 34% increase. Roughly 1 in every 11 microlight category aircraft in New Zealand is now an autogyro. Anyone who used to be attracted to the sport because not many people had one, will soon have to think of an alternative motive to keep their interest.

Such motives aren't too difficult to find though, because autogyros are without question, tremendous fun to fly. And whereas 15+ years ago they were mostly of the build-it-yourself agricultural variety, now you can buy turnkey European imports with full enclosures, adjustable seating/controls, cabin heaters, leather, and just about any other appointment you care for. Modern designs and flight training practices have essentially overcome the dreaded push-over and rotor stall troubles that plagued some of the earlier 'commercial' designs, and where it was rare to find some of those aircraft with more than 100 hours on the hobbs (for good reason) now there are numerous types with thousands of hours of trouble-free flight logged.

It's fair to say that something of a revolution has occurred and that applies not only to the aircraft available now but also to the training environment.

15 years ago there were barely a couple of rated instructors in the country. And there were barely a handful of two-place dual-control aircraft on the register. Many people were still being trained in their own single-seat gyros following the (actually exceptionally good) Bensen syllabus, watched over by one of the said instructors on the ground with a hand-held radio (if indeed the aircraft had one fitted too).

Today there are numerous autogyro instructors dotted around the country and a vast (comparatively) array of sophisticated two-place machines to train in. Indeed, many newcomers to the sport these days start 'at the top' with one of these turnkey tandem or side-by-side two-place gyros. Those (good old?) days of evenings in the shed for a couple of years cutting and drilling aluminium from a set of plans are all but gone.

Evolution / Revolution

In the 1950s and 60s 'gyrocopters' were popularised by Igor Bensen's kitset designs and aforementioned do-it-yourself learn to fly manuals. There are still 5 Bensen's on the register today. The NZ Rotorcraft Association was formed in 1960 and later became the NZ Autogyro Association.

For the next 20 years, gyros registered in NZ were built from plans or basic kitsets, or simply by copying someone else's and adding 'improvements' along the way. The only commercially produced gyro during this time was the McCulloch J-2 which

offered a limited jump take off capability using the equivalent of a Hughes 300 rotor head. There is still one on the NZ register, located at New Plymouth.

In the early 90s, a radical new design appeared on the scene. This was the Rotor Flight Dynamics Dominator. Initially ridiculed for its gangly looks and strange tall tail, this gyro was the first of a new breed designed for dynamic stability with principles of flight foremost in mind, something that had not been well attended to by most other manufacturers of the time.

The other popular gyro of the 90s was the fully enclosed

RAF2000, a design much improved by Rob Sanders from Tauranga when he added a horizontal stabiliser and promoted this significant safety feature worldwide.

Then it was the turn of Magni Gyros in Italy to assume dominance in gyro sales around the world. Similar designs soon appeared from ELA in Spain, and Auto-Gyro in Germany – the latter having a particularly well-tuned product and marketing programme from which they have quickly become the world's leading gyro manufacturer today.

Autogyros are arguably the fastest growing sector of recreational aviation at this time and as would therefore be expected, there are numerous other manufacturers appearing in the market. Existing and potential gyro pilots are spoiled for choice. There is indeed a revolution taking place.

Why fly one?

Oh the fun to be had... (ok, there's an editorial bias here – I've owned an Autoflight Dominator for about 15 years now).

Autogyros are highly manoeuvrable aircraft and flying one is often likened to riding a motorcycle in the sky. Indeed a good many of those attracted to the sport have been, or still are, active motorcyclists.

Gyros are very resilient to turbulence and can fly relatively comfortably in conditions which would ground other microlight aircraft.

By definition, gyros are safe aircraft. They cannot stall and can be flown through a wide performance envelope from zero airspeed all the way to 100 kts (depending on type). At zero airspeed, a gyro simply enters a fully controllable vertical descent – albeit that might be at 1000 fpm depending on power settings.

Most gyros will maintain straight and level flight at an airspeed of between 15 and 25 kts giving the opportunity to entertain oneself by pretending to hover - assuming equivalent wind is available to play in.

And gyros are mechanically quite simple, having nowhere near the complexity of helicopter control systems – all thanks to their fixed-pitch, free-wheeling rotor system.

With a sufficiently powerful pre-rotator, take-off distances are very, very short, and a competent pilot can flare to a spot landing with little or no ground roll.

Autogyro flight control is straight forward and relatively easy



M24 by Magni Gyro Italy



Calidus by Auto-Gyro Germany

to master. This is helped by most modern gyros being designed for dynamic stability, though unfortunately this has not always been the case and novice pilots do need to understand the stability characteristics of their particular machine if they are to avoid handling problems.

Lastly, a plug for my favourite configuration: There's not much better than looking down at the ground between your feet in an open frame gyro on a warm summer's day. As with motorcycling, you'll feel like a part of the machine you're operating. It's a moot point as to whether you're strapping yourself in the seat, or strapping the gyro onto your back.

For more information

To find out more and go for a flight (consumer warning – addiction may follow), contact any of the people listed on the next few pages.

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Autoflight Dominator Gyros

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If the freedom of flight imparted by an autogyro appeals, then you won't find more freedom than that offered by Dominator gyros, produced in New Zealand by Autoflight in Hamilton, under licence to Rotor Flight Dynamics in the USA.

Rotor Flight Dynamics are the original producers of gyros designed for true dynamic stability. The low thrust line, tall tail, and largely open frames are all there for very sound aerodynamic and safe-flight principles. So are the Dragon Wings rotor blades, also produced by Rotor Flight Dynamics. Dragon Wings are made of bonded aluminium, manufactured in the same manner as certified helicopter blades, but designed specifically for their autogyro application to be light (but tip-weighted for inertia) and correctly twisted for optimum performance in auto-rotation. Two versions of the blades are now available, the 'Cruiser' option having heavier tip weights.

Single and two-seat (tandem) Dominator models are available, with or without nose-pods and windscreens.

Engine options include Rotax 582 / 912 / 914 or Subaru conversions which

Autoflight also offer as a specialty with in-house manufactured gear reduction drives. (As an aside due to numerous requests, Autoflight will be producing new batches of 4 port EA81 heads in 2017).

Anyone sampling a range of gyro models before deciding what to buy, will find that nothing flies with the light control forces and manoeuvrability of a Dominator. A second stand-out advantage is their low cost compared to the 'European' offerings, and the fact that most of the aircraft you purchase will have been made in New Zealand.

Autoflight currently have single-place frame components in stock and ready to assemble. Contact Neil Hintz for more information on 07 824 1978, email: nckm@wave.co.nz or visit:

www.autoflight.co.nz

Dargaville Aero Club offers Gyro Training and Private Gyro Hire

Dargaville Aero Club is situated alongside the Northern Wairoa River opposite Dargaville township. NZDA has parallel compacted limestone and grass runways, both around 1000 metres in length. A nearby road bridge provides a convenient connection to the town which is well supplied with a wide variety of excellent restaurants and coffee bars.

Dargaville is a delightful area in which to train and fly. There are no landing fees, airspace is completely uncluttered, and west coast beaches as well as the Kaipara Harbour (famous for great fishing) are nearby. As well, Dargaville Aero Club members are well known throughout the flying fraternity for their friendliness and willingness to help aspiring aviators.

Basic short term accommodation can be arranged with the club for those happy to bring their own bedding, and low cost motel accommodation is available within a short distance.

The club is famous for its Saturday lunches which it has been turning on for around 40 years, attracting recreational flyers from near and far.

The other very notable attraction at the club is its flight training offer. Both practical and theory training (based on the PPL syllabus), are provided absolutely free of charge. All instructors are volunteers and the only cost to students is to reimburse the club of operating costs for the club-owned aircraft. Club officials are quick to point out that this is not a scam (it's a common initial reaction). All the club expects is a genuine commitment to learning to fly.

Approximately two years ago the club commenced autogyro training using a German MTO Sports machine owned by a club member, Rusty Russell. This proved so popular that a decision was made by the club to purchase its own new machine of the same type. Rusty has been appointed as the club's gyro CFI and works alongside club CFI (fixed-wing), the inimitable Murray Foster who has trained hundreds of Private, Commercial, and Ag. pilots over many years. Rusty is already a highly experienced instructor with over 1000 flight hours in his gyro logbook.

Private gyro hire

After reaching an approved solo stage in their training, student club members may then fly solo in the club gyro. Dargaville Aero Club was the first training provider to offer such an opportunity, the only other option previously being that students would transition to their own aircraft once solo time arrived. Even better, upon attaining their full gyro licence, club members may use the club gyro to take their friends and family members for flights.



For more information

Contact Dargaville Aero Club on 09 439 8024 or 0274 784 308. email: dargavilleac@callplus.net.nz Visit www.dargavilleac.weebly.com or: facebook.com/DargavilleAeroClub

The Kallithea from Niki Rotor Aviation

Gyrate NZ has recently become the New Zealand distributor of the new Kallithea Gyro from Niki Rotor Aviation in Bulgaria. This is a fully enclosed tandem seat model powered by a Rotax 912 and features great visibility as well as all the other characteristics that are making gyro flying the highest growth area of recreational aviation worldwide. Tony Unwin formed Gyrate more than 15 years ago and has trained hundreds of pilots from his Tauranga base during that time. Tony writes of his new aircraft as follows:

"...once you have tasted flight you will forever walk the earth with your eyes turned skywards..." This quotation, attributed (like so many) to Leonardo da Vinci, says it all for those of us lucky enough to have tasted flying, but why is that? Is it the freedom it gives us, is it the ability to see the beauty of the world from a different aspect or is it admiration for those who fly so much better than ourselves, the birds?

Kallithea is translated from Greek to mean 'best view' and certainly it is arguable that this aircraft gives just that but it also offers the qualities of freedom and agility that we admire of others in the sky.

I first saw a Kallithea at the Niki factory in Pravets, an hours drive north of Sofia, the Capital of Bulgaria, in 2014. I was impressed by the passion for aviation bursting out of a small team of engineers armed with the latest Computer Aided Design and laser cutters but also backed by craftsmanship and expertise with various materials - stretching back generations. My own 20 years of gyroplane experience immediately identified that I was in the company of researchers who had looked at the work of others and selected the best ideas from our widespread industry.

The result is a gyroplane with the normal attributes of stability and safety but enhanced by smooth handling and the 'best view' you could ask for. The bodywork is all carbon fibre allowing curves that catch the eye but also provide structural strength.

Compliance testing is well advanced to the German standard while also seeking to conform to the requirements of the UK BCAR's section T.

The rotor blades have been provided by Tercel Aviation of Poland and are very capable. They spin up well and fly smoothly with only light inputs required. The controls are via flexi cables and the pre-rotator is a flexible shaft driven through a traditional pulley clutch system. Less traditional is the foot operated pedal activation for it. Breaking

with tradition again the rotor brake is a disc with a braking system borrowed from a bicycle. Weighing in around 300 kg, the Kallithea needs some power and initially I was not impressed by the take-off performance achieved by the installed Rotax 912, however when we introduced a 3 kg, six bladed E-Prop propeller from Southern France we exceeded the take-off performance I expect from a 914!

Arriving in New Zealand last month, this first of type was quickly passed through the CAA system and has started to turn heads wherever she goes. First observers have remarked on the quality of finish and the smell of 'new car' leather from the hand stitched upholstery. Is the 'best view' looking out of or looking at Kallithea?

For more information

Visit www.gyrate.co.nz or contact Tony Unwin on 0800 FLY A GYRO.



