KiwiFlyer™

Magazine of the New Zealand Aviation Community

Issue 50 2017 #1

Mosquito

Rebuild and Pilot's Report

Safari Helicopter

Model Jets

Focus on Bush Planes

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Products, Services, News, Events, Warbirds, Recreation, Training and more.

From the Editor

Welcome to our 50th edition of KiwiFlyer. To celebrate, we've given the layout a refresh with larger images, new fonts, and other adjustments here and there. We think the result is brighter and easier to read, and hope you do too.

I've said similar things before, but reaching milestones is always an occasion to say thank you to our contributors for keeping the magazine interesting, and thank you to our advertisers for keeping the magazine viable. It's always a pleasure to lay up articles that are full of enthusiasm for aviation and equally it's a pleasure to work with advertisers and then hear about the successful results achieved. Please do always endeavour to support those who put their marketing dollars behind KiwiFlyer. And if you've enjoyed a particular article we've included then don't hesitate to tell the contributor who wrote it. Your feedback helps us to evolve and refine the magazine over time.

This issue has a bias towards bush planes, with a full report and great images from the Healthy Bastards Bush Pilot Champs at Omaka. We've also got preliminary coverage of the latest Zlin Aviation Shock Cub, the first of which has just been assembled in New Zealand. Plus we introduce readers to the new SuperSTOL XL model from Just Aircraft. Not a bush plane, but equally suited to the same tasks, in this issue we also try out the latest new and improved edition of the Safari home-built helicopter.

Our lead story is a feature on de Havilland Mosquito TV959 which briefly appeared in the skies over Ardmore towards the end of 2016, then was promptly disassembled and shipped to its new owner in the States. This was of course number two for Avspecs and a third is already well advanced and due to fly in 2018. The rebuild story is made especially interesting (and entertaining) by a test pilot report from Dave Phillips. Don't miss it.

Airshow and event season is well underway so this issue also includes feature coverage of Classics of the Sky at Tauranga, the Walsh Memorial Scout Flying School at Matamata, the Jet Modellers annual meet at Tokoroa, and more. Plus there are all our regular columns from contributors doing some really interesting things in aviation. Enjoy your reading and as always, fly safe.

Michael Norton
Editor | Publisher
KiwiFlyer Magazine

Features

Regular

Cover

Keith Skilling and Warren Denholm aboard de Havilland Mosquito TV959. Gavin Conroy photograph.

KiwiFlyer

About Us

KiwiFlyer is for and about the New Zealand Aviation Community.

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New Aviation Cleaning Products

New cleaning products which meet airline certifications are now available in New Zealand from Corrosion Control NZ Limited's distribution network including Hawker Pacific. Aeroglide and Xhaust & Soot Remover are both products from the CorrosionX stable.

Aeroglide is a waterless dry wash (spray/wipe on – wipe off) and is described as a specially formulated blend of deep cleaners and light oxidation removers which provides a true one-step cleaning, detailing and polishing solution that leaves a high-gloss protective finish on aircraft and other vehicles. Aero-Glide's hard protective coating also reduces surface friction and exhaust stains. The product does not require machine polishing and leaves a "seriously nice shine" for up to 8 months. It also removes rubber streaks, heavy exhaust staining, grease, oil and other commercial grade dirt. Available in 16 oz (just under 500 ml) bottles at $50.46+GST or in 1 US gallon packs at $164+GST.

Xhaust & Soot Remover is a concentrated, multipurpose aircraft cleaner / degreaser formulated to clean the toughest exhaust soot, belly grime and bug splats – while being gentle on all aircraft surfaces. It can be diluted up to 20:1 with water. Available in 1 US gallon packs at $45+GST.

Boot cleaner and boot sealant products are now also available. More info from www.corrosionx.org See advert page 15.

NSAC Generosity to Kids

Sometimes we forget what a special thing flying a light aircraft is and how fortunate we pilots are. A child on the ground looking up to the sky, can see the chance of flying an aircraft as very remote.

This Christmas, members of the North Shore Aero Club gave back to the community by taking 48 disadvantaged kids flying for free.

"It never fails to amaze me how kind people are, you just have to ask," said organiser Trevor Dance. "For a good cause, their generosity can be extraordinary," he adds. Many things had to come together smoothly to ensure a fun event. Finding deserving children, caregiver consents, logistics, pilots and aircraft, verifying paperwork, health and safety planning, the list goes on.

"Variety NZ and Stand Children's Services do great work supporting children who need help in their lives - they were a pleasure to work with. Some children were a bit nervous beforehand, but after flying, they were buzzing with self-confidence," said Trevor. Bruce Reynolds made a lovely video of the event and concluded, "To be able to give back in such a way was a most rewarding experience".

We say good on Trevor and the NSAC team for undertaking such a nice initiative at Christmas time.

'Golden Age' Air Race at Omaka

One of the eagerly anticipated and most stylish races scheduled to take place at Yealands Classic Fighters (Easter weekend at Omaka) is the 'Golden Age' Air Race. Amongst the art deco styled aircraft is the rare and tiny Comper Swift (see ZK Review in this issue of KiwiFlyer), one of only a handful of flyable survivors worldwide which has just been restored by JEM Aviation at Omaka and will be heading home to Sydney after the airshow.

Coming all the way from Sweden will be a de Havilland Puss Moth, a plane type that was seen here prior to WWII however, there have been no NZ based survivors remaining in flyable condition since the 1950s.

Other art deco gems expected to appear are an Australian registered, Beech C-17B 'Staggerwing', a stunning polished metal Ryan STM, a Waco 'Taperwing' and a recently completed Chilton monoplane with a further possible art deco entrant from the USA.

Another fresh restoration is a 1934 Fairchild F-24C8c which was imported as a wreck about eight years ago and meticulously restored by its Omaka based owner, Trevor Collins.

Graham Orphan, Yealands Classic Fighters Chairman says "We're absolutely stoked with the range and variety of glamorous aircraft from the Golden Age that we've been able to bring together. It will be a totally unique assembly of stylish airborne exotica from an age long gone!".

The 'Golden Age' of aviation is usually considered to be from the mid-1920s to the late 1930s. Many aircraft of the era featured streamlining which became part of the art-deco styling typical of the day. In many cases, this style treatment went on to influence the motor cars, motor cycles, locomotives and even children's prams, which embraced the tear-drop shapes of the 'spats' or 'wheel pants' used to streamline the aircraft of the day.

More airshow info and tickets are available from www.classicfighters.co.nz

New 'GyroBump' warning device for autogyro pilots

One of the most common mishaps to befall new autogyro pilots (and the occasional old one), is 'blade flap' during taxi or the take-off roll. If not recognised and reacted to immediately, a rotor blade may strike the tail, or worse, the ground, potentially leading to a tip-over. Such an event with rotors and prop turning is inevitably catastrophic for the aircraft, albeit that the pilot (strapped into the centre of the mayhem) will likely walk away with a few bruises – the worst to his pride.

Blade flap (or rotor bump, mast bump, etc.) is entirely avoidable if rotor speed and 'airspeed' during taxi and take-off are managed within the margins applying to the particular aircraft. But, it still catches a lot of people out. A clever new device developed by SparxFly Avionics aims to help reduce this toll.

How it happens

On an autogyro with a semi-rigid, two-bladed teetering rotor system, blade flap may develop if too much airflow passes through the rotor system in respect of its (low) rpm at the time. This could be the result of taxiing too fast for a given rotor speed, or could also arise from poor pre-rotation procedures in gusty conditions. The 'flapping' occurs when unequal lift acting on the advancing and retreating blades causes the blades to teeter to the maximum allowed by the rotor head design. The blades then hit the teeter stops, creating a thump that will usually be felt in the cyclic control, as the teeter stops are hit twice per revolution. If the flapping is not controlled by immediately reducing airflow through the rotor system, the situation can quickly grow worse. Because the system is operating at low rpm, there is not enough centrifugal force acting on the blades to keep them rigid, so they flex and bend. The shock of hitting the teeter stops combined with uneven lift along the length of the blade causes an undulation to begin, which can become severe enough for a blade to impact the aircraft's tail, propeller, or the ground.

Avoiding blade flap isn't a subject that can be adequately instructed here. Suffice to say it involves managing the angle of the rotor disc (with cyclic position) according to rotor rpm and airspeed whilst the disc is accelerated to flying speed (usually) first with a pre-rotator, and then during the ground roll as groundspeed begins to drive more air through the disc, until it turns fast enough to generate lift and fly.

What usually goes wrong for pilots who encounter blade flap and destroy their aircraft, is they don't notice (for whatever reason) that their rotor blades aren't accelerating in tune with their ground roll. Worse, the blades might be decelerating and thus rapidly approaching the onset of catastrophic blade flap. The simplest remedy is to then stop, and start again. But first you have to have realised there is a problem.

The GyroBump monitor

Most autogyros have a common rotor rpm danger zone where (due to lower centrifugal force), flapping may more easily occur, particularly if the disc is decelerating.

The GyroBump monitor is an aid to the pilot to help avoid rotor bump during taxi, pre-rotating and take-off. It monitors rotor rpm and acceleration/deceleration via a gear-tooth sensor from the pre-rotator ring gear, and indicates the status via a large LED normally mounted in line of sight during take-off.

If the rotor rpm is below the minimum safe rpm (to avoid flap) and accelerating (normal pre-rotation and take-off) the indicator flashes green. Once up to safe rpm it indicates steady green. But if below a set rpm and decelerating (toward the danger zone) it flashes red, indicating impending rotor flap/bump.

The aim for the device is to provide something simple and practical that gives (particularly new) pilots advance warning without demanding focused attention during the critical take-off phase when much is happening.

The GyroBump is normally programmed for 250 rpm with a 100 tooth ring gear. Other configurations can be programmed at time of ordering. Note that GyroBump uses the same sender as an MGL Avionics rotor tachometer. Gyro owners looking to add a rotor tach to their aircraft can thus benefit from integrating the two devices.

GyroBump is available from Stuart Parker at SparxFly Avionics. 021 076 3483 or stuart@sparxfly.co.nz or visit www.sparxfly.co.nz

Yak-3 Rides Now Available

The latest exciting addition to the adventure aviation scene is Graeme Frew's Yak-3 based at Omaka. Fighter Flights has announced that they are now able to offer passengers the unique experience of flying in this very fast and classic Allison V-12 powered aircraft. Three flight options are available ranging from 20 to 45 minutes. These are a basic joyride, a customisable 'fighter flight' with aerobatics, or 'the full monty' which includes formating on a camera plane to capture air to air images.

Rides are based out of Omaka Airfield, Blenheim, where the Yak is currently on display in the Aviation Heritage Centre's 'Dangerous Skies' annex. More information is at www.fighterflights.co.nz

Farewell Ardmore Strikemasters

Brett Nicholls, owner of the two Ardmore based ex-RNZAF Strikemasters which have thrilled airshow crowds (and numerous Part 115 passengers) has announced, "with some sadness," their sale to Blue Air Training of Las Vegas, USA.

He explains the decision to sell was not taken lightly however, as maintenance costs and downtime were about to drastically increase for the aircraft.

Blue Air Training use Strikemasters in the Close Air Support role to service contracts with the US military. They maintain a large spares inventory and Brett became aware that they had purchased all the Strikemaster spare parts from Australia (his main source) and that they have a strong relationship with the UK company who holds the other spares inventory. Brett's operations in NZ were fast looking impractical.

Brett spoke to them about their actions and was surprised to receive a very prompt and fair offer to purchase his own aircraft and spares holding. In the end, with their assurance of taking good care of the aircraft, he was forced to make a pragmatic, head over heart, decision. As he says, the costs of maintaining the aircraft were already "eye-watering" and those costs were now going to increase.

Brett says Pioneer Aero are fully supportive and he particularly wants to thank the Strikemaster team for all their support; "Dave, Mark, Dean, Heather, Shooter, Paul and the Pioneer team. It has been fun," says Brett.

Thank you Brett, on behalf of everyone who has so greatly enjoyed seeing those Strikemasters back in our NZ skies.

AirVenture Oshkosh

Gaye Pardy Travel Tour departs 22nd July

This year's Gaye Pardy Travel organised tour to the world's biggest airshow will be Gaye's 31st. That's an impressive CV of experience on offer to travellers who choose this option, and given the scale of 'Oshkosh', there are obvious benefits to be enjoyed by making the trip as part of an organised group. Aside from having all the necessary logistics taken care of, there are several pre and post-Oshkosh events and visits to take in, not to mention the advantage of being surrounded by like-minded aviation enthusiasts the whole time you're away.