Propellers that Perform or your money back!

When something new comes onto the market, especially if 'special' performance claims are made, it can be a difficult task to convert non-believers into early adopters. But what if the deal comes with a six-month, no quibble money-back guarantee? That's the case with the latest offering from Helices E-props in France, represented in New Zealand by Tony Unwin's company Gyrate at Tauranga. Tony writes:



The innovative six bladed Excalibur propeller from Helices E-prop provides a significant thrust increase that may save you from that engine upgrade you were considering!

This particular prop is designed for Rotax 912 and 914 engines in pusher configuration. Over the last few months we've installed it on six different types of gyroplane in New Zealand and measured similar amounts of static thrust improvement each time - around 18% at full power! In Europe it is used on UAVs, weight-shift trikes and a raft of different gyroplanes, with the leading installation now having over 4500 hours use.

Construction is all carbon fibre which gives a weight of only 3.1 kg and by clever chemical injection, an almost indestructible leading edge. Understandably the company is having to expand production beyond their current figure of 7500 blades per year and new machinery and staff are coming on line for 2017. Modern quality control systems include bar-coding all components to ensure that their crucial fine balance limits are maintained and you will notice less vibration and a lower noise footprint as a result.

If you aren't operating in a pusher configuration please do check the website:

www.e-props.fr/16/welcome.php

There is a vast range of propellers available for different applications, all with six-month no quibble money-back guarantees. You may well consider it worth trying a state-of-the-art product with local support. Gyrate holds the six-bladed Excalibur in stock and sells at the European factory price +GST. Other models are just a FedEx away.

Contact Tony Unwin on 0800 359 249.



Fly Italian Style Magni Gyro - The Original

Vittorio Magni has been building autogyros in Italy since 1987 when he first created his VPM Gyro range, later becoming Magni Gyros in 1996. If you think those dates (and the fact that many of the so-called 'modern' autogyro types look a lot like Magnis) suggest that Vittorio was the originator of the modern gyro design style, then you're quite correct.



M-22 Voyagers

With history, experience, and very well proven durability and safety on its side, Magni Gyro currently produces four different autogyro models. These are the M14 Scout, M16 Tandem Trainer, M22 Voyager, and M24 Orion. All but the Orion are tandem configuration two-place machines, and all are present on the NZ register except for the Scout which offers a 1+1 seating configuration rather than the two-place dual control arrangements of the others. The Orion is Magni's flagship model, offering fully-enclosed luxurious side-by-side seating for two. It is available produced to BCAR Section-T spec if required.



M-24 Orion and M-16 Trainers

Magni Gyros are loaded with all the features now expected of modern recreational aircraft, but also adhere to traditionally proven aircraft design and manufacturing techniques such as having a 4130 chromoly steel welded tube frame – known for lightness, corrosion resistance and (most importantly in a rotorcraft environment), fatigue tolerance.

Power options are from any of the Rotax 912 / 914 range and avionics can be easily configured to owner requirements.

Magni Gyro is represented in New Zealand by Leo Levine, operating out of Parakai Airfield near Auckland. Leo has more than 2300 hours of gyro time in his logbook and also holds helicopter ratings.

Pricing is competitive, particularly considering the brand's history and proven durability – and as an added bonus, Italian Style is included for no extra charge.

For more information on any of the Magni models or to arrange an introductory flight, contact:

Leo Levine on 021 0284 2049

leo@magnigyro.co.nz www.magnigyro.co.nz

One-Stop Sport Aviation at AeroSport

About Aerosport Aviation Ltd.

Aerosport Aviation distributes Light Sport Aircraft in New Zealand and Australia. After 14 years in aviation we are developing a unique One Stop Shop for Sport Aviation where you can visit and try our range of Gyro and Fixed Wing Aircraft at our Head Office in Hamilton.

Aerosport's own Aircentre is situated just 4 nm from Hamilton Airport offering, accommodation, hangarage and flight training options - allowing customers to fly in and out of our 450m grass runway at any time.

We work closely with the Solo Wings Aviation Centre at Tauranga Airport. The synergy between Solo Wings and Aerosport provides Sales, Training and Maintenance Services that deliver Total Aviation to anyone with the aspirations to enter the sky and fulfill their dreams to fly.

Aerosport Aviation offers three incredible gyroplane models from AutoGyro of Germany – the Cavalon, Calidus and MTOsport.

Fly away now! We have a unique policy of holding gyros in stock which are ready for immediate delivery!

About the AutoGyro company of Germany

AutoGyro is the largest manufacturer of gyros worldwide, producing more than one aircraft per day with distributors in 30 countries. Everywhere in the world "made in Germany" is a recognised quality seal and AutoGyro meets this standard every day. With a production depth of up to 95%, AutoGyro develops and produces its gyroplanes and the numerous parts directly in Hildesheim. All are equipped with world-renowned Rotax engines.

FAA Certification

AutoGyro is the only gyro manufacturer with USA FAA Type Certification (Part 23 Primary Category achieved on December 5th 2016). This is a significant recognition by the FAA as to the quality and manufacturing processes of AutoGyro products. As of this date the Calidus models may be sold in the States as fully-assembled direct imports from Germany.

Full replacement Factory Insurance offer

AutoGyro is the first and only manufacturer to offer a Factory Insurance-Style Package.

Customers purchasing a new AutoGyro (starting build year 2016) can be provided with an optional Extra Guarantee, providing cover in case of accidental damage or even total loss. We call it TPM or Total Peace of Mind. This Platinum Extra Guarantee is a new way of extending the complete AutoGyro experience to owners/pilots for whom traditional insurance is either unavailable or prohibitively expensive.

For more information contact Anton on 021 289 5999,
email: anton@aerosport.co.nz or visit www.aerosport.co.nz



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Calidus - High Flyer

The innovative Calidus has unique monocoque composite design and engineering. Prepared for diverse demands and weather conditions, the Calidus copes easily with turbulence. Its tandem seating configuration offers speed and agility in complete comfort with a panoramic view.



Cavalon - A New Era

Entrancing and captivating: From her distinctive gull-wing doors, to the ergonomically designed and crafted interior, Cavalon simply looks right - a magnificent machine. Advanced construction delivers lightness, strength and style while the spacious side-by-side seating allows pilots to share exhilarating moments with their passenger.

Fly away Now!

Aircraft are in stock!



Solo Wings Aviation Centre

Sales - Training - Maintenance - Accommodation at Tauranga Airport

EARLIER this year, Colin Alexander and Norma Kelly opened their new Solo Wings Aviation Centre at Tauranga Airport. A complementary operation to the well-known and respected Solo Wings Maintenance facility, the Aviation Centre occupies prime TG Airport real estate opposite the main airport entrance and terminal. It's an endeavour intended to promote accessibility to recreational aviation in all its forms, both for locals and out-of-town visitors.

With a view to creating a 'destination', the Aviation Centre offers not only aircraft sales and a very broad spectrum of training from currency to CPL in multiple types, but also pilot supplies, activities for non-flying visitors, accommodation including a loan vehicle, and of course access to the Solo Wings maintenance facility just around the corner. Here's a summary of what's on offer:

Flight Training

Part of Colin and Norma's vision for the Aviation Centre was to create a welcoming environment that people could come and learn in – whether to brush up on currency for summer or a big trip, or for ab-initio tuition in their own or an Aviation Centre aircraft, or indeed for full CPL training in LSA or GA aircraft. These offers extend across a wide variety of types on-line which include amphibian, fixed-wing microlight / LSA, open-cockpit and enclosed autogyros, plus Cessna 150.

Chief Flying Instructor Lawrence Robinson is widely experienced with over 34 ratings in his logbook. A self-confessed aerobatic addict, Lawrence achieved his CPL, Multi-Engine Instrument Rating, and Instructor Rating all by the age of 21 in South Africa where he also spent time commercially crop-spraying using autogyros and light sport aircraft. He also holds aerobatic, night, and spinning instructor endorsements. Lawrence says his advanced experience (often spraying out of short mountain strips)

means he can offer in-depth training and impart knowledge to ensure students can fly safely, well beyond any situations they should ever find themselves in.

Passionate about aviation and supporting others to achieve, Lawrence says he will always do his best to help, however required. As an example, a recent student hadn't flown for two years and arrived with two weeks before his PPL exams expired. Working together for up to 12 hours a day saw a PPL accomplished before the deadline, to smiles all around.

Lawrence says that all pilots (including microlight) are trained to a PPL level to ensure they develop a high level of airmanship before their supervision period ends.

All enquiries for training are invited. With a strong ethic of promoting safety, the team is very happy to hear from 'seasonal' aviators who would like to spend an hour or two refreshing their skills and confidence both for

hands-on flying and other aspects of aviating such as weather / charts / radio, etc.

Recreational Aviation and More

The mission of the Aviation Centre extends well beyond flight training. Colin is passionate about recreational aviation and sees the Centre as a means to share the fun of flying with the general public as well as existing aviators.

The facility is much more than just a hangar. There's a pilot lounge and visitor facilities, a large first storey deck that looks out to the Tower and runways, the NZ Pilot Shop is onsite, and for entertaining pilots or those remaining after they've gone flying, there is a serious 'CombatSim' Flight Simulator to 'play' on. This is a fully immersive 3D experience with users wearing 3D Oculus glasses to pilot all manner of aircraft available on the 'flightline'. A second connected simulator is about to be installed and a third is on



An Auto-Gyro Cavalon outside the Solo Wings Aviation Centre.



Cessna 150



SeaRey Amphibian



Pipistrel Alpha

order. On the entertainment side these will provide for magnificent dogfight engagements. They also have the potential to support normal and formation training programmes.

Certification for Part 115 Adventure Aviation operations is underway with the intention to then offer flights in the MTO gyro, SeaRey amphibian, or Pipistrel Alpha. An L-39 Albatros will also be available.

With Classic Flyers Museum and Café just a few metres down the road, it's easy to see Tauranga Airport becoming a destination for both ground and airborne aviation experiences.

Accommodation

As well as the pilot lounge for visitors in transit, the Aviation Centre includes an accommodation facility. 'The Propeller Pad' is a complete home away from home including a fully equipped kitchen, air-conditioning, TV and internet connection. There's a bedroom with queen sized bed and lounge with sofa and pull-out bed, and a view of the airfield too.

A loan vehicle is available making a perfect set-up for visiting aviators or persons undertaking training. Comfortable and very reasonably priced accommodation is now available on the airfield by your plane, and you have a car at the door to drive into town or wherever you'd like to go.

Aircraft Sales and Owner Support

Solo Wings Aviation Centre works closely with Aerosport Aviation to provide import, assembly, certification, and training services for new aircraft owners. Delivery flights can also be easily arranged – often made dual with the new owner on board as a part of their training or rating programme.

Aerosport Aviation are the New Zealand distributors for One Aircraft, Auto-Gyro Germany, and the Syton Helicopter.

Maintenance services for all of these aircraft are available from Solo Wings, who can also undertake virtually all other aircraft engineering requirements including restoration and repair, Rotax maintenance and overhaul, propeller balancing, avionics checks, and much more.

Further information

Flight Training: contact Lawrence on 0282 555 8377

Aircraft Sales and Maintenance: contact Reception on 07 574 7973

Accommodation: contact Norma on 0274 439 366

The NZ Pilot Shop: contact Brian on 0274 504 339

Or visit www.solowings.co.nz to find out more.