The 2017 Gaye Pardy Travel tour departs on 22nd July. After an overnight stop in Chicago, the group travels to Oshkosh by bus, stopping at the Harley Davidson Museum on the way. Accommodation is at the University of Wisconsin. Some 800,000 people visit EAA AirVenture Oshkosh during the week, with 14,000 aircraft parked up for the event. There's an extraordinary amount to see and do, and great camaraderie between everyone who attends. There are airshows including a night event and an exhaustive number of static displays and workshops to see and participate in. Download KiwiFlyer Issue 42 from the KiwiFlyer website for a feature article on what happens there, and www.eaa.org has all the details for 2017.

The tour departs Oshkosh on 30th July, with options to either return home, or continue on the after-tour. This year the group will head north to visit the Vans factory and other aviation sites, then the Evergreen Museum which houses the Spruce Goose and many other interesting aircraft. In Oregon, the group will visit the Western Antique Aeroplane and Automobile Museum (150 cars & 120 aircraft). A drone factory visit is also a possibility.

In Seattle, there will be visits to the Boeing factory and Museum of Flight. The Blue Angels will be practicing for the airshow over the lake that weekend. The group will have a cruise up the locks, visit the Chihuly glass garden and tour the underground city.

For travellers wishing to continue further, Canada, the Rockies, or Vancouver Island are only a short distance away, or cruise to Alaska.

All the details are available on the Oshkosh page at www.gayepardy.co.nz or contact Gaye on 07 574 1950, or 027 493 9073, or email: travel@gayepardy.co.nz for more information and a full itinerary.

The ground display area at Oshkosh is enormous and nearly everything is touchable.

and then there were two

Gavin Conroy image

Keith Skilling about to join on the Yak-3 camera plane for 15 minutes of magic, Warren Denholm is in the right hand seat.

The fuselage age dictated a new build from scratch.

Instrument panel in the original fuselage.

The fuselage is built in two halves and then joined.

Horizontal tail section under construction.

The complex wooden wing is built as one section.

Crew entry door - a work of art in itself.

Four years ago, KiwiFlyer featured the rebuild story of de Havilland Mosquito KA114 by Avspecs at Ardmore. September 26th 2016 was another historic day at Ardmore when Mosquito TV959 roared into the sky in the hands of Dave Phillips (Keith Skilling was in the right seat) following another Avspecs rebuild that started back in 2011. Once again, Gavin Conroy was there with his camera and tells the story on behalf of all the people involved in this remarkable project.

More than a few people thought that KA114 would never fly; that it was a job too difficult. They were soundly proven wrong by a bunch of a Kiwi engineers and American based Warbird collector Jerry Yagen. The process had begun much earlier with many years of research by Glyn Powell which created the possibility that a Mosquito could indeed fly again. It then took Jerry's backing along with the trust and friendship he has with Warren Denholm and his company Avspecs, that finally saw Jerry take the plunge and commission the 'Wooden Wonder' rebuild with a view to achieving Mosquito flight once again.

There were huge engineering challenges to overcome along the way and Jerry stayed committed to the project, even tracking down components himself as the rebuild progressed. Jerry always said that a rebuild like this could only be done in New Zealand due to the skilled people, never-give-up attitude, number 8 wire mentality, and a Civil Aviation Authority that was willing to work supportively with restoration teams on projects like this.

The Mosquito is a very complex WWII aircraft whose rebuild could not be rushed. Not only were these guys recreating history with KA114, they were also recreating components when originals were not available. The learning curve was huge.

Second time around

That KA114 learning curve helped make rebuilding TV959 a more straight forward proposition. Many pieces of the puzzle were already joined, evidenced byTV959's five year build time compared to around eight for KA114.

That was helped also by TV959 being the perfect donor aircraft. (Doner really is the operative word in these projects – it's generally more a process of removing parts to use for the so-called 'rebuild', rather than repairing and adding parts in order to complete a 'restoration'.) TV959 had been on display at the Imperial War Museum for many years hanging from the ceiling with one wing section cut off to save space - but nearly all the original metal work was in the aircraft. Ownership then changed from the Imperial War Museum to The Fighter Collection, then eventually onto the Flying Heritage Collection in 2003 who stored it for several years. [For those not in the know, the Flying Heritage Collection is Paul G. Allen's collection of rare military aircraft, comprising artifacts from Germany, Japan, Russia, the United Kingdom and the United States. Paul Allen is the co-founder of Microsoft alongside Bill Gates.]

It was the Flying Heritage Collection who commissioned Avspecs to bring TV959 back to airworthy status in 2011, as no doubt they could see that KA114 was going to fly - it was just a matter of when.

TV959 was in great condition for a rebuild project. In fact the team's first thought was to restore the original fuselage with a new wing, but a reality check (after all the wood and glues had sat for decades) led to a decision to build a new fuselage from scratch.

The process begins

A significant difference of TV959's rebuild compared to KA114, was that whilst Glyn Powell completed all the woodwork on KA114, on TV959 Glyn built the fuselage and Avspecs completed the wing and entire fit-out.

Glyn had built fuselage moulds from scratch many years earlier. His goal had always been to see a Mosquito fly in New Zealand again – and now there have been two!

As Glyn's work on fuselage got underway, Avspecs were busy completing the wing and restoring many of the parts that came from TV959. It had far more original parts than KA114 so that alone sped up the project considerably. In fact a huge number of components in TV959 are original, having been cleaned, inspected and painted before being put into the aeroplane.

Where possible, parts were simply left as they were. However although the aircraft was of great museum quality, being fit for flight is another level altogether and a lot of work was done on both sets of cowlings with refitting of a multitude of fittings and fixings.

Glyn's fuselage arrived at Avspecs in February 2015. Once the

fuselage and wing were completed, they were joined together for a few days, then and everything was lined up and much foundation work put in place. Both sections were then taken apart again and over the next several months the fuselage fit-out began. Only when nothing more could be done on the fuselage did it meet the wings again, this time for permanent attachment.

Anyone who has stood next to a Mosquito knows how tall the aircraft stands. Access is thus difficult, so the aircraft is put in a level 'flying' position while work continues.

In the cockpit

TV959 is a T.III full dual-controlled model which posed the difficulty of fitting out the instrument panel inside the tight confines of the cockpit. A lot of bumped heads and grazed knees were saved by the idea of designing a stand so the entire panel could be first assembled on a work bench before putting everything in the aeroplane.

In contrast to KA114, TV959's crew seats are exactly alongside each other and the crew sits shoulder to shoulder making for a very confined space. In KA114 the seating is staggered with the navigator's shoulders behind the pilots which makes for a much more comfortable ride. It's not a place for two people with broad shoulders.

True to its original specification, all the flying controls and associated equipment was overhauled and refitted, making for a full dual-controlled aircraft complete with control column, throttles, rudder pedals etc.

As this was going on the massive plumbing job was underway in the fuselage, along with engine installation so things were moving at pace.

The engines

Key components such as the Merlin engines were overhauled by Vintage V12s, the complex set of four radiators were built by Replicore, and the props overhauled by Westpac in Colorado.

There is a network of different companies in New Zealand building up significant components for this type, the latest addition being full sets of brand new exhaust stubs.

Indeed the warbird fabrication and restoration skills now resident in New Zealand are in many instances world-leading.

Engine runs began in the middle of August. They were flawless, so that was another big job ticked off. Gear retraction and multitude of other flight-ready tests were completed later in the same month.

Livery

New Zealand Warbird enthusiasts were treated to a special surprise when a TV959 was rolled out for flight testing. Warren had told me earlier in the year that he would like to add some 75 Squadron RNZAF markings to the aircraft for its brief time in NZ skies. The overall silver dope finish was a close match to the 75 SQN aircraft flown in New Zealand and with the blessing of TV959's owner, Marty Canlon of Tauranga produced the large format decals.

Roundels were applied to the top and bottom of the wings and fuselage, code letters and registration were added to the fuselage and fin flashes were added to the tail.

These markings were applied about two hours before the public roll-out. When TV959 was pushed out into the sun it was greeted by many unsuspecting Mossie fanatics with huge smiles on their faces!

This was indeed a nice touch; TV959 now had a real New Zealand connection. (NZ2337 was destroyed by a hangar fire at Ohakea in June 1950.) NZ2337's FYC code letters were as close as Warren could get to FHC (Flying Heritage Collection), whose staff will ultimately paint the aircraft in its final WWII era scheme.

Flight

In September 2016 the aircraft was granted an airworthiness certificate following a two-day CAA inspection. The aircraft carried the fitting registration ZK-FHC during its time flying in New Zealand.

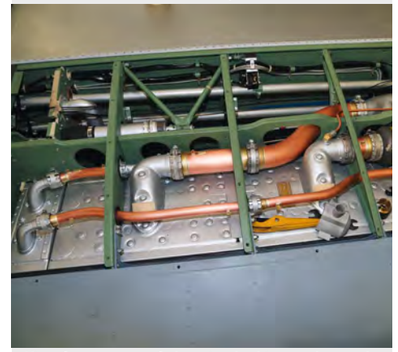
Dave Phillips flew KA114 for the first time and had the same honour with TV959. Many readers will know of Dave; his very professional approach to test flying an aircraft is inspiring. I had been to Auckland several times in the lead up and saw Dave spend hours in and out of TV959 preparing for every eventuality.

Alongside Dave in the right hand seat was Keith Skilling who needs no introduction either. He and Dave shared the test flying of KA114 and flew around 20 hours each in that aeroplane – perfect experience for their work with TV959.

Following a 30 minute flight including some basic tests with flap configurations,

Merlin engine fit out underway. The new sets of Mosquito exhaust stacks are now produced in NZ.

This is the bomb bay part way through the restoration process.



View from on top of the wing looking at the newly built radiators made in New Zealand by Replicore.

Ben Sinnock (left) and Russel Jenkins apply NZ markings to surprise enthusiasts at the roll out.

Music from the movie 633 Sqn is possibly playing in your head about now.

stalling, and gear cycling, 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.

A few minor adjustments were made after that first flight, then the aeroplane went on to fly three more times for more flight testing and for the images that accompany this story. Then in October TV959 was dismantled and shipped to its new USA home.

Number Three

With KA114 and now TV959, there are now two de Havilland Mosquitos flying in North America.

A third Mosquito (PZ474) is presently underway at Avspecs. The fuselage and wing actually underwent a trial fitting just one week after TV959 made its last flight in New Zealand. This aircraft is also USA bound, likely sometime during 2018. With luck, it might get to spend more time airborne in New Zealand than TV959. If not, there's bound to be a fourth!

FYC was the closest NZ rego available to FHC for the Flying Heritage Collection.

Mosquito Test Flying

contributed by Dave Phillips

Gavin Conroy Image

The photo flight was conducted using Graeme Frew's Yak-3 with the rear canopy removed. Despite travelling at just under 200 knots, the ride was pretty good.

When Avspecs' first Mosquito KA119 left the tarmac four years ago, Dave Phillips and Keith Skilling were at the controls. It was thus the same with TV959, although in this case the aircraft was fitted with a different cockpit configuration and full dual controls requiring some changes in procedure for the two crew members. Dave explains the process and the first flight that followed:

TV959 was the first Mosquito I ever saw in the flesh. It was 1982, and hanging from the ceiling of the Imperial War Museum in London with one wing sawn off it seemed very obvious to me that it would never fly again. I lamented the fact that I would probably never get to see such an attractive and charismatic aircraft in flight.

But life is full of surprises. Page forward 30 years, and thanks to the efforts and perseverance of Glyn Powell, the entrepreneurial skills of Warren Denholm and his Avspecs team, and the leap of faith taken by Jerry Yagen, not only did I get to see a Mosquito in flight, I got to see it in flight from the inside. That was FB 26 Mosquito KA114 in 2012. Three years and 364 days later, I was to repeat this experience with T. Mk 3 Mosquito TV959.

Keith Skilling and I were lucky enough to be able to share the test flying of both aircraft. Flying with Keith is always an agreeable experience – there are few aviators currently flying who have his breadth of experience with WWI and WWII aircraft. In particular, his long acquaintance with and knowledge of the Merlin engine – its nuances, sounds, and personality - is enlightening and reassuring.