Auto-Gyro MTO Sport (Cavalon at rear)

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First WWI aircraft for NZ Warbirds

To BE.2 or not 2.BE

NOVEMBER the 3rd was a milestone for NZ Warbirds. The day marked the arrival of the first WWI reproduction aircraft at Ardmore.

This aircraft came about due to the generosity of a benefactor who 'discovered' Warbirds some 18 months ago and decided he wanted to help the Association move ahead. He liked what we do and what we represent and considered it appropriate that we have some WWI aircraft to exhibit and operate to present this important part of history. This is even more poignant in the centenary of this conflict, a phase of history which forged this country's nationhood and embedded many of our current values.

The Vintage Aviator Ltd (thevintageaviator.co.nz) was approached and in quick time three aircraft had been ordered for delivery. The first of these is a BE.2 which was first flown at Masterton in late September. It was intended for Warbirds pilots and technicians to acquire some experience with the aircraft at Masterton before shipping to Ardmore, but alas Mother Nature and spring weather would have nothing to do with that plan so it didn't eventuate.

Four weeks before our November 13th Open Day at Ardmore it seemed reasonable to advertise the 'new' acquisition, however, as delays mounted and time lines wilted this began to look doubtful. Fortunately we were able to get a team together to assist TVAL in dismantling and packing the aircraft in a container for transit to Ardmore. Even this was almost thwarted by weather and a leisurely flight to Masterton in the 'Beaver' turned into a tortuous seven hour drive in the 'ute'. In the space of four days the aircraft was broken down, packed and transported to Ardmore, the effort assisted by some superb service from Streamline Freight who arranged delivery of the container Thursday afternoon. Over the next couple of days

the 'Tech Team' busied themselves 'erecting' the aircraft - no mean feat when you see the jumble of wires and rigging involved.

Currently we are 'attending' to registration and other obligatory bureaucratic requirements prior to first flight, and the small matter of getting some pilots trained to fly this majestic piece of antiquity. Those with experience say "no problem, it's straight forward and simple", however we are in no rush and wish to do it right. Unfortunately, in this regard an opportunity to participate in the Vintage Aviator flying scheduled for this past weekend was once again thwarted by unsuitable weather.

It goes without saying that these unique aircraft will add a further dimension to the Warbirds activities in the Auckland area. It is an opportunity for the public at large to see these aircraft, both on the ground and occasionally in the air - an experience from the dawn of aviation. I have been watching

them in the airshow arena for a number of years and are still spellbound by their uniqueness. More so now with an opportunity to see them up close I can't help but marvel at the detail. This aircraft could have rolled out of the Royal Aircraft Factory 100 years ago and have been exactly as we see it.

It is very appropriate to acknowledge the generosity of the benefactor who has had the foresight to make this important contribution, not only to NZ Warbirds but to the public at large who will have the opportunity to enjoy these superb pieces of machinery. The gauntlet has been placed, and it is our responsibility to ensure their operation for many years to come.

Regards, Frankly@xtra.co.nz



The BE.2 is the first of three WWI aircraft destined for NZ Warbirds at Ardmore.



The NZ Warbirds BE.2 is styled after the aircraft flown by William Rhodes Moorhouse, the first recipient of an 'aviation' Victoria Cross, who also has a New Zealand connection. An explanation of that connection and summary of his flying achievements follows on the next page.

About the BE.2

THE BE.2 was an early Geoffrey de Havilland design. Its first incarnation was the BE.1, which was a rebuild of a Voison by the Royal Balloon Factory (renamed Royal Aircraft Factory in 1912). The Chief designer was Geoffrey de Havilland. The designation of BE was for Bleriot Experimental and referred to the tractor propulsion configuration.

The BE.1 was developed into the BE.2 which was demonstrated at the Military Aeroplane Competition in August 1912 where it proved superior to other types on display.

The production version was the BE.2a which equipped early Royal Flying Corp units and were the first aircraft deployed to Europe at the outbreak of hostilities in 1914.

The BE.2c was a major re-design. Produced from May 1914 it had new wings, fixed vertical fin and re-designed undercarriage. Large orders were placed for this new type which began to equip RFC units from December 1914.

Further in service developments led to the BE.2e of 1916 which was the most produced variant.

Operations

Developed before WW I when the role of aircraft in warfare was 'conjecture', the BE.2 had a mixed operational career. While adequate in its design role as a reconnaissance aircraft, rapid development of its adversaries made it vulnerable to German fighter types. At one stage the British Press dubbed it 'Fokker Fodder' and German pilots referred to the type as 'kaltes Fleisch' (cold meat). The high loss rate of the aircraft caused controversy in the House of Commons in 1917 which led to an official enquiry as to the aircraft's design and front line use. The 'balance' was reversed

with the introduction of advanced Allied fighter types who kept the German 'scourge' at bay.

As the BE.2 was withdrawn from front line service it was employed in training, submarine surveillance, and night fighter roles. In this latter role a BE.2 shot down the first German airship over English soil on the night of 2nd September 1916. A further five successes by year-end saw the withdrawal of the German airship bombing campaign.

In February 1917 a BE.2 conducted the British Army's (and possibly the World's) first aeromedical evacuation when an injured trooper was carried in the observers seat from Bir el Hassana to El Arish in the Sinai Peninsula, Egypt.

Over 3500 BE.2s were built and the aircraft served with the Royal Flying Corp (RFC), United States Air Service, Russia, Norway, Estonia, Australia, South Africa and Greece.

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William Rhodes Moorhouse and his BE.2

NZ Warbirds' newly acquired BE.2 is styled after the aircraft flown by William Rhodes Moorhouse, (WRM) the first recipient of an 'aviation' Victoria Cross and who has a New Zealand connection.

Rhodes Moorhouse's grandfather was William Barnard Rhodes (WBR) born c1807 in Lincolnshire England. He followed a career 'at sea' and went on to become a wealthy businessman in Wellington, colloquially referred to as the 'Millionaire of Wellington'. He married Sarah King, who died in 1862, then remarried Sarah Ann Moorhouse, sister of William Sefton Moorhouse, a wealthy businessman and politician for whom Moorhouse Avenue in Christchurch is named.

William Barnard Rhodes did not have children with either of his two wives, however he did father a child with a Maori woman named Mary of Ngati Ruanui (Taranaki) descent. This child, Mary Ann Moorhouse (who was adopted by WBR's second wife) married her stepmother's brother Edward Moorhouse.

Edward and Mary moved to England and had four children, one of whom was William Barnard Moorhouse. William changed his name to William Rhodes Moorhouse as required by the terms of his grandfather's will (no doubt to financial advantage!)

He is recorded as attending Trinity College Cambridge but not graduating with a degree. He did have an affinity for things mechanical and is known to have raced motorcycles at Monte Carlo. He gained a flying certificate in 1909, and raced aircraft in the United States and England. He had a hand in designing and building aircraft and was the first to fly the 'Channel' with two passengers, his new wife and a correspondent from the London Evening News.

At the beginning of hostilities he joined the Royal Flying Corp (RFC) and after initial service at Farnborough on 21 March 1915, was posted to an operational tour with No.2 Squadron flying BE.2 aircraft based at Merville, Northern France.

His first 'action' encounter was with German 'ack ack' while at 7500 feet over Lille on 29 March.



At home in the new Warbirds hangar at Ardmore.



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The William Rhodes Moorhouse VC motif is a modern interpretation to recognise the bravery, achievement and sacrifice made by him, while also paying homage to his Maori ancestry. It was designed by the TVAL staff for this very special aircraft.



The 'Observers' .303 Lewis machine gun.

In April the Germans unleashed the first gas attacks on the Western Front and gained military momentum on the battlefields around St Julienne and Ypres. On 26th April the RFC was ordered to bomb the railway network to prevent reinforcements arriving at the front lines.

Rhodes Moorhouse was instructed to bomb the strategic railway junction at Courtrai, one of three targets for just four aircraft. He took off from Merville at 3:05 pm instructed to release his bomb from 'below the clouds', however he elected to drop down to 300 feet to ensure a direct hit, whereupon he was greeted by a volley of rifle and machine gun fire.

Badly wounded, rather than land behind the lines he limped back to Base, landing at 4:12 pm. Two Officers lifted the badly wounded pilot from his aircraft which had sustained 95 bullet and shrapnel 'holes'. Rhodes Moorhouse insisted on making a report of his mission before being taken to a Casualty Clearing Station. He was found to have received severe stomach wounds and died of his injuries the next day. Unusual for this time, at his own request his body was returned to England for burial with full Military Honours.

His bravery was instantly recognised and following lobbying by his peers, William Rhodes Moorhouse was awarded the Victoria Cross for 'Most Conspicuous Bravery' on 22 May 1915.

At the time the British Commander, Field Marshall Sir John French, said the pilot had been responsible for "the most important bomb of the war so far".

Footnote: William Rhodes Moorhouse's son Willie, who was an infant when his father died, became a fighter pilot in WWII. In May 1940 he was based at Merville where his father had died 25 years earlier. With 12 combat victories, he was shot down over Kent on 6 September 1940. His ashes were interred with his father's grave at Parnham Estate Dorset.

Footnote: The Victoria Cross is the highest award in the UK Honours System for 'Gallantry in the face of the Enemy'. It was introduced by Queen Victoria in January 1856 to honour acts of valour during the Crimean War. It was first awarded in 1857.



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When your new plane arrives

Having made the decision, parted with the money, and patiently counted down the days until delivery, it's a happy time when your new aircraft arrives in port. Earlier this year Warren Butler's new Foxbat A32 was delivered in Auckland fresh from the Aeroprakt factory in the Ukraine. Warren wrote an excellent article at the time for his local club which caught our eye. He's put 50 hours on the hobs since then and now shares that flying experience, as well as the excitement of the acquisition process, with KiwiFlyer readers. Here's a taste of how a successful purchase, delivery and registration process comes together:

I WAS pretty excited when the container arrived at the transfer facility in East Tamaki where the seal was broken and the doors opened. Inside was a shiny new Foxbat A32 – a first of type here in NZ. After the MAF inspection, the container was delivered to Mercer Airfield where it was carefully unpacked ready for assembly. I can truly say that the chaps at the factory in Kiev, Ukraine, spared no effort to safely and securely pack everything in such a way that there was not a scratch anywhere, just as you would hope for. The pile of left-over bubble wrap and padding was a sight to behold. The wings were snugly fitted into metal frames, bolted to the sides of the fuselage. The all-moving tailplane had its own cradle, also bolted onto one wing frame. All of the loose bits such as fairings, prop blades, cockpit storage units, paperwork, etc., were bubble-wrapped and fitted into the huge zippered baggage compartment behind the seats. Childhood memories of unpacking the best Christmas presents came to mind! The Aeroprakt agent Doug King and I carefully identified and laid out all the parts ready for assembly. We started with attaching the wings which was pretty straight forward. Fuel tank plumbing and strobe connections were next. The rudder went on afterwards together with the linkages. The all-moving tailplane looked like a complex piece of work but after giving it much thought, we assembled it with no problems.

There are quite a few instrument panel configurations to choose from and I have to confess that the Dynon option was pretty tempting. Since I prefer to fly 'eyes outside,' I stuck with traditional steam gauges. Cockpits can easily be filled with electronic features and functions, bells and whistles. But I cannot imagine our Mark One-Eyeball being used outside the cockpit as much as I prefer, when all these colourful and exciting distractions are installed.

I opted for a Trig TY91 VHF radio and TT21 transponder which we fitted next. Corrie De Bruin was a champ at installing the transponder and its associated bits and bobs. Next came the fuel computer from MGL Avionics. From the reviews I read, this little gem is very useful on long cross-country trips. After calibrating a fuel tank dip tube, the fuel flow check was next, all to specification.



The Foxbat A32 is the latest aircraft from the Aeroprakt stable.



Doug King (L) with Warren Butler.



WCB's traditional panel. Dynon glass is an option.

Ready to go

The chaps from CAA came and did their inspection and all was in order. Then we fitted the fairings and wheeled the aircraft across to a clear area for the first start in New Zealand. I say this since all new aircraft are test flown at the factory to ensure correctness of rigging and everything else. They are then de-rigged and shipped to the customer. We chose a mowed area and tied down the tail. I thought it a good idea to empty the carb bowls and add some fresh fuel. With both mags off, I cranked

the starter for a few seconds and the oil pressure quickly came up. Mags and choke went on and she jumped to life. After the required warm-up, a few 30 second bursts of full power revealed expected rpm, temps and pressures so all appeared good in that department. It was time for taxi trials. I taxied up and down the Mercer grass runway with the brakes partially applied to assist in bedding them in. On the into wind leg it was ever so tempting to just lighten the load somewhat but I thought that was best left to the very capable hands of Jim Lyver.

After shut-down and another thorough inspection, it was time for Jim to do his test flight. Jim taxied down to the end of 27 while Doug and I waited at the opposite end. Jim was obviously satisfied with everything since what we thought was going to be a high speed taxi, culminated in a take-off. What a sight, to see this familiar, but slightly different shape, soar high over our heads, sounding as sweet as ever. He headed south of the circuit and we saw him do a few turns to get the feel of the new aeroplane. After the required two hours of flying as per CAA requirements for new aircraft, he was soon on downwind. His approach seemed a bit high and the touch down point a bit deep and around he went again. Another circuit and this time it was a full stop. He beckoned for me to join him in the right seat so in I jumped. He had a pretty solemn look on his face and as soon as I had my headset on, he looked at me and said: "I think we have a problem here." Well, nobody in aviation

likes to hear those words! Then he said the problem was that I would have to struggle to wrench him out of the left seat! Phew! Off we went for some performance comparisons. The take-off was as brisk as with the A22, climbing away at 1300 ft/min and 65 kts - and we were pretty close to maximum all up weight. Impressive. Equally impressive was levelling out at 1500 ft, still full throttle. 80 kts whizzed past, so did 90. 100 came up pretty quickly and within a few seconds so did 110. Easing on to 115, I thought we were just about there but no, 120 kts was clearly indicated. We decided not to go further than 124 kts which is VNE even though I felt there was a bit more left in her. She was flying as if on rails, steady and oh-so-smooth. Word from the factory is that they are busy with tests which will allow 135 kts as the future VNE.

Jim let me take control for a few turns and some slow flight. I was amazed that elevator trim hardly needed adjustment during different phases of flight. The all flying tailplane provides for an extremely powerful elevator right down to the stall - but not overly sensitive either. Time for some stalls now, so we slowed down to around 50 kts, applied both notches of flap and eased the power down to idle. As the speed bled off, the ailerons still held their grip, as well as a good stable pitch response. We did a few stalls and consistently came to 27 kts indicated each time. The yoke showed distinctive signs of buffeting a few knots before the stall and there was no tendency to drop a wing. The 3 deg of washout in the wings was looking like a good design characteristic. Now it was time to land. Downwind in the circuit I let the speed decay to 75 kts where flaps 1 was selected. On the base leg at 700 ft AGL I decided to turn final and add flaps 2. We

looked pretty high so I closed the throttle – ok, the throttle was already closed and we were still high. Needed a bit of elevator trim to balance the forces. The only way to bleed off speed as I know it, is to add all the flap you can, throttle to idle and ease back on the yoke for a steady 55 kt approach speed. I did all of the above and still we were aiming for about two thirds down the runway! Unless we hit some necessary sink, a go-around would be the only option. We ended up way faster than the recommended 45 kts over the fence but since Mercer has a long runway, I held off for a very long while before the speed bled off enough to allow the mains to settle. Lesson learned: This aircraft is quite slippery and approach speeds need to be kept well under control. We did a touch-and-go on that one and the next downwind leg was extended a wee bit longer for my second landing. I allowed the speed and height to decay a little more before settling on finals and still, we looked a little high, even at flaps 2 and throttle at idle. Over the fence at 50kts this time. The elevator during the flare takes some getting used to but is very predictable and smooth all the way.

50 hours in

Now that I have around 50 hours under my belt on the A32, I have determined some fuel consumption figures. During circuit training, I am averaging around 11 litres per hour. Cruising at around 115kts, I am averaging 16 lph. 90 litres all up is plenty for allowing some decent cross-country flying. It's been apparent over winter that the cabin heater is a very handy feature. A panel mounted knob operates a pivoted vane in the air tunnel under the engine, directing warmed air downstream of the radiator into the cockpit. Cabin heat also helps a lot with demisting the inside of

the windows when necessary.

Will the A32 replace the A22? I don't think so since they are quite different with the A22 suiting the more rugged rough field user (having bigger tyres and no spats) and the A32 more at home on faster cruises and longer trips. There is also another version of the A22 available in Australia called the Kelpie. It has bigger tyres and prop, a tool bay (or dog kennel), and is perfectly suited to rugged and remote areas. The extra seat-back map pockets are a winner, as are the extra storage compartments on either side of the instrument panel. The baggage compartment is rated the same at 20 kg as on the A22 but is a lot bigger. I added some extra foam insulation under the carpeted cockpit flooring and I am sure this has helped to keep things even more quiet inside. Folk on the ground say that the A32 is significantly quieter than the A22 so maybe the additional streamlining also has something to do with that. With 6.5hrs endurance, the A32's range with reserve is an impressive 1350 km, so I'm really looking forward to some long cross-country trips and South Island visits.

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The Flying Doctor, by Dave Baldwin

A book review and interview combined

I THOUGHT I was going to be reading something like Barry Crump with wings. While it could be described that way - it is a cracking good read - The Flying Doctor has depth that elevates it beyond a simple, feel good, biography. Tag lined with: the adventures of a bush pilot, hunter and backcountry Doctor, you know the book is going to cover a lot of ground. I dare to suggest that the publishers must have loved it, coming with three built-in target audience populations. It's the tale of a laconic, 'lucky bastard', who's had some rough times mixed with his good and who has a heck of a story to tell.

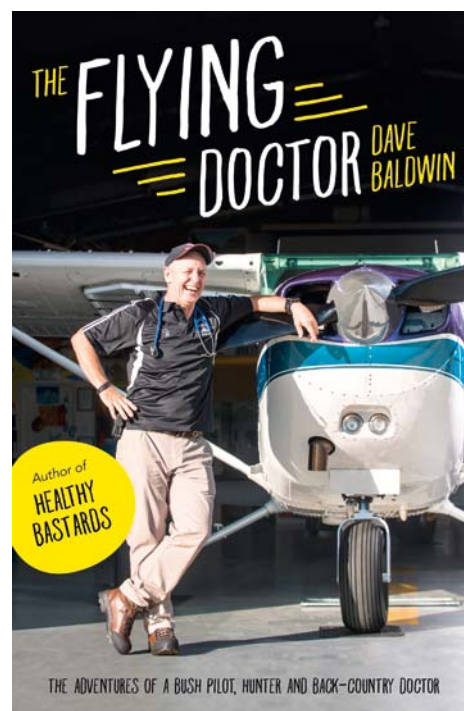
Dave Baldwin wrote the best-selling Healthy Bastards, a book aimed at getting Kiwi males to take better care of their health. That book grew out of his column 'What's up Doc' in Pacific Wings. This book came about because, he tells me, "Random House asked for it." They seemed to have noticed that he had a way with words and a heap of stories to tell.

Dave Baldwin is well known to pilots throughout the lower two thirds of the

country. He's the doctor, who in his specially fitted out Cessna 172, ZK-Really-Jolly-Good, flies into back-country strips to give the pilots who work out of them their medicals. It's a win/win for both sides. In Dave's words. "After performing one or two medicals for mates, and mates of mates, in the Deep South, it occurred to me that there was... nothing stopping a ruggedly handsome, intrepid and dazzlingly entrepreneurial individual flying into an airstrip and performing aviation medicals in suitably equipped premises nearby."

"The idea was that I would spend much of my time gadding about the landscape visiting remote localities where assorted characters and legends of the bush and mountain aviation scene would form orderly queues for my services. While I was in these localities, it would be remiss of me not to check out the hunting."

You can tell by the style of that paragraph that this book is very easy reading. However, if you're offended by the following sentence then the book might not be for you. *"Even those who are born to plant kisses on the arses of others - you know*



The Flying Doctor by Dave Baldwin, published by Random House NZ, RRP: \$40

who you are - struggle to enjoy conferences." This is in the chapter where he describes meeting a GP, at the above mentioned medical conference, and seeing a man who

A Flying Doctor extract

THIS book is filled with great adventures and great humour, but there's also a serious and frequently compassionate undertone. Here's a Doctoring related extract I like which covers that aspect quite nicely:

Around this time, I was rostered on one evening as the emergency duty doctor for the region. Early on I got a call from the Queenstown Police saying a trumper had suffered an emergency up on the Routeburn Track and, as it was in my patch, could I shoot up there and sort things out. They thought he might be dead. One of the practice nurses and I immediately drove to the airstrip where a chopper was waiting for us, and it buzzed us off up into the hills. The pilot set us down near a little tarn on a ridge beneath the frowning Humboldt Mountains. We grabbed our emergency gear and scuttled up the track for 10 minutes to the point where the trumper was lying, surrounded by a few members of his family and a worried-looking warden from the hut a kilometre further on.

As I examined the patient - he was a slightly built man in his seventies, cool to the touch, and had no vital signs at all - they told me that he was a University Professor who had lately retired.

This trip to walk the Routeburn was his retirement present to himself. He had been slow on this section of the track, and had finally told his companions that he was a bit puffed and that they should go on ahead of him. He reckoned he would sit down and smoke a pipe and catch them up at the hut. They did as he asked.

The Professor had walked a short distance off the track, sat down, loaded his pipe and lit up, then keeled over. When he failed to arrive at the hut, his family had gone looking and found him, his pipe still clutched in his hand, where he had toppled gently off his perch into the tussock.

We couldn't carry him down to the chopper without a stretcher, so the nurse and the hut warden volunteered to go back for it.

The dead man's family took their tearful leave of the deceased and walked back off towards the hut, leaving me alone with him for a quarter hour. I sat beside him and looked around appreciatively. It was a section of the track where the pale green foliage of the ribbonwood trees makes it look like a stonefruit orchard, hence its name, The Orchard. On the margins of the valley, the ribbonwoods give over to beech that climb the steep walls; that day the sky was colouring up behind the mighty, snowcapped Darrans, which presided over the whole scene from the opposite side of the Hollyford Valley.

It occurred to me that none of the Professor's family or friends had been too upset, and I could see why. He had lived a long, successful and fulfilling life, and his last moments had been spent at peace in one of the most beautiful places on earth, knowing his family were nearby, safe and happy and perfectly untroubled by his onrushing end. No mouldering away in a rest home for him, and none of the grisly interventions of end-of-life medical care.

'That's the way, mate,' I told him softly, and I knew it was true.