I think we both felt a very strong sense of responsibility not only to the owners of these aircraft, but also to the craftsmen who (re)created them, and to the classic aircraft community as a whole. They are such precious creations; the possibility of any harm coming to them did not bear thinking about.

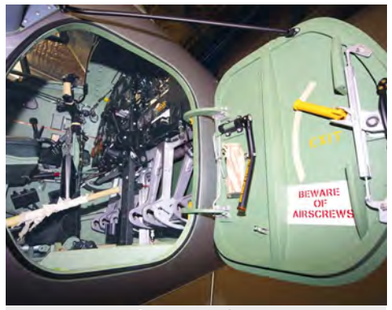
Preparation

Preparation for the first flight of TV959 was straightforward as we had been through the whole process four years earlier. The most valuable resources then were the veterans who had a lot of experience on type, and the many Pilot Report type articles we were able to source. The counsel of David Ogilvy (ex RAF and Shuttleworth Collection) and George Stewart (ex RCAF) in particular was very useful.

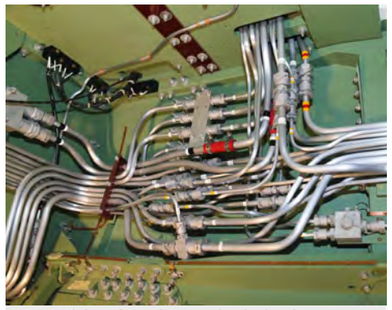
George removed a lot of the threat of the swing on take-off that the Mosquito has something of a reputation for. By using his 'Zero Boost' technique – running the engines up to zero boost (30 inches of manifold pressure on an American aircraft) on the brakes, then immediately going to take off power upon brake release – symmetrical take off power is established at the very beginning of the take-off roll and any subsequent swing is easy to deal with. Touch wood.

David's very lucid discussion on the consequences (frequently fatal) of getting a little low and a little slow on a single engine approach also made a deep impression. New Zealand has relatively few long runways, but it is a very good idea to go and find one of them if you do have to shut an engine down as the only comprehensive cure for low and slow syndrome is to find a runway long enough to cater for a hot and high approach.

Further preparation involved consideration of options with



Crew access door.


Beautiful work on the complex hydraulic system.

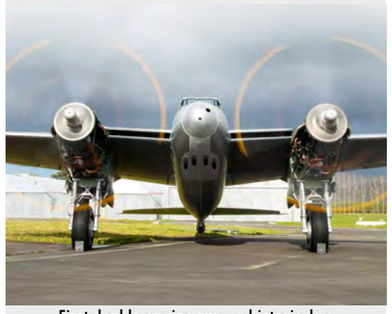

Gear retraction tests underway.

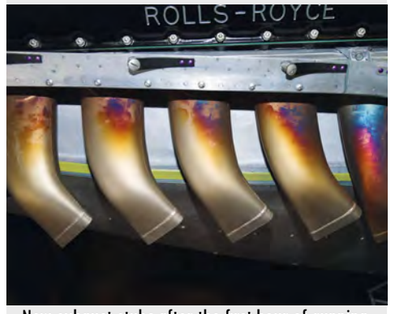

Pristine cockpit awaiting second control column.


Finished instrument panel with dual controls.

Part of the fuel control system.


Warren Denholm (left) & Richard Stanaway at work.


First double engine run - a historic day.



New exhaust stubs after the first hour of running.

any of the systems failing – engine related, electrical, pneumatic, hydraulic etc. We practised raising and lowering the flaps and landing gear with the hydraulic hand pump – a lengthy process and a good substitute for going to the gym. We also equipped ourselves with a standalone VHF system, a GPS for back up speed indication, and a chase plane – a two seat Mk IX Spitfire so as not to spike the Merlin symphony. The Spitfire also represented the ultimate in independent airspeed indication – if we flew in formation with it. It also acted as the photo ship so we could prove afterwards that it all really did happen.

A different cockpit

As TV959 neared completion a lot of time was spent in the cockpit to become familiar with it. Whilst the basic control layout is the same as with 114, there are a lot of differences. The major one of course is the dual control installation. The observer's seat in an operational Mosquito is set lower and slightly aft of the pilot's seat, allowing more freedom of movement for both crewmembers. With the T. Mk 3 however, the seats are side by side, putting the crew shoulder to shoulder in the narrow cockpit. For this reason, the large switching console on the right-hand cockpit wall – housing electrics, radiator flap controls, and fuel gauges - has been removed, its contents being redistributed on the instrument panel in front of the right seat pilot.

I recently read a wartime RAF Mosquito pilot's autobiography in which he mentioned one of the larger built squadron pilots preferred to fly a particular aircraft as he reckoned it had more room. He was rubbished by the rest of the squadron until they checked with a tape measure and found that it was indeed 2" wider at the shoulders than other aircraft. It seems that the aircraft built by the London Transport Company were a little wider, presumably due to a slightly imperfect fuselage mould.

The dual control installation – stick, rudder, throttles, and brakes – is a triumph of engineering, fitting into the very small amount of space available. Climbing aboard is a nightmare as there is almost nowhere to put your feet and knees as you enter the cockpit. By pulling a pin on the base of the right-side control column you can decouple it and push it forward to the instrument panel. The only practical value of this however is to allow the right seat pilot an easier exit whilst bailing out, as the left seat pilot can retain pitch control with his still connected control column.

Starting the engines was a little more complicated with this aircraft as its Merlin 25s have a pressure carburettor. Electric boost pumps are used to prime the engines, but the fuel shutoff valves – awkwardly located on a bulkhead behind both pilots - have to remain closed until the engine fires to avoid flooding the carb. The cockpit is so cramped that you cannot simply reach behind to open the valve; your arm has to pass over the head of the other occupant, and then down behind the seats to open or close the valve. The best division of labour seems to be to get the right seat pilot to start the engines, with his easy access to throttles/magnetos/boost pumps, whilst the left seat pilot opens the shutoff valve as soon as the engine starts.

I suspected that pneumatic braking from the right seat control column would be difficult and unreliable since it was an 'add-on', with a long bicycle cable snaking down the control column and disappearing under the instrument panel - however it is every bit as good as the left side.

Mosquito TV959 in her natural environment ripping up the sky. This image was taken on the fourth test flight - and her last flight in New Zealand.

the colossal drag increase that occurs when the landing gear and flaps are lowered. As a consequence, the final approach is flown with what would be regarded as a cruise power setting in many aircraft.

It is tempting to leave the final flap selection until late in the approach, as if an engine failed there would be a little less drag to contend with. However, flap extension causes a very marked nose up trim change, and if you don't keep up with it the resulting tail heaviness can be conducive to allowing the speed to fall… adding to your grief should an engine fail, and perhaps destabilising your approach. Further insurance could be gained by utilising a steeper approach path and a higher threshold crossing height, but this would be uncomfortable at Ardmore's 4000' runway - adequate but not luxurious for a Mosquito.

Crossing the threshold at 105 knots the throttles are positively closed, turning the props into spoilers, and the aircraft settles onto the main gear with little tendency to bounce and a satisfying exhaust crackle from both engines. Normally – but not always – there is little tendency to swing until the tail drops and aerodynamics reluctantly give way to brakes as the primary keep-straight mechanism. Differential braking is then required, but it is virtually impossible to apply exactly the right amount, and a dance begins with rudder and brakes making corrections to the corrections until you slow to taxi speed.

Next

The air test schedule was completed quickly with very little fuss and bother, and almost before the engines had cooled, the next project – an ex RNZAF Mosquito – had been wheeled into the workshop for mating of the fuselage with the wings. This third aircraft is – like its two predecessors – destined for a home in the USA. Hopefully the production line will remain open until there are also Mosquitos resident in Europe and in the southern hemisphere.

Dave Phillips

Thanks to Warren Denholm for making this story and the images possible, to Dave Phillips for a great pilot report and to Keith Skilling and Graeme Frew in the Yak-3 for flying so well during our photo flight.

Gavin Conroy

The History of TV959

Built at Leavesdon in 1945 and delivered to RAF as TV959.

Served with various Operational Training Units, Operational Conversion Units, and Maintenance Units from 1946 to 1963.

Displayed in the Imperial War Museum in London from 1963 until 1988, then moved and put on display at the Imperial War Museum in Duxford from 1989 until 1991, then to storage.

Purchased by The Fighter Collection in 1992 as a potential rebuild project.

Sold to the Flying Heritage Collection in 2003 and stored.

Arrived at Avspecs for rebuild in 2011.

Flew again for the first time on September 26, 2016.

Shipped to the Flying Heritage Collection in November 2016.

The first flight

TV959's first flight was delayed time and again by poor weather and/or the absence of Keith and I due to work or – in Keith's case – a prior commitment to fly an Albatross over the Western Front in France for a WWI event. I warned him before he left that quite a high proportion of Albatross pilots who did this in the past did not come back, and in fact his aircraft was subsequently brought down but not by enemy fire. Fortunately, Keith survived the campaign and was on hand for the first flight in late September.

Taxiing, run up, and take off were all very similar to 114. Once airborne 959 required no trim adjustments at all, and power off stalling was very benign – a slight nodding in pitch with negligible wing drop. This is worth reflecting upon: a very large hand-built wooden aircraft, with a large gyroscope on each wing and a somewhat modest fin and rudder… and just like its predecessor it flies hands off with no trim required and stalls rather like a Cessna 172. I think the guys who built it and rigged it deserve an enormous accolade.

Likewise, the only technical problems arising were minor teething issues – resolved after one flight. This from an aircraft with eight possibilities for a fluid leak (hydraulic/fuel/oil/coolant - times two) and brand new electrical and pneumatic systems. And the overall finish is that of very high quality furniture – such that you only reluctantly climb aboard with your shoes on. If Avspecs ever start manufacturing automobiles, then I want one.

Airborne handling was lively with nice control harmony. Configuring the aircraft for landing, we were again reminded of

Aircraft Passenger Legal Liability Insurance in New Zealand

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

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

In general terms, all incidents resulting in Death or Injury to persons (including international visitors) anywhere in New Zealand are covered under this Act and there is no provision under New Zealand Legislation for Claimants to sue or issue proceedings in New Zealand Courts seeking compensation for Death or Personal Injury.

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

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

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

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

Looking out to Farewell Spit. The area is much more than sun and sand though, with a multitude of environmental, historical, and gastronomical things to see and do.

Fly in to Takaka

Takaka and Golden Bay have been in the news recently, firstly for concerns over the management of water quality at the world renowned 'Pupu' Springs (the optical clarity exceeds 60 metres!) and then also for the tragic mass stranding of Pilot Whales at Farewell Spit during February. Before either of those events made the headlines, Ruth was there on holiday, researching this article for KiwiFlyer readers. Ruth's enthusiasm for the area is infectious and clearly it's a great place to go, an added bonus being easy accessibity by aircraft. Ruth writes:

Golden Bay is nestled into the South Island's north-west corner. A chain of steep and rugged mountains separates its fertile river plains and valleys from the rest of the island.

This is one of NZ's more remote areas for arrival by car, but if you are flying up and down the country, you really must make plans to stop in for a few days.

Flying into Takaka airfield requires some caution in windy conditions. Surrounded by high hills to the south and southwest there is wind shear during winds from that direction. 36/18 is sealed and the AIP recommends staying off the grassy areas, also warning of slipperiness of the tar seal during frost. There are also trees just south of the road on short final to 36.

Once landed, the friendly folks at Golden Bay Air will be able to give you tips for any local flights you might like to do and they can also arrange your rental car which is a must for this region. www.goldenbayair.co.nz

The Golden Bay Visitor Centre situated in the central town car park is a good place to start. It is conveniently adjacent to the Top Shop. This is the local diary, which literally has queues of people going out the door. They have the best pies in NZ, not to mention the rolled ice creams. No wonder they are listed in Lonely Planet!

After a stroll down the main street you will realise a whole day could be spent in town so make note of the shops to come back to and get in the car to start exploring. Just north of Takaka township is the famous Te Waikoropupu (known as Pupu) Springs.

They are the largest fresh water springs in NZ and very significant (internationally) for their incredibly clear water. There is a easy walk around the springs and some good reading on signboards about how they are formed and local Maori Legend. Your next stop might involve lunch.

The Mussell Inn is situated at Onekaka (about midway between Takaka and Collingwood) and is a country pub built especially as a venue for bands and thus regularly attracting top acts. The food is spectacular and the locals are always in for a chat. This place is full of country character. There's also no table service, no fries, and no nonsense. 'When it's really busy, please enjoy your wait', a message on the menu board reads. The restaurant sells 20kg of mussels a day in summer.

There are so many places to choose from to stay here and if you haven't tried campgrounds before now, this is the best place to start. Think of Tip Top ice cream and long summer evenings with the smell of BBQs and you have the perfect picture of camping in this area. We stayed at both Collingwood and Pakawau campgrounds. Both had cabin options and fabulous hosts. These locations are cheap and incredibly cheerful, with million dollar views.

Collingwood is a small village 27 kms NW of Takaka. We had the best coffee and breakfast at The Courthouse Cafe. From Collingwood, the road splits off down towards the start of the northern end of the Heaphy Track, the Aorere Valley. This is an interesting drive with some worthy stops along the way. First stop is the Rockville Settlers & Machinery Museum which is unattended and the lights go on when you walk in! The space is full of original farming machinery with plenty of information cards up to explain the heritage of the equipment.

A little further down the Aorere Valley you will find Bainham. Here the Langford General Store & Post Office is open for sweet treats, brilliant coffee served in dainty cups and an amazing array of items to buy that you would expect to find in a general store 80 years ago. This store has been in the same family for the last four generations, opening in 1928 and it appeared to me exactly the same from my last visit here 30 plus years ago.

Next, stop at the Salisbury falls - a stunning hidden spectacle of narrow gorge, swimming hole and majestic falls. There used to be a footbridge here that kept getting washed away and an signboard tells the interesting history of gold recovery in this area which started in 1857, and also the life of the footbridge which spanned from 1887 to 2010.

Then from here the road turns to gravel and winds to the start of the Heaphy Track. One of NZ's nine Great Walks, taking four or five days, it comes out at Kohaihai, just north of Karamea and has the length of 82 km.

Head back to Collingwood and visit Farewell Spit Eco Tours (www.farewellspit.com) to perhaps choose a (great value for money) tour and look at the impressive collection of local history books for sale. This company has been operating on Farewell Spit for over 60 years and started out as a mail delivery service to the lighthouse keepers and their families. The Spit is a bird sanctuary and a wetland of international importance. Public access is restricted to the first 4 of 35 kms.

Frequent visitors of this area would know about some short cuts when it comes to acquiring delicious fresh food. One such is the 'Village Milk" outlet on the road from Takaka to Pohara. Glass bottles are available for purchase on site and the milk tastes just as it should, straight from a cow. All along the road there are little stalls selling fresh produce.

For salmon, head to the brilliant Anatoki Salmon Lake. You simply ask for your free fishing gear, choose a spot on the lake, catch a Chinook salmon and then ask the café to prepare it smoked or fresh while you wait. Yum! This is lots of fun and makes fishing attainable for people from around the world that would otherwise never have an opportunity.

www.anatokisalmon.co.nz

What struck me most about this whole area was the peacefulness and also the respect with which the locals treated us Kiwi tourists. It really is a special part of New Zealand and could be your very next place to go.

The Mussell Inn at Onekaka - spectacular food and country character.

The time-warped Langford General Store and Post Office.

On an Eco Tour. Farewell Spit is an important bird sanctuary and wetland.

Te Waikoropupu Springs - some of the clearest water in the world.

Stacking Career Odds in Your Favour

Getting a start on an aviation career path is a competitive process. Someone enjoying career success may typically be described as 'lucky', but it's more likely that he or she stood out from the crowd by following a training strategy that delivered as much advantage as possible towards their desired employment outcome.
Such a strategy has been followed by the three people profiled here, all from Massey University's School of Aviation.
As well as practical flight training, the School offers academic qualifications all the way to PhD and post-doctoral research.
Anke Smith provides an overview of the study and work paths that are leading to continued career success for Tahlia Fisher, Katura Marae and Elena Jung:

L-R: Frank Sharp, Tahlia Fisher, Dr Ritchie de Montalk.


First Officer Katura Marae, Air Vanuatu.


Elena Jung and Massey University CFI Craig Whyte.

Tahlia Fisher

Tahlia Fisher is one of an increasing number of women flying the flag for women in aviation. Ms Fisher, (Massey 30 cohort), Massey Scholar and mother of two, graduated from Massey University in 2001 with a Bachelor of Aviation majoring in flight crew development, completed a Postgraduate Diploma in Aviation with Distinction and worked at the Massey University Milson Flight Systems Centre, training young pilots.

During this time she became increasingly interested in matters pertaining to aviation safety and travelled to the US to complete accident investigation qualifications at the University of Southern California. Following this, Tahlia joined Air New Zealand in 2007 where she now works as a Senior Safety Specialist based at Auckland Airport. The majority of her role is spent conducting operational investigations and contributing to safety communication, training and education throughout the airline.

She combined her career with PhD research at Massey University and in support of her contribution to aviation safety research in New Zealand, Tahlia was presented with the inaugural 'Ian Diamond Award' in 2011 by the Royal Aeronautical Society, which included a $3000 subsidy towards her doctoral study.

Her PhD thesis entitled "Cleared to disconnect?" A study of the interaction between Airline Pilots and Line Maintenance Engineers" has been recommended for the 2017 Dean's List of Exceptional Theses. Her research investigated the interactions between airline pilots and line maintenance engineers, finding evidence of communication barriers which influenced the efficacy of information exchange between these two groups.

Katura Marae

Katura was always interested in a 'practical career' and her interest in aviation was sparked when she began travelling on long-haul flights during her high school sports career.

Katura came to Massey University from Vanuatu to enrol in the Bachelor of Aviation in January 2010 where she joined the 'Massey 54' cohort. Katura was sponsored under the New Zealand Scholarships scheme which is a sector of the NZ Aid programme open to students from developing countries in the Pacific and some countries in Asia, Latin America, the Caribbean, and Africa. The scholarships are designed to "foster and build potential leaders, as well as equipping individuals with skills and knowledge to benefit their home country."

Katura received her 'wings' in 2013 after which she returned to Vanuatu to begin her training with Air Vanuatu. Katura started as First Officer flying Twin Otters in 2013. She quickly progressed to operating their larger aircraft.

In February 2017, First Officer Katura Marae became the first Ni-Vanuatu female pilot to fly the airline's new ATR72-600 YJ-AV73. Air Vanuatu noted that "This marks history in the 30 years of the national airline".

Soiee (Elena) Jung

Elena originally grew up in South Korea and came to New Zealand when she was 13 years old where she attended MacLeans College in East Auckland.

Elena remembers the feeling when she first went on an airplane and wondered how a giant object can fly in the sky. After that flight Elena approached the Captain for advice on how to become a pilot. Thus her interest in aviation began and she decided to come to NZ to learn English.

After a trial flight she decided to pursue her dream of becoming a professional pilot. She was accepted into the Massey University Bachelor of Aviation programme (Massey 63 cohort). She says her time since then "has been amazing and given me lots of great memories".

Elena received her 'wings' in November 2016. For her final year in 2017 she has been accepted into the highly sought after Massey University Flight Instructor Course after which her next goal is to apply for a Graduate Flight Instructor position at Massey. If successful, she will become the first female international aviation student at Massey University in such a role. Readers can hear more of Elena's story on the Education New Zealand video available on YouTube https://youtu.be/i6dX7sblgIs

Shock Cub arrives in NZ

Steen Hansen image

Zlin Aviation's new Shock Cub is so named because of its special shock absorbing landing gear, but it's also a subtle reference to the likely reaction of onlookers.

Pasquale Russo, owner of Zlin Aviation and creator of their latest rendition, the Shock Cub, sums up the concept on behalf of all those with an involvement in so-called bush planes.

"The purpose of it all is to make flying fun. I want people to fly from A to B – it is okay. But they should land here and here and here and here to explore the world. With a sleek composite plane you fly fast – and so what? I want you to go slow, explore the sky and the world below. Land ten times along the way! Take it all in. You should fly to feel the world, to have a good time. Speed is not important."

When Pasquale was considering taking the first plane he built himself (his Savage Cub) into production, people warned him that the future was in sleek and fast fibreglass. They said why go on living in the past with steel tubes and fabric coverings? Pasquale did, convinced that strong, easy to fly tail-draggers represented something essential in aviation – the fun of it!

He set up Zlin Aviation to be part of a category of pilots and airplanes where maximum velocity is just a number, and where the minimum and approach velocities become the true 'added value'. Their goal: To be able to land 'anywhere', by choice or for necessity, in ridiculously small spaces, with maximum safety, at very low speeds, with a landing system to overcome almost any obstacle. These aspirations of course apply to the whole bush plane movement whether in a recreational sense or out of necessity in locations such as Alaska and Africa. Zlin Aviation's new Shock Cub is looking like a very worthy contributor to those movements.

The first Zlin Aviation Savage Cub flew in 1997. 'Savage' because it was based on a savage passion for aviation, and 'Cub' because its spiritual ancestor was the Piper Cub. The Shock Cub is the results of Zlin's subsequent experience designing and flying light aircraft inspired by the Piper Cub and other bush flyers. "All we ever learned is in that aircraft," says company owner Pasquale Russo.

The name 'Shock' has been given to this design to underline its very aggressive landing capability thanks to specially designed and very efficient shock absorbers. The name includes of course, a subtle reference to the likely reaction of onlookers.

Wing strut locations provide for easy access to a comfortable cockpit.

About Zlin Aviation

After building his own aircraft from American kits, Pasquale was convinced he could do better and proceeded to create a design not just for modifications as he had become accustomed to doing on the aircraft he built, but for an entire aircraft which he subsequently built and named the Savage Cub.

It became apparent there was a market for such an aircraft so Pasquale (based in Verona Italy) looked for a production facility, eventually ending up in the Czech Republic city of Zlin where Zlin Aircraft are built. Finding that the area contained very skilled workers, Pasquale set up production there, (perhaps confusingly) naming his company Zlin Aviation which is thus not 'Zlin Aircraft' but Pasquale's Italian company which has a production facility in Zlin. As production has increased, Pasquale set up a finishing line back home in Verona where all the fitting of systems, engine, instruments and controls now takes place. The prototype Shock Cub was also built in Verona.

The Shock Cub

Obviously derived from the Savage Cub of which more than 350 have been sold to date, the Shock Cub has numerous all new components – aiming to become the ultimate slow and light bush flyer. Slow and light doesn't mean not strong though. It's been tested to 6G.

As with the Savage Cub, wing strut connections are arranged to allow for a large door and easier cockpit access. And as with the Savage Cub, construction is robust and traditional, well capable of taking knocks or being repaired in the field if necessary.

Compared to the Savage Cub, the cockpit offers slightly more height and improved ergonomics.

The elevator and rudder surfaces have been increased for improved 'ultraslow' flight characteristics.

The standard engine mount is for a Rotax 912 but the engine cowling can accommodate up to 180 hp engines such as Lycoming, Titan, or other makes on request.

Landing gear is all new and is equipped with 'ultra-performing' shock absorbers in three points, drop tested at 1000 kg from 120 cm and retaining full integrity. As well, the landing gear position has been moved forward to allow for heavy braking without the risk of overturning.

The wing is also new with double slotted flaps and a customised hyper-stol profile and has been tested above 700 kg MTOW to 6G (ultimate load) with no residual permanent deformations.

The pitching moment generated by the new flaps allows the pilot to 'see' the landing area, as the nose will be lower than usual. Aileron surfaces have been increased by 40% to allow the pilot to keep full control authority at extremely low airspeed on approach or nearing stall.

Zlin say the slats enable a different type of landing; With the nose very high on the horizon, a 'ridiculous' approach speed can be achieved and contact then made to the ground with the tail wheel first. Zlin describe this as a 'competition' landing, achievable with (training and) pre-activated brakes.

Safety First

Zlin also say the new slats make spin, in practice, almost impossible, with an easy to control and less dangerous stall – adding that the Shock Cub stall angle of attack is so high and unnatural that it should never be reached by chance or by error at the approach.

With a robust wing and fuselage structure, energy absorbing landing gear and bush wheels, the most critical phase of flight – landing – is made to be very favourable for the pilot.