That's the way I want to go, too.

was living something very close to Dave's dream life.

Before the flying tales comes the inspiring story of a young lad; Dave was a self-described 'ding bat' who struggled with school and was probably dyslexic. He would really rather be outside in the hills, but Dave decided that he did want to go to university (and not just because it would please his mother) so he started on a science degree. Dave had to 'translate' all his notes and text books into what he called 'Dave Speel' (that is the way he spells it), a code of his own that he could actually understand and use to study. It was much harder for him than his peers but he found that he was holding his own and enjoying himself. He was partly joking when he suggested to a friend that he was going to be a Doctor, but when the friend took him seriously; *"Bugger me, I thought. He actually thinks I can do it."*

"Self-confidence counts for so much and after that little conversation I decided, yup, by hook or by crook I was going to be a Doctor of Medicine! Bring it on baby!"

And he did. Through all the years of studying and training, he was also getting married, starting a family, and hunting. This is a story about family and family bonds. Dave's mother Granny Olive was an avid hunter too, taking Dave and his brother out when they were small and later becoming part of Dave's "Gang of Three," Dave, his Mum and his son Marc who shared many high-country escapades together. The father and son relationship, which was so much closer to brotherhood, Dave told me, is the backbone of the story. The two were very close, and Marc's suicide at age 24 could have broken his father. Dave is not broken. *"I swore I wouldn't do a runner. That I wouldn't denigrate what we did together."* He still has a relationship with his son, and sharing the tales of the time the two of them did have together has been a way of honouring their bond. "Because Marc and I had this relationship," Dave said. "I feel a presence. All the time. I wrote this to celebrate us both and all our mad friends."

Some 400 of the 'mad friends' were present for the book launch, in The Marc Baldwin Aerospace Research Centre, the hangar that is the home of the Bulls Flying Doctor Service. It's one of Dave's favourite places.

In sharing his love of hunting, flying and family Dave is also sliding in a large, but subtle message. It follows on from Healthy Bastards, and it is about the bigger picture of what it means to be healthy. "The key," he said, [of writing the book] "was being able to redefine, in my mind, what is a healthy bastard. What is health?" I was speaking to Dave on the phone, trying to catch what he was telling me as words poured out of him. "I'm a GP. I see people at all levels of health. And some of them are ding bats. But the ones I work with who are really healthy, well, there's another dimension to it. The really healthy ones are the ones who see that there is another level. Most are free spirits. Most have a view beyond the physical world. They look after more than just their physical health. The people that I deal with [through the Flying Doctor service] realise how insignificant they are, how wonderful the world is." Dave laughed. "Pilots get it; sailors, mountain climbers, motorbike riders at one with the road, those people get it. I want other people to realise that, to get out in the world and see beyond themselves."

I asked Dave if he was pleased with the book. "Oh absolutely. I'm rapt with the finished product. I think it's very readable and it has important messages. Things like the way I started out as a 'ding bat' but I learnt how to learn. I did have a highly motivated mother. She kept at me. She was so pleased when I went to Med School." It was also Dave's mountain climbing mother who opened his eyes to the outside world that turned into a spiritual connection.



At the hangar, books in hand.



Happy times with Marc.



Dr. Dave and ZK-Really-Jolly-Good on location.



Doing the rounds.



The main excerpt that I've chosen to illustrate the book (see sidebar) could be seen as dark, but to me it encapsulates my view of Dave. He was a young General Practitioner in training, based briefly in Te Anau, when called out to a sick man on the Routeburn Track. The man had passed away and Dave the Doctor could do nothing for him, but Dave the outdoor man, with his own great love of mountains could sit with him and see the manner of his passing as a blessing.

This book will make you laugh, and it may very well bring you to tears. Recommended for: pilots, hunters, outdoors lovers, fathers, sons and all those who love them. A great holiday read.

Here are a few other random, and shorter excerpts from the book:

In discussing his school days.

"If you're amongst people who are convinced they're no-hopers, you don't have a hope; but if you're among people who want and expect to achieve and are prepared to work to do it, you're likely to get carried along for the ride."

Dissection at Med School.

"It gave me a huge respect for the human body, but it also impressed on me the notion that for all its incredible complexity, our body is just a machine in the end, like a car. But unlike a car, you only get one, and you've got to look after it properly. Once you've crashed it, or allowed it

to fall apart through poor maintenance, that's it. You don't get another."

The birth of his first child.

"Pregnancy and parenthood, as we discovered, are very much you-have-to-have-been-there experiences, like other natural disasters, or war."

Attempting a CPL.

"After hunting, my passion was still flying. I decided in 1989 I would press on and get my commercial pilot's licence which would enable me to fly passengers and freight for reward. Even if this didn't work out, I figured it would make me a better pilot."

His mother and her dress code in camp.

"She herself, though, wasn't so easily identified or categorised. In hot weather, she had no qualms about stripping down to her rather unsightly bra and pants, and she would move about the camp humming happily to herself in this state of advanced undress."

'Granny Olive,' Marc asked once. 'Do you know you've got a hole in your undies?'

'Oh yes,' she replied cheerfully. 'That's just to let the gas out, dear.'"

In talking about where to set up Not-So-Royal-Flying-Doctor satellite bases.

"I'll admit our selection process incorporated a strong bias towards the rugged, picturesque and deer-infested parts of the country."

What working in the back blocks is like.

"I reckon the dodgiest place I ever did a pilot medical was in a chicken coop up near the Rakaia River. It really was one to remember: I had this bloke laid out on a bench amongst the nest boxes while I did an echocardiogram (ECG), as a few dozen chooks clucked and flapped and eyed the machine's little screen curiously. Every now and then I had to brush one of the cloud of feathers flying around the place off the equipment. Despite chook poo on his clothes, the client was grateful because I'd managed to squeeze his urgent medical into my already frantic schedule."

And a last word from Dave.

"There's not a day goes by when I don't give thanks for [Marc's] part in my journey. Whether people realise it or not, that's what it's all about; the journey. We get to share it with others; some you choose, some you don't. If you're as lucky as me, you get to share it with some really good bastards. There's no telling how long their journey will intersect with yours, so the thing is to enjoy the ride while it lasts."

The KiwiFlyer Summer Events Guide

January 1st

Wings Over Woodville Fly-in

At Athbey Farm. The 12th Annual New Year's Day fly-in and world's first annual aviation event. Be in time for a \$10 midday lunch. More details from Colin MacMillan, phone 06 328 7882 or 027 451 5817 email: macmillan@inspire.net.nz

January 7th

Pauanui Fly-in

Drive or fly in the morning. Tea, Coffee, Coromandel flying and relaxing all day. Make it a Coromandel day! Lunch served from 12.30. Ham off the bone, real beef sausages, chicken, apple crumble or plumbs with brandy, and more! Koha only \$15 Half price landing fees only \$5 for Saturday! Contact Trevor 029 847 8478 or email: trevor@allseasonsair.co.nz

January 11th - 25th

51st Walsh Memorial Scout Flying School

Annual two-week flying school for Scouts and other young people at Matamata Airfield. More information at www.scouts.org.nz/walsh email: walsh@scouts.org.nz or phone David Jupp on 021 476 676.

January 21st

Classics of the Sky

Tauranga City Airshow. This year's focus is Jets in the Air plus a Hot Rod and Dragster Show. Gates open 1pm. Displays start at 4pm. More details from from Classic Flyers 07 572 4000, airshow@classicflyersnz.com or www.tcas.co.nz.

January 28th

Stratford Aero Club 85th Birthday

Contact details can be found on Stratford Aerodrome blog <http://blogspotbigsky.blogspot.co.nz/> Or contact Nick Fumage bigsky4394@gmail.com

January 28th - 29th

NZ Autogyro Association Fly-in

And AGM at Dannevirke. Plenty of gyros and enthusiasts coming and going during the weekend at this traditionally unstructured event. Don't be shy to turn up and ask questions or ask for a ride in one. Several modern two-place machines are expected. Come join the revolution. Details might be on autogyro.org.nz

February 4th - 6th

SAANZ Great Plains Fly-in Ashburton

Annual summer fly-in with competitions, AGM, annual dinner. Contact Gavin Magill on 027 291 0525 E: admin@saa.org.nz www.saa.org.nz

February 4th

Healthy Bastards Bush Pilot Champs

At Omaka, Blenheim. Contact Craig Anderson on 029 890 4910 or craig@soundsaero.co.nz

February 11th

Vans Aircraft Forum/Open Day

Whitianga Aerodrome, conducted by Wally Anderson of Synergy Air, Oregon, hosted by Mercury Bay Aero Club. Forum to discuss Vans aircraft and building RVs. Contact Jim Evans Ph: 021 823 532 or email: jevans@ihug.co.nz

February 11th - 12th

NZ Jet Modellers Jet Spectacular

At Tokoroa Airfield. Annual showcase of jet turbine powered model planes and helicopters. See advertisement below.

February 13th - 19th

2017 Flying NZ National Champs

at Taumarunui Airfield: www.flyingnz.co.nz
Feb 13 Arrival, Feb 14 Practice, Feb 15 Aeros, Feb 16 Wildcard, Nav and Low Level Events
Feb 17 National Championship Events
Feb 18 Prof Pilots and Microlight Events

February 17th - 19th

Wings Over Wairarapa Air Festival

All types of aircraft on the ground and flying. Featuring the debut display of the new RNZAF Black Falcons. Three day passes include entry to Ohakea the following week. More info from www.wings.org.nz

February 24th - 26th

RNZAF Ohakea Airshow

A not-to-be-missed airshow celebrating 80 years of service to New Zealand by the RNZAF as an independent armed service. The three days will be jam-packed with displays from the RNZAF fleets, joined by several aircraft from international Air Force partners. More details to follow.

March 3rd - 5th

Tiger Moth Club Fly-in

At Omarama. Annual summer fly-in, competitions, annual dinner, AGM. Contact Graeme Wood Ph: 027 293 2318 or email: woods@clear.net.nz

March 18th

Langley/Marshall Aerobatic Memorial Competition

at North Shore airfield. Rain day on the 19th. Register with contest director Simon Marshall on 021 747 973 or email: simon1972@outlook.com

April 14th - 16th

Yealands Classic Fighters Airshow Omaka

At Blenheim. This year's theme is Racing Through Time. With displays by Reno racing champion Steadfast. Also includes Knights of the Sky Great War Exhibition. www.omaka.org.nz

To add your event to this list, send an email to michael@kiwiflyer.co.nz or phone 09 279 9924

The Thrill of Competition Aerobatics

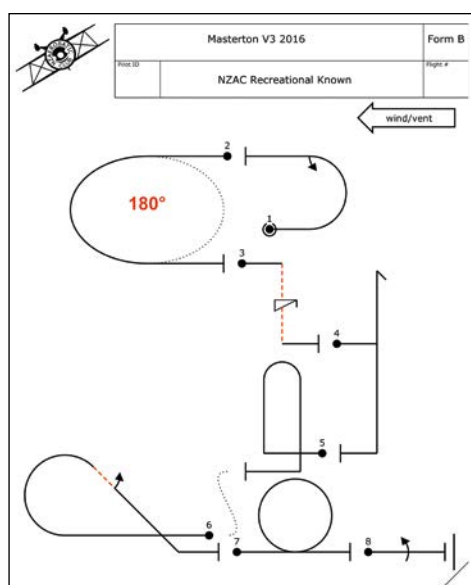
HERE comes summer, and here comes the NZ Aerobatic Club National Aerobatics Championships. For the third year, we are holding the 2017 Nationals at wonderful Hood Aerodrome, with the support of the local Masterton community and our hosts, the Wairarapa and Ruahine Aero Club. This time, to avoid the change of seasons, we have moved the event to late February (21st to 25th) which also happens to be the week after Warbirds Over Wairarapa, also held at Hood Aerodrome.

Whilst the title of the event may sound grandiose, the reality is our Nationals is just a bunch of really keen, grass-root aviators who happen to like going up-side-down, flying a bunch of really cool planes. That sounds like many of the GA events that occur around NZ most weekends of summer - micro-light / taildragger / amateur-built / gliding / beach-landings / strip-flying... Whatever happened to dawn raids?

If we had a bigger population we would probably have qualifying competitions around the country. In Oz, with both a bigger population and the various State Chapters of the Australian Aerobatic Club, they have State Championships. However, their Nationals are still a free-for-all. In fact I've just attended their 2016 Nationals at Tocumwal, north of Melbourne, as



A Sequence Card ready to follow - Likened to playing a piano from sheet music.



A 'Known' routine from the 2016 Masterton event.

a guest International Judge. There were 48 competitors from across Australia, and across all categories from Primary to Unlimited, Robins and Decathlons to an Edge 540, MXS and various Extras.

Your turn to give it a go

Do you have an aerobatic plane? Or access to an aerobatic plane, through your local aero club? If you are reasonably proficient with your aeros, or even just fumbling through, you have the ability to turn-up and compete at the Aerobatic Nationals - it's not that daunting! The big difference is the discipline of performing the prescribed aerobatic sequence in front of the sharp eye of the ground-based judges, within the confines of an imaginary 1000m x 1000m aerobatic 'box'. Sorry, no wandering about the sky, looping and rolling - you have to be focused, have a plan, and maintain good situational awareness.

Nerves

For a few years I was the Sunday aerobatic pilot, looping and rolling around the entire training area, until Mrs Chief Judge suggested I should add some discipline and rigour to my flopping. My first aerobatic competition was a revelation - the knot in my stomach... the nerves!

Now I had a group of judges watching my every move, every twitch of incorrect pitch or roll or yaw. '10' is the aim, and you are happy with an '8', but geez... that stall turn felt like a shocker! Did the judges notice I rolled over the top? And that I was 20 degrees off-heading coming out? What I found is that judges are very poker-faced when later talking about your sequence - "Looked like you were having fun up there..."! Waiting to see the scores of your sequence is almost as nerve-racking as the flight itself - they didn't see my roll, phew!

But when I talk about nerves, I talk about 'good' nerves. Competitive nerves. These aren't nerves of fear, or nerves of the unknown. Competition nerves are the nerves of the realisation that THIS IS IT...Show-time! Time - the one and only time - to show the judges just how good you are. The best flight, of the best practice flights, of the year. The pinnacle of your flying. Maybe.

I imagine Lydia Ko feels like this every time she steps up to tee-off, possibly. She certainly looks very relaxed and for good reason - she has done this thousands of times before, and has probably developed a method of blocking out the officials / crowd / cameras. But hidden from view may still be a degree of nerves and excitement from the realisation that now is the time to perform.

And so it is with competition aerobatics, which is really just another version of display flying. When you are up in the sky, normally sitting in the plane by yourself, you are very detached from the judges and spectators - although you can be very aware that all eyes are on you!

Racecraft

Friends of mine race cars which got me thinking about a term I have heard - racecraft. I found a definition of racecraft on wiktionary, which possibly sums up a good race-car driver's skill-set:

'The total of a racer's skill (craft) along dimensions including: practicing, qualifying, starts, beginning, mid-race and end-race pace, passing, wear equipment usage, and pit strategy.'

I believe we all develop racecraft in many aspects of our life, and I think this term sums up the skills required to do well in competition aerobatics, and display flying too.

Practice

Without a doubt you must practice the individual manoeuvres, and then the overall sequence, until you can reliably and accurately fly them in manner that pleases the judges. This is an important distinction in competition aerobatics. You are not pleasing yourself with a nice 'feeling' loop, it must look 'round' from the ground. Some manoeuvres are wind-corrected and others aren't, all defined in the rules and judging criteria, and at the upper levels of competition it is amazing how some experienced competitors can turn a 20 knot wind to zero though good technique and planning.

The Sequence Card

Having the correct sequence card in front of you helps, and many competitors will re-draw them in a way that suits their style of reading (really BIG for some of our more 'experienced' competitors...). But be careful you have transposed all the manoeuvres correctly! I tend to write all sorts of notes over mine - speeds, heights, clarification of 'up' or 'down', left-rudder or right-rudder etc. Even on the day of the final competition flight, notes can get adjusted to suit the actual wind, direction of flight, geographic features etc. One of our esteemed judges likened reading the sequence card to playing a piano from sheet music - this

is particularly so when flying an 'unknown' sequence, where you are given a sequence to fly without any practice. Whilst you may know how to fly the individual manoeuvres, you won't have flown them in this order, hence the ability to interpret the sequence card and transfer the symbols from a piece of card, through your eyes, and to your hands and feet to fly a passable manoeuvre is particularly challenging - and satisfying. It certainly sorts out the men and women from the boys and girls!

Walking the sequence

The final practice for a competition flight is normally flown on the ground, if that makes sense. It happens in your head, although most often involves a bit of walking, arm-flapping, and hand-

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Plenty of variety in this line-up of competitors.



movements that Maverick would be proud of. Attend any aerobatic comp and you will see the odd (very odd!) person grasping and occasionally referring to a dog-eared sequence card while they 'walk' the sequence. Some do this with headphones and music on, zoned-out from the real world while they visualise and memorise the flow, visual cues, speeds and heights to make the sequence work.

PPPPPP

Prior preparation prevents particularly poor performance. Or something like that.

Ground prep prior to the flight should follow a regular routine, and in a similar theme to 'a good approach leads to a good landing' it is fair to say that having a good pre-flight routine should lead to a good competition flight - in theory!

Give yourself time to go through your normal aircraft pre-flight, and do it thoroughly - you are about to go up-side-down.

- Do you have enough fuel. Have you checked the oil?
- Is everything you need in the cockpit, and everything you don't need out?
- Sunglasses - check.
- No sunblock on the forehead - it stings and distracts when it mixes with sweat and trickles in to your eyes, mid-loop.
- Hydrated, but not too much - for some reason you will still feel the need for a nervous one even though you haven't drunk a thing for three hours!
- Have in your stomach what works for you. For most people this is 'something' (a sandwich or banana) but not a bag of chips and a gallon of Coke.

Know when you should be flying, who is flying in front of you (and the person in front of that), and be ready. Have your plane positioned ready for start - be strapped in with your headset handy when the 'starter' stops by to confirm from the starter's checklist you are, indeed, ready to go. We are very particular about this process at our events, as sometimes the pilot is too close to the action to see the glaring obvious - we have had pilots say they are ready to go flying, without having their seatbelts done up or fuel cap on...

Do your normal run-up and pre-flight checks. If you have followed the instructions of the Starter, you will have plenty of time. It's not worth rushing.

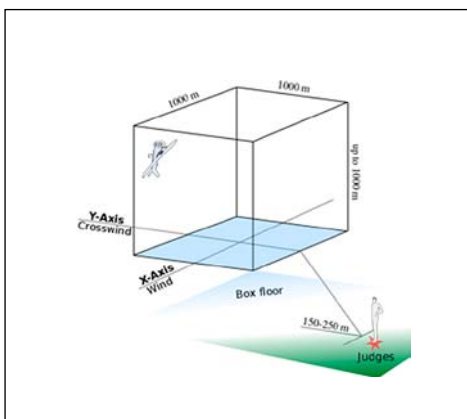
Airborne... Holding

When you get airborne, proceed to the designated holding area and make sure you are on the right radio frequency for the event. The radio is our other set of eyes, and building a mental picture of where other competitors are holding, competing or re-joining is vitally important.

Use this brief period of holding to do your HASSELL checks - the last tug on the belts, the last look around the cockpit to check everything is secure. Whilst you are allowed to do a couple of safety manoeuvres prior to your competition flight, nothing is more off-putting than seeing the tech-log float past your eyes mid-loop!



Ground markers identify the box location.



The Box specification: 1000x1000x1000m



Where was it again?

"Commence when ready"

Show-time! This is it - all that practice, all that preparation, distilled into the next three minutes of your life. Glory? Failure? Humiliation? Glory it is.

Say this to yourself - "Just another day in the office". And that is how you should fly your sequence, just as you have been practicing. Not faster or slower, higher or lower. Not pulling more 'g' than you have ever pulled. Fly it just as you did for your best practice ever - can you remember that one?

The start of your sequence is perhaps the most important part of your sequence, so you need to get this right. From my experience judging, I see many competitors blow the start by diving in too steep and descending too low, then struggling for height and speed for the rest of the sequence. From my experience competing, you feel like you need to 'wow' the judges with your flashy entrance - Captain Fancy Pants is here! (trumpet fanfare) - without realising what 'potential energy' you are giving away until five or six manoeuvres later. "Where did all that speed and height go?". Answer - drag and gravity. So, bottom line, get your start right or hit the gas, climb up and have another go.

Throughout the sequence be mindful of where you are, relative to the judges, the box, and where in the sequence you are up to. Easier said than done - particularly during an 'unknown', but getting into a rhythm that works for you is important. It might be that you have memorised the entire sequence and spend the whole flight 'heads-up'. If the sequence is more complex or still too new, you may have to move your eyes about, between the sequence card, outside, the airspeed indicator, altimeter, outside, sequence card... you get the picture. In the end use whatever works for you, but the sooner you develop a system that works reliably the better. It's muscle memory - the muscle being your brain.

Getting lost

Despite all your best efforts, you may/will get lost - in the sequence or geographically. It is not the end of the world or even the end of your chances of glory. In competition aerobatics there is a saying 'He who finishes with no zeros, wins', which can be true, but conversely in some programmes we see everybody have a 'zero' score for a manoeuvre or two, which levels the playing field again. NEVER GIVE UP! The secret is to recover 'well', which means

taking a break, climbing for height and giving yourself time to figure what went wrong but more particularly where to start off again, in the right direction and at the right speed and height. There is no rush, and many times I have seen people take a break only to be starting in the wrong direction, or with insufficient speed and/or height. You do get a penalty for taking a break, but if you subsequently 'zero' every following manoeuvre for flying them in the wrong direction, you will really be kicking yourself. And the poker-face judges will probably just say to you, over the lunch break, "That looked like fun!"

Getting back on the ground

Despite all the focus on flying the sequence, the ultimate real money-shot is still to come - the landing. This might sound a bit odd, and we don't have any trophies for this at our events, but the landing is the final manoeuvre in the competition aerobatic flight that must be done right, for obvious reasons. After a hot and energetic few minutes of aerobatics, subconsciously you have been working quite hard and may notice your shirt wet with sweat and your heart pounding. Most likely you have been to +5G and -1G or more (much more on the higher categories) so now you have to cool your head and hands for the landing. Take your time to get this right. Make a large, slow circuit if you need to, to compose yourself and focus on the new task at hand. Go through your normal routines and checks, flying your

normal approach and BREATHE. You can't change the sequence you just flew - that is now 'in the can' - but you have a responsibility to get the landing right!