There is also an optional ballistic parachute, the landing impact from which will potentially be much less problematic than usual thanks to the forgiving design of the airplane.

For more information

The first Shock Cub for New Zealand has just arrived at local distributors Sports Aircraft NZ. This is a fully completed version, about to fly as this article goes to print. Shock Cubs are also available as kits. Contact Tim Harrison on 09 423 9494 or visit www.sportsaircraftnz.com to find out more.
The Zlin Aviation website is www.zlinaero.com

KiwiFlyer and Sports Aircraft NZ appreciate the assistance received from Ole Steen Hansen for some of the content in this article.

Spec's and Performance with 100 hp Rotax 912 ULS

MTOW: 600 kg (LSA) Useful load: 286 kg
VNE: 115 mpg Cruise: 90 mph Climb: 1000 fpm
Min speed at MTOW: 23 mph, for single pilot: 18 mph
Take-off distance at MTOW: <57 m, for single pilot: <35 m
Landing distance at MTOW: <35 m, for single pilot: <18 m
Fuel: 68 litres (optional 113 litres) Range (65%): 302 nm
Wingspan: 900 cm Length: 684 cm Cabin width: 69 cm

Various instrument options are available, including a carbon fibre panel.

This Shock Cub has just arrived in New Zealand and awaits its permit to fly.

Healthy Bastards Bush Pilot Champs

Gavin Conroy image

Nigel Griffith in his Super Cub. Judging by the smile he might already have known he had won!

The 2017 Healthy Bastards Bush Pilot Champs was held on 4th February at Omaka. Hosted annually by the Marlborough Aero Club, the event is made possible with sponsorship from Dave Baldwin's Bulls Flying Doctor Service (hence the name), Sounds Air and Simply Avionics. 45 competitors, many of whom were new to the event, and gusty winds made for another memorable competition. The shortest take-off was just 7.3m and the shortest landing just 9.9m ! Given he resides nearby, it's no surprise Gavin Conroy was there to take the pictures and this year one of the founding organisers, Craig Anderson kindly penned some words about the day. Craig writes:

2017 marks the fifth year of the Healthy Bastards Bush Pilot Champs.

It has been a great ride, and is very exciting to see so many pilots getting behind it with so much enthusiasm for the event.

The original idea for the competition actually stemmed from the despair of seeing so many landing upsets at our local field, Omaka, on what should be a very easy strip to land on. It has long smooth runways, into wind in all conditions, with no major obstacles.

Years of observation though, suggested the display of piloting skills (or lack of) from some pilots was significant. Too high. Too fast. No idea of a stabilised approach. Floating half way or more down the runway. No go around decision making process. The list goes on, such that the scariest place to be on the airfield was very often the fence at the far end. Or the trees in the river beyond the fence…

In reality, what we were seeing at Omaka wasn't just a local phenomenon. One only had to read the incident reports in any issue of Vector magazine to see the issue was present across the whole country.

A few of us decided it was time to do our wee bit to help the situation, and thus we set up airstrip and bush flying training courses at the Marlborough Aero Club.

Readers might expect the main goal of these courses was to teach pilots how to land and take off in the shortest possible distance, or how to fly safely in the mountains and land on tricky backcountry airstrips.

Actually, no. If I were to pick only one thing I hope is passed on from every one of our courses it would be to learn how to fly a stabilised approach – on EVERY landing, whether it is on a West Coast beach, or at Wellington International. A stabilised approach means that at a nominated point on the approach you will be at your chosen airspeed, with a chosen descent rate, in the correct configuration, and therefore will be able to land EXACTLY on the spot you nominate, EVERY time. It puts YOU in control – not the aircraft. It is a fantastic tool, but sadly not prevalent in all flight training these days.

The Healthy Bastards Bush Pilot Champs were a natural progression from there. A passing comment from Air Nelson Captain Steve Scott, initiated an impromptu planning session between myself and Ray Patchett as we drove to Christchurch one day back in 2012, and the rest is history.

Dr. Dave knows a good thing when he sees it, and muscled in on our party. The mix has created a fun, relaxed and non PC event, which has been amazing to be part of. Hopefully we have made some positive contribution to the issue.

This year's event saw around 45 competitors on the day, with many new names and aircraft in the mix which is very exciting. It was another great day, with strong gusty winds adding another factor we haven't had to deal with before. It made for some amazingly short scores before we cancelled the event mid-way through the STOL competition.

My sincere thanks go to all who took part and made the competition another huge success.

Craig Anderson

2017 Results

Precision Landing — Distance

1st	Scott Madsen Cessna180	0.7m ZK-BMW	
2nd	Jim Benbow Piper PA-18	2.0m ZK-JLB	
3rd	Bill Henwood Piper PA-18	3.4m ZK-BQV	

STOL Microlight — Take-off / Land

1st	Deane Philip Zenith CH 701	8.3m ZK-JUG	9.9m
2nd	Chris Anderson Zenith CH 701	7.3m ZK-TIA	11.7m
3rd	Peter Clulow CubCrafters Carbon Cub	10.7m ZK-PBC	25.5m

STOL Light Touring — Take-off / Land

1st	Nigel Griffith Piper PA-18	8.8m ZK-BOY	29.9m
2nd	Innes Bint Piper PA-18	14.8m ZK-BVJ	30.0m
3rd	Bruce Coulter Piper PA-18	10.1m ZK-BTX	38.4m

STOL Heavy Touring Category
Not flown due wind

Peter Anderson in the three point position for his precision landing.

Lucky number winners went for a Sounds Air scenic.

Innes Bint landing in ZK-BVJ.

Dean Philip in his Zenith would go onto win his STOL class.

Noel Kruse landing in his Piel Emeraude CP-30.

Andre Richmond in his recently restored Super Cub.

Bruce Coulter crosses the line during the precision landing competition. All images by Gavin Conroy.

Dr. Dave Baldwin, competing here in 'Really-Jolly-Good', is a major sponsor of this event.

Carbon Cub defying gravity into a strong head wind.

This is ZK-CVV, one of six Just Aircraft SuperSTOL's in NZ, seen here competing at the recent Omaka Bush Pilot Champs.

Just Aircraft New Zealand Ltd. was formed in 2013 by John Hood and Grant Coldicott after John purchased his well-known black Highlander, ZK-MLT from Just Aircraft LLC in South Carolina. The pair built the machine up in their hangar at Rangitata over the following few months. John and Grant's company is well-established now, with over 800 hours logged on MLT and a dozen sales throughout New Zealand and Australia.

John and Grant have just announced the completion of a new SuperSTOL XL kit in Just Aircraft's factory, for a client in the central North Island. This will be another first-of-type for the NZ register, with the aircraft being built up in here over the next few months. The SuperSTOL is the latest product from Just Aircraft, Grant adding that it is a "continuation of Troy Woodland's (Just Aircraft LLC) drive to get the best STOL performance from the aircraft he designs and we enjoy our association with him and his company very much."

About the SuperSTOL

Just Aircraft didn't name their SuperSTOL without reason. An all metal wing incorporates self-deploying leading edge slats and long span Fowler flaps to enhance the aircraft's stall range. There is also a landing gear system that includes a long-travel hydraulic strut and a tail wheel which incorporates a hydraulic shock to cushion aggressive landings.

In combination with the large Fowler flaps, the wing slats allow the aircraft to be flown at very high angles of attack providing the opportunity of dropping into small or sloping clearings. The aircraft offers a 105 mph cruise, a landing speed of just 32 mph, and needs as little as 150 feet of runway to take off or land.

The new SuperSTOL XL

In the normal way, XL stands for eXtra Large. Just Aircraft have added 24 inches to the fuselage and 6 inches on the nose to accommodate larger engines. It is thus an appreciably bigger aircraft with more stowage space, although the enticing factor for most owners will simply be the opportunity to install a larger engine. The cowling will now accept a Lycoming O-320 (circa 160 hp), or other types, such as the UL Power 520i rated at 180 hp.

The red aircraft is the SuperSTOL XL version, the green a standard SuperSTOL.

The DIY Part

A SuperSTOL comes in 'firewall back' kit form from the South Carolina factory. Owners source their own engine and instruments, and Grant says the factory estimated build time is 500 to 1,000 hours - the somewhat wide range quoted accounting for options and builder skills/experience. John and Grant can of course be as involved as a new owner wants them to be in the process.

In Flight

Grant says the SuperSTOL and its new XL stablemate are essentially 'standard' tail-wheel aeroplanes. There's nothing unusual other than having excellent STOL capabilities, although worthy of mention is the locking tail-wheel, helpful in maintaining a straight track during take-offs and landings and a useful training tool for beginner tail-wheel pilots.

"Control forces are light and the aircraft is responsive, akin to a SuperCub. Slow flight can give the impression of hanging off the propeller, with an eventual stall being gentle and predictable," says Grant.

In terms of ergonomics, the cockpit is wide enough to comfortably accommodate normal sized adults and the instrument panel is large enough to cope with the variety of gadgetry often installed these days. Flaps are manually actuated by a Johnson bar between the two seats, and the throttle is located in the centre of the panel.

For more information

Grant says that microlight aviation is an exciting place to be with fast-paced development and the ability for owners to build and maintain their machines. He and John welcome enquiries from prospective new entrants to the microlight scene, or from those already involved but wanting to move into an aircraft with a real recreational and fun aspect to its ownership. Contact Grant on 021 335 934, John on 021 228 6345,
email: askus@justaircraft.co.nz or visit **www.justaircraft.co.nz**

SuperSTOL XL Specifications

Engine: UL Power 520i (180 hp)
(optional Lycoming 320, ECI Superior, Aerosport 320/340/375)
Prop: 76" Catto
Wingspan: 31'4", 8'6" with wings folded
Fuel capacity: 27 gallons
Fuel consumption: Est. 7.5 gph at 90 kts
Maximum gross weight: 1550 lbs
Typical empty weight: 870 lbs
Typical useful load: 680 lbs or Microlight useful load: 449 lbs
Cabin Width: 44 inches
Baggage area: 32 cubic feet
Cruise speed: 105mph with Catto prop & 29" Alaskan Bushwheels
Stall, power off, no flaps: < 35 mph
Takeoff dist. at 1,320 gross: < 150 ft
Landing dist. at 1,320 gross: < 150 ft
Rate of climb, solo: > 2,000 fpm

Gavin Conroy's 2016 Gallery

For the last few years, we've featured an annual gallery of Gavin Conroy's air to air photography. This year it was harder than ever to choose the images to include, with Gavin's selection of favourites spanning two trips to Australia, one to the USA, and a huge amount of flying all over New Zealand. Gavin is quick to share credit for his work, saying "I really appreciate the huge amount of support I receive. It wouldn't be possible without a great network of people around me." That said, there's a lot of planning and skill behind the camera evident on these pages.

Sean Perrett flying Brendon Deere's beautiful Spitfire near Ohakea. The photo plane was a Grumman Avenger.

Military Aviation Museum's (USA) Grumman Wildcat.

Mosquito KA114 joined by a B-25 Mitchell in the USA.

Corsiar and Mustang at Tyabb in Australia.

L: Spitfire and Hurricane together in the USA.
R: Doug Hamilton's superb Lockheed 12 in Australia.

John Romain flying the Buchon at Warbirds Over Wanaka 2016.

A super rare pair. BF-109 and Fw-190 both owned by Jerry Yagen in the USA.

Frank Parker squeezes the P-40 Kittyhawk's trigger during Warbirds Over Wanaka 2016 - Gavin Conroy photograph

Two timeless Cessnas in the Awatere Valley near Blenheim.

Cam Hawley photographed at sunrise in his stunning Beech Staggerwing.

Noel Kruse enjoying his Ryan ST-M over the Marlborough Sounds.

Me 262 from the Military Aviation Musem (USA) flown by Wolfgang Czaia.

Brett Emeny lands the Catalina on Lake Wanaka during Waribirds Over Wanaka 2016.

Gavin Conroy's 2016 Gallery

RNZAF Black Falcons team on their first official air to air photo shoot in late 2016.

Strikemaster pair owned by Brett Nicholls and flown here by Dave Brown and Mark Helliwell.

Safari 600

A well-proven helicopter to build yourself

Bruce Belfield lifts off from his Te Awamutu base. His Safari 600 includes several modifications to the factory '400' version and has a significantly lighter control feel.