Where to start

So you like aerobatics, and I've pricked your interest in the competitive side of the sport - how do you take the next step? Easy: sign-up, read-up, practice and turn-up, in that order. There is information on the NZ Aerobatic Club website (www.aerobatics.co.nz) to get you started, including the Known sequences for all categories. This coming year we also have available a Robin and S2A Pitts to rent, with a safety pilot/instructor sitting with you - once again refer to our website.

My advice for absolute newbies would be to try the Recreational category. This is an NZ-only category capable of being flown by any current training aircraft plus Tigers, Stearman, Chipmunks and the aerobatic RV-series (don't try it in a -10!).

A few days immersed in the buzz of the comp will massively improve your racecraft. You'll also become hooked! Don't say you weren't warned.

Footnote: These articles are intended to whet appetites for advanced flying and to offer tips to aerobatics beginners. Dual instruction and observance of CAA rules is a must-have - especially for safety and also for learning correct techniques and finesse of manoeuvres for the particular aircraft you are flying. For more information, enquire about aerobatics instruction at your local aero club or see www.aerobatics.co.nz

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Flying NZ Cook Strait Regional Rally

EACH year, Flying NZ, the brand by which the Royal New Zealand Aero Club operates and whom most Aero Clubs are affiliated to, organises five Regional Rallies followed by the 'National Championships'. Winners of a variety of competitions at the rallies qualify to compete at the championship event in February. The highest performing competitors at the regional rallies and the previous year's national winners form the basis of the New Zealand team that competes against Australia for the Wings Trophy, held each year, alternately in each country.

All levels of pilots from trainee to seasoned instructors and commercial pilots are welcomed at the Flying NZ Competitions, which include Precision flying, Aerobatics, Life Raft dropping, Formation Flying, Bombing, Navigation and Streamer cutting. Competitors are judged either by ground judges and/or by an air judge who rides in the competing aircraft, depending on the particular competition.

Flying NZ's Cook Strait Rally was held on 5th November at the Kapiti Coast Aerodrome, hosted by the Kapiti Aero Club. Some of the events occurred in the skies away from the aerodrome however there was much that could be witnessed from the airfield, such as precision circuits and landings, forced landings, life raft dropping and target bombing.



I did a perfect three-point landing. Wait, does this aircraft have a tail-wheel? (This didn't end as badly as it might have, hence it's ok to print the picture, isn't it?)



Briefing time.



The event schedule.

For landing events, the aircraft must clear a 1.5 m high 'fence' before landing in a box 20m wide and 10m long, 80m from the fence. Points are allocated depending on where the wheels first touchdown and whether the aircraft 'rebounds' (bounces back into the air).

The life raft competition requires a 13.4 kg dummy PVC life raft to be dropped from the aircraft at 200 ft, simulating the act of dropping a lifeboat to people lost at sea. Competitors are judged on flying skills and accuracy, while keeping the aircraft at the correct height and speed before and during approach to their target.

Target bombing takes place from 300 ft whereby the competitors drop 'bombs' weighing 500 grams onto a target in the shape of a cross. Points are allocated based

on how close to the centre of the target each bomb lands. Each competitor gets three attempts to accumulate as many points as is possible.

Good weather and great hospitality made the day very enjoyable! Thanks to Kapiti Aero Club and to Chief Ground Judge Mike Groome for getting me super-close to the action.

If these events look like they might be good fun (they are) and you'd like to try your hand, get involved with your local aero club via www.flyingnz.co.nz



Lawrence Field in Piper Tomahawk ZK-TAW, winner of the Wigram Challenge Cup.



Greg Tetzlaff in Piper Super Cub ZK-BQX, competes in the Forced Landing event.



Mohamad Sabardin in Cessna 152 ZK-ELA, competes in the Precision Landing event.



It's a micro! Hayden Faulknor in Rans Coyote ZK-KIX took first place in the Microlight Circuit event.



Cessna 152 Aerobat ZK-JEN was shared by several pilots from Kapiti Districts Aero Club.



Graeme Campbell won the Target Bombing event with Cessna 172 Skyhawk ZK-EKG.

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ZK-YGL Corby CJ 1 Starlet



THE completion of this new Corby Starlet is certainly an awesome achievement as Gordon Lindsay has been building it since his early twenties. That's some 30 years in the making! Finishing this year is also special because it marks the 50th Anniversary of the first flight of the Corby CJ1 Starlet.

Designed in the early 1960s by Australian airframe engineer and keen modeller John Corby, the Corby Starlet is an all wood, ply and fabric covered, single seat, low wing cantilever monoplane. It is stressed for aerobatics at 4.5 G. The design has established a reputation for excellent performance and capability being both cross country suitable and a worthy aerobatic type. Some fifty years after the design first flew there have been around 150 examples built and more than 800 sets of plans have been sold. (That's an interesting ratio and probably not untypical of plans-built aircraft and great intentions that don't quite come to fruition.)

A variety of engines have been used by various Starlet builders. Gordon's is powered with a Volkswagen conversion.

The aircraft is now out at North Shore airfield and the three wise men of Corby Starlets in NZ - David and Don Wilkinson plus Dave Campbell-Morrison are assisting Gordon with getting the Corby ready for the first flight.

ZK-SRX Cessna 208B



NEW to the register this time are three Cessna 208Bs, one of which was imported by Air Safaris and Services (NZ) Ltd. based at Lake Tekapo. ZK-SRX is the second Cessna 208B in the Air Safaris fleet.

Air Safaris has operated alpine flight-seeing trips over Aoraki Mount Cook and Westland National Parks since 1970. They also operate charter flights within NZ, taking in stunning scenery while linking with destinations including Milford Sound, Queenstown Wanaka and Christchurch.

ZK-SRX will primarily be used on their flight-seeing flights up and around Mt Cook. This Grand Caravan is an EX model which is the first of this model in NZ, the main difference being engine size.

The Cessna 208 Caravan is a proven workhorse, known for its rugged undercarriage and good performance in short runway situations. With 867 hp of

Pratt and Whitney turbine power, the aircraft can carry up to 13 passengers with every seat positioned to have its own window – hence one of its attractions as a flight-seeing aircraft.

ZK-ABY Pietenpol Aircamper



A FINE example of the type, ZK-ABY was built by Bob Wagner over eight years. Bob was looking for a project and the Pietenpol appealed as the drawings are fairly basic and there is scope to incorporate your own style.

The Pietenpol has a long history, first flying in 1929. Pietenpols today tend to use the longer fuselage that Bernard Pietenpol designed in 1966 for the Corvair powered aircraft he built, which allows more cockpit room as well as better authority for the rear control surfaces.

Bob has built his airframe out of Western Hemlock and Hoop Pine marine plywood, glued with West System epoxy. His wings and tail plane are fabric covered - painted dark maroon to complement the varnished wooden fuselage very nicely.

ZK-ABY is named after Bob and Margaret's grand-daughter Abby, and is



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Contact **Chris McLaughlin**
06 350 0957 | chrism@fieldair.co.nz

Maintenance
Contact **Mike Eastmond**
06 357 1149 x740 | mike@fieldair.co.nz

Supply
Contact **Pat Elliot**
06 350 1743 | pat@fieldair.co.nz

General Engineering
Contact **Sean Handerson**
06 359 0452 | sean@fieldair.co.nz

ARRIVALS - September/October 2016

ABY	Pietenpol Air Camper M/L	Private Owner
CDP	Stoddard-Hamilton Glastar	Mr V R De Bettencor
COX	Piper PA-22-150	Flogger Flying Partnership
GBI	Schempp-Hirth Discus-2b	Auckland Gliding Club (Inc)
HQN	Eurocopter AS 350 B2	Heli Tours Limited
HUC	Eurocopter AS 350 B2	Armstrong Aviation Services Limited
IAF	Gimbal Cabri G2	Otara Trust
IAG	Eurocopter AS 350 B2	Kapiti Heliworx Limited
ICX	Eurocopter AS 350 B2	The Helicopter Line Limited
IJD	MDHC 600N	Amalgamated Helicopters NZ Ltd
IKF	Eurocopter EC 120 B	Force Aviation Limited
KDI	Pacific Aerospace 750XL	Pacific Aerospace Limited
KDJ	Pacific Aerospace 750XL	Pacific Aerospace Limited
LFT	BA Jetstream Model 3202	Air Freight NZ Ltd
MCL	Cessna 208B	Milford Sound Flights Limited
MLF	Gippsland GA8	Southern Alps Air Limited
NZJ	Boeing 787-9	Air New Zealand Ltd
NZK	Boeing 787-9	Air New Zealand Ltd
OXM	Airbus A320-232	Air New Zealand Ltd
RBZ	TAG Aviation Titanium Explorer	Gyrate Auckland Limited
RPA	Magni Gyro M16	Mr P G Avery
RUL	Cessna 208B	Skydive Wanaka Limited
SBJ	Vans RV 7	Mr S J Jones
SNG	Monnett Sonerai I UL	Mr G D Marsh
SRX	Cessna 208B	Air Safaris & Services (NZ) Limited
UYM	AutoGyro MTOsport	Mr Barrat
WYT	Cessna 182T	Mr P M Whyte
YGL	Corby CJ 1 Starlet U/L	Mr G W Lindsay

TRANSFERS - September/October 2016

AKR	Jodel D9 UL	Mr B R McGahan
ATH	Auster J1B	Bidgood Family Trust
BAQ	Auster J1B	Mr K R O'Brien
BCR	Cessna 175	Mr T R Mee
BLM	De Havilland DH 82A Tiger Moth	Mr M V Ryan
CEQ	Piper PA-28-140	Mr M J McGeown
CHI	Micro Aviation B22 Bantam	Mr D J Mains
CNZ	Cirrus Design SR22	Mr G C Cotterill
DBZ	Zenair CH 601-HDS	Mr G D Marsh
DEH	Piper PA-28-140	J K Syndicate
DOQ	Piper PA-28-140	Mr J S Campbell
DRG	Cessna 180J	Private Owner
DXL	Cessna 172M	Mr B J Curry
EAC	Raytheon 1900D	Manila Aerospace Products Trading
ELF	Cessna 172N	NZICPA
FHR	R & B Bearhawk	Mr R M Paterson
FRU	Nanchang CJ-6	Mr K G Brew
GNA	Glaser-Dirks DG-200	Mr C J McGrath
HAI	Robinson R44	Ohiwa Heli Services Limited
HBV	Hughes 369HS	Mr A J Wilkinson
HCE	Robinson R66	Precision Helicopters Limited
HDX	Robinson R22 Beta	Maxsil Deer Farms Limited
HEB	Robinson R22 Beta	Mr R M Hill
HGF	MDHI 369E	The Hangar Co. (Ashburton) Ltd
HML	Aerospatiale AS 355 F1	Windhawk Helicopters Limited
HNP	MBB MBB-BK117 B-2	Hellink Limited
HOS	Hughes 369HS	Specialist Helicopter Solutions Ltd
HOX	Robinson R44	Cirrus Helicopters Limited
HRR	Robinson R44 II	Mr S R Pemberton
HTJ	Schweizer 269C	Argus Helicopters Limited
HTT	Hughes 369E	Southern Heli Lift Limited
HUV	Robinson R22 Beta	Mount Helicopters Limited
HVK	Schweizer 269C-1	Mr A K Coubray
HWJ	Robinson R66	Helicopter Services (BOP) Limited
HYW	Aerospatiale AS 355 F1	Heliflite Pacific Limited
IBF	Eurocopter AS 350 BA	Christchurch Helicopters 2001 Ltd
ICI	Bell 206B	Rotor-Craft Ltd
IDN	Eurocopter AS 350 BA	Fox Franz Helifervices Limited
IDX	Eurocopter EC 130 B4	North Shore Helicopters Limited
IHS	Eurocopter AS 350 B2	Glacier Country Helicopters Limited
INP	Schweizer 269C	P & V West Partnership Limited
IWF	Robinson R44 II	Mr W Parry 236
IWT	Robinson R44	Buttle Properties 05 Limited
JAK	Cessna 510	Helipark Limited
JAY	Best Off Skyranger Swift	JAK Air
JBI	Jabiru SK80 Microlight	Mr H B Pulley
JDB	Cessna A152	Ms T R Lawry
JDH	Piper PA-34-200T	North Taranaki Aero Club
JIB	Cessna 172M	David W & Margaret R Brown
JNS	Aerochute Aerochute Dual	Mr E H Pemberton
JOR	Rans S-6ES Coyote II	Potters Hand Trust
KDB	Cessna R172K	Mr D J Bulmer
KJO	Boeing-Steerman A75N1	Mr C Snelson
KTA	Quicksilver MXL II	Classic Aircraft Sales Limited
ICA	Cessna 510	Early Bird Flying Syndicate
MDL	Cessna 180A	GESL Aviation Holdings Ltd
MPB	Cessna 185B	Mr S Q Gilbertson
MTB	Maule M-6-235	Garden City Helicopters Limited
MUM	Cessna A152	Sage Partnership
MWL	Alpi Aviation Pioneer 300	Mr B N Coulter
NPJ	Cessna 172R	Mr D H Leele
PAS	Jodel D.11	Skywest Aviation Ltd
PAY	Pterodactyl Ascender II+2	Mr M G Marchant
RAY	Montgomerye Bensen B8MR	Early Bird Flying Syndicate
RBK	RAF 2000 GTX	Mr S F Attwood
		Mr R C Hyland