There's a new, NZ, version of the Safari helicopter about town. And it's much nicer to fly.

About three years ago, KiwiFlyer sampled the previous edition of Bruce Belfield's home-built Safari helicopter for a feature article in Issue 33. For a variety of reasons, supported by second and third opinions, we concluded it was probably the pick of the rotary home-builts available in the recreational aviation market. If there was a niggle at that time, it was our perception of a heavy control feel - which we likened to an R44 with the hydraulics off. You adjusted to it after a while, but the initial flight for pilots current in certified light helicopters would probably involve a degree of over-controlling in response to the friction and feedback present within the Safari's systems of then. And now? Very much better. That's not just KiwiFlyer's view after a brief sortie around Bruce's patch at Te Awamutu either. Other CPLs who have tried the new version concur.

There are 12 CHR Safari helicopters on the New Zealand register. Produced as a kitset by Florida company CHR International, the Safari has the outward appearance of a scaled down Bell 47. Indeed when first developed by Canadian Home Rotors, the aircraft was named the Baby Belle. It was later changed to Safari and subsequently in 2009 CHR International acquired the business and moved it to Florida.

Testament to the design of the Safari is the number of hours commonly flown on them. Several of the New Zealand examples have many hundreds of hours on their hobbs. All too often home-built helicopters change hands with very few hours on the clock, in main due to their owner/builders discovering that flying them wasn't quite the good experience they were expecting. That's not the case with the Safari, whose owners frequently talk of adventures into mountains and bush on hunting, fishing and holiday trips.

One of the confidence inspiring aspects of the Safari is its rugged and traditional design. The frame is of welded steel, the engine is a Lycoming, and everything is on show for inspection. There's also plenty of room for two people in the cabin, a decent useful load and good power reserves.

Bruce Belfield became a distributor for the company after acquiring his kit in 1998, forming South Pacific Home Rotors in 2002. A fitter/turner and machinist by trade, his skills were a perfect match for the amateur-built aircraft category the Safari fits in to. Those skills have also been put to good use for subsequent owner/builders with numerous improvements to the design originating from Bruce's workshop and now distributed to owners around the world as well as the United States factory.

Specifications and Performance

Powered by a Lycoming O-360, the standard factory Safari 400 will cruise at 74kts, with a Vne of 87kts or 100mph. A typical ship weighs around 1000lbs empty and with a MAUW of 1650lbs, useful load is in the order of 650lbs. Climb performance is 1000 feet per minute to a ceiling of 10,000 feet. The twin fuel tanks hold a total of 106 litres. IGE hover limits are quoted as 7000 feet and OGE as 5000 feet. The 26ft main rotor is of composite construction and the tail rotor with a 4 foot diameter is made from titanium.

South Pacific Home Rotors

Bruce Belfield's original Safari 400 was the first-of-type to fly in New Zealand, back in the year 2000 when it also deservedly gathered up several home-building awards from the local sport aviation scene.

Over the years since, Bruce has worked extensively to support other builders in New Zealand as well as to make numerous improvements to the helicopter's design and flight characteristics, several of which have been incorporated by the factory into their standard kit – one example being titanium tail rotor blades. Another improvement first fitted by Bruce and then adopted by the factory has been an electronic governor system. Yet another is his Kiwi-Pod luggage system. Now his latest personal Safari incorporates so many 'Bruce version' improvements that it has become a step change from the standard factory offering. Bruce has thus unofficially 'named' it the Safari 600. More on that later.

Throughout the course of his work on the Safari, Bruce has acquired an international reputation as the go-to person for 'setting up' the helicopter. In that regard he's recently returned from a few weeks in Costa Rica working for an owner there, and he often travels to Australia to support owners in Sydney. Several of Bruce's 'enhancements' are in regular demand by other new and existing owners throughout the world, his exhaust and inlet manifold systems being a common example.

Bruce has also regularly attended Oshkosh and Sun & Fun as a guest of the factory to meet prospective customers and act as a factory demonstration pilot for them.

Kit Options

The Safari fits into the amateur-built category, so if you do take the option to build it yourself from a basic kit, the 51% rule means that you can also maintain it yourself afterwards.

The most popular option in Australasia is the 'Down Under' Starter Kit, comprising a majority of the basic components, but leaving it to the owner to sort their own engine, cabin fit-out and instruments. In the kit are: Fabricated cabin frame and tail boom, tail rotor driveshaft, fuel tanks, basic control package, engine/rotor tach, rotor head and blades, main transmission, a conversion kit to mount the engine vertically, and tail rotor assembly and blades.

The next option up is the Safari 400 kit which includes the O-360 engine, shroud and exhaust, welded fuselage with sheet metal installed, powder coated frame and mounted bubble, leather seats and carpet, instruments and pod, governor, trim and frictions, and all the necessary small parts and raw materials to complete your aircraft.

A ready-to fly option is also available which Bruce can build for you at his Te Awamutu base, where he has support available from Central Aero Engineering at Hamilton for any engineering supervision required.

Bruce says that most of his New Zealand customers typically acquire a starter kit including frame and bubble. Then they source the engine and instruments from a timed-out R22 (or a wrecked one).

Although the fabrication required to complete a kit is all uncomplicated, there is a lot of it to do. No welding is required in the Down Under kit. Bruce also says that all parts supplied are very accurately produced and fit together as they should, thanks to extensive investment in jigging and CNC production at the factory. He says that an honest assessment of the time required to complete a Down Under kit is 1000 hours, this including the 'thinking' time and being easily achievable by a builder with basic skills.

Any parts can be requested ready-made from the factory or via Bruce and he says there is a long list of options to make the job easier if desired.

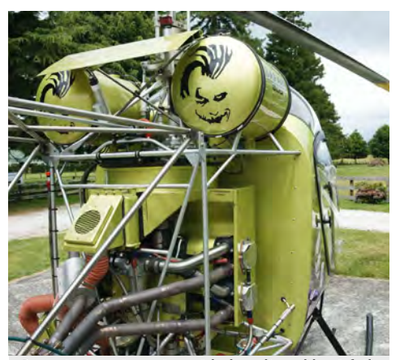
New Zealand customers of course have a major advantage to hand in that Bruce is here with a demonstration aircraft, a wealth of hands-on experience for building, setting up, and flying the type, and the capability to assist the build process from start to finish.

The Safari 600

Bruce's latest edition of the Safari is not an official factory version, but if customers wish then he can fabricate the same modifications for their aircraft. In addition to the list of 'Bruce' improvements that have become standard (or nearly so) Safari fitment, the '600' has an extensively reworked control system.

Working closely with Paul Waterhouse at Central Aero Engineering, Bruce has made numerous small changes that

All Safaris are fitted with NZ made titanium blades.


Bruce is experimenting with the adjustable airfoil.


Very nicely designed and fabricated panel.

together accrue towards making flying the aircraft an altogether better experience. Paul currently maintains five Safaris on behalf of their owners and says, "it wasn't a secret that the control characteristics haven't been perfect. The cyclic and collective forces were quite heavy and prone to leading new Safari pilots towards over-controlling." Paul and Bruce did "a lot of analysis and staring at other two-bladed rotor heads," an exercise that culminated in changes to pitch link arm alignment and various other components – particularly also with a view to managing friction in the control system. In Paul's words, "it's pretty close to right now". Paul also says, "I've got no hesitation at all to fly in one." Paul's latter statement is qualified by him adding that there are very few home-built helicopters that achieve an acceptable standard for him to fly in.

Other design changes include canting the main rotor transmission forward slightly, an all-titanium tailboom, new pedal linkages which are more positive in action, a widening of the internal frame leading to more cabin room, angling the cabin floor to be flat at cruise speed, a transmission oil cooler which now provides for an indefinite hover time, and a new collective actuator system which operates in descent at <18" MAP to help prevent the collective wanting to rise (a previous Safari niggle).

Compared to the standard model, the Safari 600 is 50 lb lighter. Bruce says that one-up, it climbs easily at 1200 fpm.

Flight Experience

As well as a brief fly of the Safari 600 ourselves, KiwiFlyer also spoke with local commercial pilot Nick Lane (4 years and approaching 1000 hours on his CPL), who is familiar with both the Safari 400 and new 600 versions.

A pre-flight is straight forward, with virtually everything you might want to inspect being clearly on show right in front of you. Climbing aboard is equally straight forward so long as you remember to put your head in the bubble and follow with your body – it simply won't work the other way around unless you're less than four feet tall.

Seats are very comfortable, there's a heap of elbow room, and leg room is equally generous. I'm a touch over 6 foot and have always found the pedal position in R22s or H300s right on my comfort limit – and occasionally beyond it, resulting in cramping muscles which aren't conducive to hovering in a gusty crosswind. Not so in the Safari. Bruce's floor and pedal modifications suited me very well.

Checks are all standard practice and the venerable Lycoming roars into life. As an aside I did also observe Bruce flying from the ground – and this is a noticeably quiet helicopter. The noise footprint is unlikely to ever bother neighbours.

Bruce flew a circuit to reacquaint me, then it was my turn. Three years ago, that was a bit of a humbling experience and I'll admit it took me the best part of an hour to get to grips with the aircraft. The difference this time was significant. In the same way that others who have flown the '600' have found, a few minutes was enough. That's mainly because the controls are much lighter and better balanced now. It's a lot more like flying an R22 than previously. Vibration levels and stick shake all seemed low too, suggesting a well 'sorted' machine.

We depart for a local scenic and I also notice how much nicer the aircraft feels to just 'fly around in'. Bruce says that's due to the mast adjustments and also in part to his tilted floor. Flying 'on the numbers' is easy and in the light breeze we're flying in, Bruce can readily trim the helicopter for hands-off flight if he wishes. Confirming my perceptions in a later discussion, Nick Lane observed that it 'wants' to fly at 60 kts now instead of 40 kts previously whereupon it always felt like you were forcing it to go faster.

Nick says in his view the controls are "much improved" and although, like many aircraft it has its idiosyncrasies, "once you've got a feel for it, it flies nicely." He says to Bruce, via our discussion, "The way it is now is good. Leave it alone." In Nick's view, and mine, someone with R22 experience and Robinson Safety Course currency, would transition to the Safari 600 quite well.

Being in the experimental category, pilots require a PPL(H) to fly the Safari. Most owners either have a licence or acquire one in an R22 whilst building their aircraft. However Bruce says that pending a willing Flight Examiner (currently in the pipeline), it will be possible to undertake all one's training in the Safari if desired.

For more information

One final testament to these aircraft, worthy of mention, is that full-cover insurance is now available with a reasonable excess and premium equal to or better than what most R22 owners would receive.

To find out more, contact Bruce Belfield at South Pacific Home Rotors on 027 696 5159 or 07 871 5699,
by email: brucenik@xtra.co.nz or visit www.safarinz.com

The factory website is www.safarihelicopter.com

Brand new Safari 400 being test flown by Bruce.

Main rotor blades are composite, made in the US.

Everywhere you look, craftsmanship is outstanding.

New owner profile: Colin Wade

Our visit to Te Awamutu coincided with an opportunity to meet new Safari owner Colin Wade, who was enjoying some time in his brand new helicopter with Bruce. A Cirrus SR20 owner/pilot, Colin is yet to commence his PPL(H) and plans to use the Safari for his training. We asked Colin about the motivation behind his new acquisition. It was quickly obvious he is a passionate aviator, first flying with Max Clear and Bantams at Te Kowhai, before stepping up to a Sky Arrow, then Pioneer 300 and then a PPL in his Cirrus which he regularly flies between Te Kowhai, Pauanui and Great Barrier.

Colin has long been an aviation enthusiast and this year will attend Oshkosh for the 15th time, travelling (as always) on a Gaye Pardy tour which he and wife Sue have often helped run for Gaye. It was at Oshkosh that Colin first met Bruce (when he was demonstrating the factory machine there). Colin says he went for a couple of flights and was hooked, telling Bruce to call him when he got home. Bruce later landed his Safari at Colin's front door and the deal was done, with Colin observing that Bruce's workmanship was exceptionally good and confidence inspiring (KiwiFlyer agrees).

Colin's aircraft has been built up by Bruce and Colin over the last 18 months and has just had the mandatory 40 hours of test flying finished off by Bruce.