continued on next page

Pukekohe	Microlight Class 2
Blenheim	Amat Built Aeroplane
Drury	Aeroplane
Queenstown	Glider
Kaikoura	Helicopter
Auckland	Helicopter
Paraparaumu	Helicopter
Queenstown	Helicopter
Masterton	Helicopter
Coromandel	Helicopter
Hamilton	Aeroplane
Hamilton	Aeroplane
Manukau	Aeroplane
Queenstown	Aeroplane
Wanaka	Aeroplane
Auckland	Aeroplane
Auckland	Aeroplane
Auckland	Aeroplane
Auckland	Gyroplane
Taupo	Gyroplane
Wanaka	Aeroplane
Queenstown	Amat Built Aeroplane
Inglewood	Microlight Class 1
Lake Tekapo	Aeroplane
Taupo	Gyroplane
Auckland	Aeroplane
Auckland	Microlight Class 1

Hamilton	Microlight Class 1
Taupo	Aeroplane
Nelson	Aeroplane
Wanaka	Aeroplane
Waharoa	Aeroplane
Geraldine	Aeroplane
Waipukurau	Microlight Class 2
Auckland	Aeroplane
Inglewood	Microlight Class 2
Rakaia	Aeroplane
Papakura	Aeroplane
	Aeroplane
Palmerston North	Aeroplane
Phillipines	Aeroplane
Feilding	Aeroplane
Mosgiel	Amat Built Aeroplane
Auckland	Aeroplane
Taupo	Glider
Opotiki	Helicopter
Blenheim	Helicopter
Upper Urenui	Helicopter
Christchurch	Helicopter
Oxford	Helicopter
Ashburton	Helicopter
Blenheim	Helicopter
Auckland	Helicopter
Palmerston North	Helicopter
Drury	Helicopter
Hamilton	Helicopter
Nelson	Helicopter
Mosgiel	Helicopter
Tauranga	Helicopter
Auckland	Helicopter
Taupo	Helicopter
Papakura	Helicopter
Christchurch	Helicopter
Hamilton	Helicopter
Franz Josef Glacier	Helicopter
Auckland	Helicopter
Franz Josef Glacier	Helicopter
Queenstown	Helicopter
Rotorua	Helicopter
Darfield	Helicopter
Riverton	Helicopter
Rotorua	Aeroplane
Kaiapoi	Microlight Class 2
Rangiora	Microlight Class 2
Inglewood	Aeroplane
Takanini	Aeroplane
Matamata	Aeroplane
Mosgiel	Microlight Class 2
Prebbleton	Microlight Class 2
Tauranga	Aeroplane
Blenheim	Aeroplane
Christchurch	Microlight Class 2
Hastings	Aeroplane
Wanaka	Aeroplane
Christchurch	Aeroplane
Blenheim	Aeroplane
Hastings	Aeroplane
Kaiapoi	Microlight Class 2
New Plymouth	Aeroplane
Blenheim	Amat Built Aeroplane
Christchurch	Microlight Class 2
Katikati	Microlight Class 1
Tauranga	Microlight Class 2

ABY's first flight occurred on 12th November in the capable hands of Evan Belworthy who reports, "The ground handling was excellent as the wooden undercarriage is fitted with brakes and a steerable tailwheel. The tail came up quickly on take-off and after a short run we were heading skyward. Unfortunately from the cockpit you don't get to share the round engine noise that those on the ground get but noise levels are good and plenty of breeze comes through and around the windscreens. A couple of flights on Saturday evening and another on Sunday afternoon was all the weather would allow but in these brief flights it was obvious Bob has built an awesome aeroplane. It has good ground handling, nil vices in the air, and a good turn of speed when you open up the Rotec - but a suitable Pietenpol cruise when you come back down to a lower power setting."

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Aeroplane	W/d
Aeroplane	Exp
Helicopter	Exp
Aeroplane	Exp
Aeroplane	Exp
Aeroplane	Exp
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Aeroplane	Exp
Aeroplane	Exp
Aeroplane	Exp
A/Blt Aeroplane	Exp
Aeroplane	Exp



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The inaugural meeting of Youth Glide New Zealand, the National body, was held in my (rented during earthquake rebuilding) lounge room in October 2011. Coming up with a mission statement was important because we could see that there was much more at stake than just getting youngsters gliding. We were seeing so many benefits for the young people involved, in so many ways. Some of the more reluctant or difficult learners were doing better at school. We were providing positive interactions with adults and giving young people goals for lifelong learning, recreation and careers. We were adamant that gliding clubs wanting in on the scheme had to be doing it for the benefit of the youth, not just growing their clubs.

Students, instructors and helpers of the Inaugural Youth Soaring Development Camp, December 2010.

Youth Glide is keen to have interested parties join the organisation as non-flying members. Think of it as a donation to our aviation youth. If you'd like to do so, go to the web page www.youthglide.org.nz. There is a 'To join Youth Glide, click here' button on the home page.



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New Robinson R44 Raven I and II. POA.
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Ph: (09) 2999 442, Email: brett@heliflitepacific.com

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Classified deadline for the next issue is 6th February.
Don't forget to include all of your contact details in your advertisement.



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Places to Go: Palmerston North

SITUATED on the Manawatu plains, Palmerston North is surrounded by the Tararua and Ruahine ranges to the east and south. Before Europeans arrived the 'city' was a clearing in the native bush populated by local Maori, where the main city square is situated today. Europeans 'discovered' it mid 19th Century (those to arrive were mostly British and Scandinavians) and named it Palmerston after a British Prime Minister. The Post Office added the suffix 'North' in 1871 to distinguish it from Palmerston in the South Island.

As the aero club has shifted to Feilding, there are not too many GA movements into NZPM, so use it as a brush up exercise on flying in airspace this summer, plus an excuse to have a fly away. There are many reasons to visit because Palmerston North is a buzzing food, art, cultural and education city with a population of over 84,000 people.

Palmerston North airport is nestled near the Tararua ranges so is susceptible to wind shear and is also a high traffic density area with international and domestic movements plus Massey University's School of Aviation.

Do a thorough study up of your AIP4, taking note of the caution on traffic areas to the north and east - Rangitikei CFZ and Feilding Circuit plus the busy traffic area to the south; Manawatu Traffic 122.60.

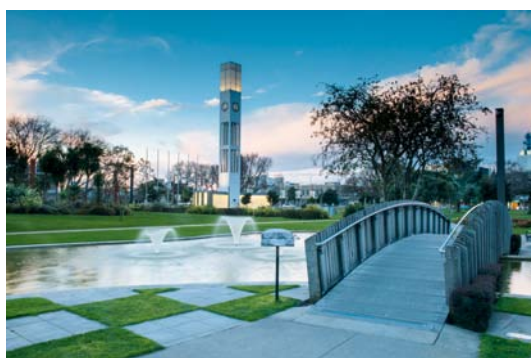
The CAA Gap booklet on Manawatu airspace describes as it being the busiest and most complex airspace in NZ. In close proximity to NZPM, there is Ohakea, Feilding, Whanganui and Foxpine. There are also Transit lanes and Military zones and with Linton Army camp also nearby, some danger zones to boot.

Instead of letting this intimidate you, treat it as a challenge to upgrade your skill set. Go in prepared, with AIP, charts and NOTAMS all on hand. It's not a bad idea to call the Tower first to check for traffic movements at your planned arrival time, as they will issue plain language instructions under request and in times of low traffic density.

The Tower will advise you where to park. A short stroll to the terminal and you will find a restaurant and taxi stand to



Cuba Street on the Square with Cafe Cuba shown at left. Ruth recommends the silk cake.



The Square. Seek accommodation near here and everything you need will be just a short walk away.



The Manawatu Gorge is only 12 minutes away with ancient forest and some significant public sculptures.



Eat fish and chips, and collect driftwood on nearby Himatangi Beach, 30 minutes away by car.

take the 5km ride to town.

For accommodation, I like Cornwall Motor Lodge. It is very comfortable and near the square with a shopping plaza right across the street. As more people use Trip Advisor for their travel planning, this motel is a stand-out and for \$155 per couple, is affordable.

Next, step out for a few hours of food indulgence in George Street and Coleman Mall. You will also come across many street art exhibits, including sculptures by world renowned artists. For a fuel-up and wind-down, two must visits are Alexandre's Patisserie and Chocolaterie, and Café Cuba. Dine on French pastries while taking in the street scene which is lined with cherry trees. Do try the famous silk cake from the café, which is loved by locals and visitors alike.

If you are keen on rugby there is a dedicated museum to visit. Take a trip back in time to learn about our star players and rugby heritage as you gaze at the very first 'fern' and original All Black Jersey. Test out your kicking and pushing in the 'Have a Go' area and measure yourself against the sport's great names.

There are two spots outside the city that are a must to visit if you have organised a car. Himatangi Beach is 30 minutes away, where you can enjoy fish and chips in one of the many driftwood 'bivvies' or construct your own. This rugged West Coast beach is dotted with drift wood of all sizes so be sure to let your partner know that you are only taking one piece home for the garden before you get out of the car!

The second location to see is Te Aiti, the Manawatu Gorge. Only 12 minutes from the city centre, there is ancient native bush and a variety of wildlife to look for. Explore by foot, horse or mountain bike and be sure to stop in to the Bridge Café that is famous for its tall milkshakes and wood fired pizza.

To top your weekend off, check out some motorsport at the speedway or historic Manfeild racecourse - currently home to the NZ Grand Prix as well as occasional bull riding and mini bike racing. NZPM is jam-packed of a huge variety of things to do, so make sure it is on your Places to Go list this summer.

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