Colin says the Safari suited him very well with its manageable maintenance costs, decent useful load and power in reserve, and that he's looking forward to a lot of local flying and being able to drop in on rural friends.

Congratulations on the aircraft Colin. It looks outstanding.

Proud new owner Colin Wade, with Bruce.

Frank Parker lifts NZ Warbirds' new BE.2 off the seldom used Grass 25 runway at Ardmore. The aircraft is on display at the NZ Warbirds Ardmore Visitor Centre.

Flying Warbirds' new BE.2

In Issue 49 of KiwiFlyer, Frank Parker announced the arrival of NZ Warbirds' newly acquired reproduction BE.2 at Ardmore. With suitable weather since forthcoming, now he's had the chance to fly it. Frank writes of the experience:

Finally summer has found Auckland, or more specifically Ardmore and I have had an opportunity to fly the BE.2. So, how does this aircraft 'fly'?

Some History

Before considering how the aircraft performs it is important to cast one's mind to the design era of the aircraft which first flew in February 1912, just eight and a half years after the Wright Brothers 'tamed' the sky at Kittyhawk.

This was a time of empirical design, that is, trial an idea and if it works adopt it, then move on to the next 'good' idea. Ailerons had just been accepted over wing warping for roll control and aileron yaw had not been discovered, let alone considered. Design rigidity was a function of wire bracing and linen was the covering fabric of choice.

Comparable autos were the Ford Model T, a Buick Model 29 or a Pioneer Cyclecar. Of these, the Model T with 20 horsepower and two forward gears represented cutting edge design. It had a production run of more than 15 million vehicles over a span of 19 years.

In this context the BE.2 was a revolutionary aircraft design and at the 1912 British Military Aeroplane Competition it eclipsed the various types from Hanriot, Vickers, A.V. Roe, Breguet, Bristol, Bleriot, Deperdussin and others, however, because the Director of the Royal Aircraft Factory (producer of the BE.2) was a competition Judge, the BE.2 could not be accepted in the competition. Nonetheless it was accepted to demonstrate. The BE.2's attributes were recognised by the Military and a number ordered for the fledgling Royal Flying Corp.

At this time the role of aircraft in the military was conceptual. Soldiers knew they needed them but were not sure what to do with them. Hindered by modest performance, the best imagined application was reconnaissance. Being able to take a look behind your adversary's front line was an amazing tactical advantage, and so the BE.2 was ordered for the Royal Flying Corp as an observation platform. It was in this role that the aircraft was deployed to France at the outbreak of hostilities in 1914.

Describing the BE.2

My best description of the aircraft is it 'flies like it looks' and if 'ponderous' is unflattering, it is definitely descriptive.

The BE.2 is a big aircraft with a wing span of some 11.3 meters (37 feet for the Imperialists). It is held together by a myriad of struts and wires, with a drag co-efficient close to a thistle seed.

All this is powered by 90 horsepower. Imagine a 90 hp Cub towing a glider and you're not far off the mark.

With a wing area of approximately 370 sq ft and a loaded weight of 1850 lbs the BE.2 has a very low wing loading, so is affected by the smallest wind gusts.

Performance is adequate but less than startling. In fact the speeds and climb rate are reminiscent of the Bell 47 helicopter I learnt to fly 45 odd years ago.

That's the outline, now for specifics:

Pre-flight

The pre-flight inspection is typical for a 'rag and bone' aircraft, with a close look around ensuring that there is no damage to the fabric which may indicate underlying problems. Then to control wires which are simple and all exposed, so a check for their integrity. Ditto the undercarriage. There are a myriad of struts and bracing cables to be viewed; on the ground 'landing wires' tight and 'flying wires' firm - in the air (if you wished to check) vice versa.

The engine requires a little more attention. It's generally exposed so is easy to visually check, however oiling the exposed exhaust rockers and valves and magneto gear drive is a novelty!

Avionics simple, altimeter, airspeed indicator, and RPM gauge sums it up, plus the fuel gauges which are tubes connected directly to the respective tank (fortunately) with an 'off' tap should they break!

Starting

The BE.2 utilises the 'Armstrong' starter (you hand swing the prop for the newbies). I'm familiar with hand swinging the venerable Gypsy Major which has a nice compression at about two o'clock and for which it is reasonably simple to get good swing through a compression. The BE.2's RAF.1 however, is a geared V-8 engine. A little more 'torque' is required and there is no simple single compression swing. It's a new dance and (hopefully) with practice will become as easy as a 'Quickstep'. Once started the engine runs nicely, however the propeller is driven via the camshaft (to give a reduction) and the associated gear-train can develop a 'chatter' at certain RPM. After a suitable warm-up we complete a run-up on the chocks and then it's time to fly…

Taxiing

Taxiing is straight forward if you are familiar with the Tiger Moth. You have the same challenges; no brakes and limited steering via a tail skid. In general a grass taxi is straight forward, and over tarmac less so. Additionally the BE.2 has quite a large structure with considerable weathercock, 10 knots okay, 15 knots – not ok; this is a fair weather aircraft.

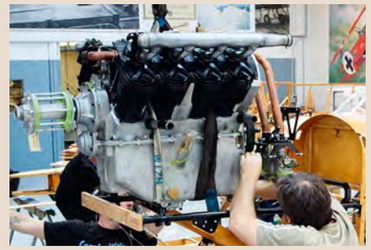
Take-off

The DVA's (take-off checks) are simple, with no trims, mixture, flaps, or instruments to complicate things.

It's really fuel, harness, controls – and let's go…

And here's the first surprise; the throttle is in the right hand and control column in the left. In general that's no

The RAF.1 Engine



The RAF.1 engine, a development of the Renault 80 (horsepower) design is a proven reliable unit. It is a V8 air-cooled design with an aluminium crankcase, cast iron cylinders and pistons, and forged steel crankshaft. The engine has a single magneto and effective (when compared to the basic carburettor of other period engines) dual Claudel-Hobson updraft carburettors.

A feature of the engine is the 'geared' propeller, whereby it is driven (in effect) by the camshaft to rotate at half engine speed. A symptom of this arrangement is that the gearbox can develop a sympathetic chatter at certain engine RPM and power combinations which causes quite a harsh airframe vibration. The remedy is simple; avoid these power settings!

Apart from the above, the engine is straight forward to operate, throttle forward for 'go' and rearward for 'slow'.

In service the RAF.1 engine was used in a variety of Allied aircraft.

The engine of the 'Warbirds' BE.2 was built by The Vintage Aviator Ltd (who also constructed the aircraft) by reverse engineering an original engine. For more information and images see: www.thevintageaviator.co.nz

Frank Parker in the BE.2 at Ardmore. With a low cruise speed, low prop rpm and low noise signature, the ride is "something like a magic carpet".

problem, but years of habit have not instilled the same dexterity in my left arm. Nonetheless, into wind, full power, and you're levitating through the air at 50 – 55 mph, about the same as the B47 I mentioned. Rate of climb is about 4-500 fpm and with quite a low noise signature the experience is something of a magic carpet ride. Once a suitable height is reached, at Ardmore 1000 feet more or less (the altimeter scale is somewhat coarse), power back to cruise at around 1500 rpm and 65 - 70 mph. Visibility ahead is reasonable; the big slow-motion prop (approx 750 rpm) is evident and the exposed valve rockers almost mesmerising. It is soon evident that the valve train lubrication, oil mist from the engine breathers, is next destined for the forward cockpit. Within a few minutes the windshield and occupant are liberally branded with the black stuff.

Meanwhile, looking around there is the maze of bracing wires and somewhat large wings, a spartan cockpit, wind in the hair… This is grass roots flying – a microlight with a historical twist.

Handling is straightforward. The controls, while standard for the 21st century PPL, are not necessarily reflective of a modern aircraft. The elevators are fine, but the ailerons way out on those rather long wings, with no pretence of mitigating aileron drag, are almost a decoration. The rudder, with no aerodynamic balancing, is effective but unduly heavy.

Straight and level is thus easy. However, when it's time to turn, expect more of a rudder exercise than aileron. Tiger Moth pilots will understand.

It is fair to say the BE.2 is less than spritely, and easy to see its poor reputation when facing up to later more 'modern' agile fighter types.

Landing

The approach and landing are also straightforward, although you have to get the power right back to descend, otherwise it floats like a butterfly. With the power back, drag takes over and a standard Tiger style approach is flown. As well-known aviator and mentor Jim Bergman advises; fly a steep approach, you never know when those things (engines) are going to quit!

The round-out is undemanding, albeit you're flying with your 'untrained' left hand so an occasional excursion is possible. There's plenty of lift from the big wings and touchdown in a 3-point or wheeler attitude is no problem. The undercarriage is sturdy but not well braced for side loads so it is important to keep it straight on touchdown however. Once on the ground, with a touchdown speed of about 45 kts (who's looking inside?) the ground roll is less than 100 meters.

As noted earlier taxiing is easy, subject to crosswinds which will lift the wings and weathercock – always in agreement with Sod's Law, in the wrong direction!

With several flights under my belt I can say the BE.2 is simple to fly. Any pilot with Tiger Moth experience will feel at home, well at least in the neighbourhood. Indeed having flown both types in an afternoon there is not much between them. Naturally the BE.2 feels more delicate; I'm in no mind to chance a steep turn let alone aerobatics, but the lazy ailerons and need for rudder is common to both types, and ground handling very similar.

I say the above with the benefit of many hours in many types. I can see the BE.2 could have been a handful for a fledgling pilot with maybe 15 - 20 hours total time, more so with a 'Hun' on his tail. I have the utmost admiration for those who took this machine to war.

Frankly@xtra.co.nz

Basic instruments. Note fuel gauge tubes.

Very fine craftsmanship is evident everywhere.

This is called a Gaggle of Gliders - a small one with 26 aircraft. In some competitions there could be 40 all trying to share the same mass of rising air.

Practise for Parachuting

If you've never been to an international gliding competition, the photo above probably made you look not twice, but several times. When Jill sent it to go alongside her Soaring article for this issue, I was surprised to learn that it is only of a small 'gaggle' and not a large one. But then although I like close formation flying with pilots I know and trust, I don't enjoy flying in loose formation with unfamiliar pilots - simply because aircraft will often drift in or out of sight and it's not fun to spend half the flight trying to establish where other nearby aircraft are and worrying that they might not have you in sight either.

There are of course protocols for when competing gliders in large competitions must all share the same patch of rising air. Jill explains that pilots will (obviously) join a thermal at the bottom and turn in the same direction as those already there. Additional care is required when different classes of gliders are involved as their optimum turning circle and cruise speeds will vary.

Such a 'system' is normal and accepted internationally although as Jill describes in the following, it isn't failsafe.

As an aside, Jill also mentioned how happy she was to see a couple of gliders peel out of a swirling mass of white spots in the sky at the recent Junior World Champs she attended in Australia, and to hear son Alex on the NZ team frequency exclaim, "***k that, I'm out of here". Congratulations Alex, I'm with you.

Jill writes:

What's the scariest thing that can happen to you in a small aircraft?

Personally, I think it has to be a mid-air, or something else that causes catastrophic failure and complete loss of control.

Glider pilots wear parachutes for exactly this reason. We don't generally expect to have to use them but I personally know three people who belong to the Caterpillar Club; that is, they have used their parachute in earnest. It can happen. Your 'chute needs to be maintained, you need to be buckled into it correctly at all times and you need to be prepared to use it. At the recent World Gliding Champs in Australia another two people joined the club.

The contest, held at Benalla, Victoria ran for three weeks including the practise week. In the way of these things, the good gliding weather stopped at the end of the practise week meaning that organisers were struggling to set tasks appropriate for competition in fairly 'ordinary' conditions.

World Gliding events are large affairs. There were 26 countries competing in three classes with a total of 115 gliders overall. That's one heck of a lot of fibreglass in the sky at one time.

Skies for much of the contest period were blue with no clouds to mark thermals. In spite of the classes being started at different times in different parts of the sky, gaggles could still contain up to 40 gliders, all trying to climb in the rising air marked by the spiralling mass of other gliders. When you think about it, a mid-air nearly seems inevitable. In fact, there were two mid-air incidents at this event. The first was extremely lucky, just the barest of touches of wingtips with both pilots staying in control and landing safely. GNZ President Karen Morgan reported, "No pilot was found to be at fault but it was noted that both were concerned with a primary collision threat which was a third glider between them, and therefore overlooked each other."

The second incident was far more serious with a high-speed impact causing one glider to lose a wing and the other breaking the tail. Both gliders were immediately unflyable and spinning. Kiwi pilot Steve Wallace was flying ahead of the main bunch. "Alan Belworthy, my team mate in the 15 metre class, was with the main bunch. He suddenly piped up on the Kiwi team frequency and said he had just seen a mid-air. The tone of his voice conveyed that it was serious. After what seemed like a long pause the sombre call of, 'no 'chutes,' came. Another long pause and a more excited call of, 'two 'chutes.' This was a relieving call for all those listening. Very shortly afterwards came the advice he had seen the two gliders hit the ground and the 'chutes land."

It turns out getting out of a spinning glider isn't anything like getting out of a glider on the ground. Two years ago, a friend of mine, Gerrard Dale also had to exit a spinning glider after a mid-air in a British competition. Due to 'G' forces his (usually, one handed and easy release) seat straps were locked tight and it took him nearly too long to release himself and get out of the glider. Aussie pilot, Steve O'Donnell, one of the victims of the Australia crash, later said it took from 5,000 feet to 1,700 feet to actually get out of the spinning glider. He was quick to release the canopy and straps but it was a real struggle to get himself out of the crippled craft. He couldn't just push himself out using his arms as is done on the ground. He had to put a leg out first to get that caught in the wind which pulled his body out of the cockpit (tearing his ligaments and hamstrings). However, not having a quick release system on his harness, the most painful injuries Steve sustained were from being dragged along the ground in the estimated 20 knot winds on landing.

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

Gliding related social media has been full of discussion on competition safety in the last few weeks and a world-wide, pilot led initiative, to bring in rule changes with severe penalty points for close proximity flying, is gaining momentum. Some countries will be trialling the idea in their own national competitions and the International Gliding Commission will be petitioned to implement the changes in international competitions at their next meeting.

In the meantime pilots, I know people like jump-plane pilots wear parachutes. If your aircraft became disabled, considering the 'G' forces involved with a spinning aircraft, could you get out? You might want to have a practise.

If you'd like to have a go at gliding (with no intention of using the 'chute on your back), contact your local club. See the listings on the GNZ website. For subscriptions to SoaringNZ, see mccawmedia.co.nz.

Classics of the Sky

Tauranga City Airshow

Strikemasters NZ70 and NZ62 about to start their final New Zealand display. Sad to see them go offshore. Thanks for the memories Brett.

The 2017 'Classics of the Sky' Tauranga City Airshow was held on Saturday 21st January, with gates opening from 1pm and flying displays on from 4pm - 7:30pm. The event has run since 2010 when Classic Flyers joined with the Sport Aircraft Association's (biennial) air display to create a combined annual event.
In recent years the show has also included a 'secondary' attraction, this year's being a dragster and hot rod display.
Steve Engle reports:

A couple of days before the event this year, Brett Nicholls announced that his two Strikemasters were being sold to a United States operator and that this would be their last public appearance in New Zealand. The Strikemasters were a big drawcard for the Tauranga event - even before Brett's news which, if one is to maintain a positive view, did create extra interest from visitors and drew more people to the show. Classic Flyers member Wally Gee was BCG (Battery Cart Guy) for the weekend, and said that on Friday he helped six lucky people go for farewell joyrides in the Strikemasters. I bet they were grinning from ear to ear after the experience.

The weather 'bomb' that had hit the South Island & Wellington a couple of days before the show caused punter uncertainty about the weather, with Organisers fielding a lot of phone calls on the day from patrons asking if the show was still on. However it was clear skies over the field by 10am on the day of the show. Around the airport many aircraft owners were active with brushes and soap suds busily washing and polishing their craft for display.

Beechcraft T-6C Texan II runs up its Pratt & Whitney turboprop ready to perform a solo show.

The Air Force contingent flew in, placing a C-130 Hercules on static display which kids (small and big) clambered through all day. The all black T-6C Texan put on a solo flying display, and the Seasprite helicopter demonstrated its manoeuvrability and winching abilities.

The AOS demonstrated their canine team's skills when a 'baddie' invaded airside and attempted to make a run for it. Needless to say the dog was the victor, chased him down and grabbing hold firmly. Note to self - dont run!

Ex-RNZAF Aermacchi #69's Rolls Royce Viper engine has been restored to running condition and it was able to taxi along the flightline. Cries of 'faster' were being encouraged from the crowd by commentator Grayson Ottaway in the hope it would get airborne. It isn't airworthy at the moment, however that is definitely part of the long-term plan.

After 14 years of inactivity, the Devon has recently been restored to flying condition by the Solo Wings team and volunteers, and was piloted by Dave Phillips.

Later, Dave gave his usual polished performance in his DH.82 Tiger Moth. It was very graceful and a pleasure to watch the slower pace with perfectly controlled energy management.

Another interesting piece of restoration work that Classic Flyers have undertaken is on the Grumman Avenger. Two years and thousands of hours of voluntary work has got it to the stage where its wings can fold out, and it can run and taxi, but unfortunately it will not take to the air.

The show is not only about flying. It also included drag cars, hot-rods & superbikes tearing up and down the runway at over 300 kph. This necessitated a FOD sweeping and inspection after each session. The Yak-55 raced the latest 570 hp Nissan GTR for a laugh, and a 150 hp Can-Am Maverick hooned around, doing doughnuts and jumps for the crowd.

Remembering that Tauranga was still a fully functional operational airport, several scheduled Air NZ flights had to be accommodated for, and the TECT rescue helicopter had to leave mid-show for an

YAK52s in close formation led by Brett Emeny.

de Havilland Devon airborne again after 14 years.

RNZN Seasprite departs after a winching display.

The scale of the Seasprite is apparent during an after landing check up.

urgent patient transfer mission.

Tauranga Tower along with Keith Skilling and the other display organisers coordinated air and ground movements very well together. As well, display pilots had access to an online and real-time show schedule. This was very handy as various demo slots were shuffled around throughout the day.

A Strikemaster Engineer flew down from Ardmore late afternoon in a Cessna, and was able to fix an issue with one of them within a few minutes so the show could go on.

Those Strikemasters were the stars of the show and certainly didn't disappoint. A very polished dual display from Dave Brown & Mark Helliwell thrilled the crowd - albeit it on a bitter-sweet note, it being their last appearance in NZ.

Thankfully the weather played the game on the day. It did get awfully dark and grey at 7pm, however rain stayed away until after the airshow ended.

On a brighter note and 'hot off the press' - Craig Mossman's 'fighterjets' company based in Tauranga has just become CAR Part 115 certified with an Aero L-39 Albatros jet now online for adventure flights.

Lastly, to put my other (NZ Jet Modellers' Association) hat on for a moment; we were invited to put on both a static and flying display with two flying timeslots. Peter Brown's quarter scale (3m wingspan) Vampire and Colin Austen's quarter scale (2.7m long) Grumman Panther both flew displays. Colin is currently building a quarter scale BAC Lightning which is 3.6m long (plus pitot tube) and weighs 60 kg. It will be powered with a pair of turbines in 'shotgun' (over and under) style. The public were quite impressed that our toys have real miniature Jet A-1 burning turbines in them - and that they actually fly. We must thank the organisers for their invitation and hospitality; we were delighted to have been part of the event.

Steve Engle

Vampire and Panther dwarfed by a bigger toy.

Graham Bethell's P-51D Mustang never fails to delight.

A flock of Vans RVs following their leader.

Are you? Stephen Jones in his Vans RV-7.

Catalina PBY-5A lumbers into the air. A shame there's no lake at Tauranga.

Cries of "faster' from the crowd wishing Aermacchi 69 back into the air.

C130 Hercules blowing up a storm onto the crowd.

Piako Gliding Clubs Pawnee towplane on short finals.

Walsh Memorial Scout Flying School 2017

Paul Le Roy image

Jared Le Roy on approach to Matamata in one of the Piper Tomahawks loaned to the School for the duration of the training camp.

Practical briefing underway.

On fuelling duties.

Pre-flight in progress.

The traditional first solo Walsh dunking.

The 51st annual Walsh Memorial Scout Flying School took place from 11th through 26th of January this year. Always held at Matamata, the School is an aviation 'institution' in New Zealand with a deservedly proud history of taking thousands of ab-initio students through to their first solo during two weeks of January each year. Our coverage of the 2017 event is contributed by Jared Le Roy, a student of this year's intake, now determined to follow a career in aviation.

I was privileged to be one of approximately 60 students camping at the aerodrome for the Walsh Memorial Scout Flying School this year. We had the pleasure of learning to fly with a world class team of Instructors and a fleet of Piper Tomahawks and Cessna 152s, some of which were 152A Aerobats. All of the aircraft were on loan from aero clubs around the country. As well as this fleet (of 16), there were other aircraft that students could have flights in. The CJ-6 Nanchang ZK-MAO could regularly be seen demonstrating aerobatic flight to students on board, or they could fly in the ERCO Ercoupe ZK-EXC, getting a feel for the pre-WWII design with an unusual linked (and virtually stall/spin proofed) control setup. Flights were also available in a variety of other aircraft present for the school including American Champion Citabria ZK-CRH, the modified Just Aircraft Super STOL ZK-RIM, an ex-RNZAF Airtrainer ZK-DJY, Airtourer T6 ZK-CPG, the de Havilland Chipmunk ZK-SAX, a de Havilland Tiger Moth, a Cessna 172, and a Slepcev Storch. We were spoiled for choice!

Over the course of the two week camp, students attended briefings on most days, learning the theory of flight and other topics relevant to flying such as meteorology and human factors. Then we would practice the theory we had learned in the aircraft. Students flew at least 8.5 hours throughout the camp, averaging two flights per flying day, as on some days we were grounded due to weather.

By the end of the camp, almost all of the students had completed a solo flight. And as is traditional at Walsh, after their first solo flight students would be dunked with water by the students returning to the camp who had gone solo previously.

On occasions throughout the camp we were also treated to flying displays from various other aircraft, such as the C-130 Hercules, NH-90, King Air B200 and T-6C Texan II all from the RNZAF, Super Air's Fletcher FU-24 ag, and Brett Nicholl's two BAC Strikemasters.

Experienced students also had the opportunity to practice night flying on one of the nights during the school. The runway was given temporary lighting and some instructors and students also fulfilled duties for guiding the taxiing aircraft on the ground.

I think the school was a fantastic experience. The Instructors, some of whom are A-cat or have other equally outstanding qualifications or experience, were amazing and a pleasure to learn from. Special mention too, to Airways

Camp Director John Hamilton addresses an assembly of students.

Ben Mitchell receiving the event's supreme award, the Walsh Trophy.

Matamata's airspace is controlled for the event by the mobile Airways team.

Walsh Memorial Scout Flying School 2017.

and MetService for their contributions. The temporary Control Tower provided by Airways New Zealand meant students could learn in a controlled airspace environment – also necessary because there were over a thousand movements per day in the later stages of the camp and sometimes six or more aircraft in the circuit at any one time. MetService was also on site to provide us with accurate weather forecasting and information throughout the camp, and to give us lessons on meteorology as part of our flight training.

Our final evening is the prize giving dinner where many thousands of dollars worth of donated prizes for the best performing students are awarded. Listing all of the Walsh sponsors would be a magazine article on its own. Students are very grateful for the extensive amount of support and rewards that are so kindly made available for the event.

Getting to spend two weeks living at an airfield and flying daily was a dream come true for me, and getting to see and even fly some of the amazing exotic aircraft also present was something unforgettable. And since I am also a keen photographer, a passion that was inspired by aircraft, being able to photograph these aircraft as well as experience flying in them was a treat. This experience has set me on the life-path of aviation and I cannot think of a better place than Walsh to have learned the joy of flying.

Jared Le Roy

Thanks to David Jupp and also Paul Le Roy for contributing some of the images within this article.

Just part of the Walsh flight line.

RNZAF Hercules on approach.

Students were offered rides in a variety of types.

Returning students undertook night circuits.

A Day at the Walsh

Students at Walsh are organised into one of four 'flights' for the duration of the camp. Which flight you are in determines what duties you will be responsible for each day. These could be anything from kitchen work, cleaning and tidying around the camp, tying down and covering the aircraft at day's end, or vice-versa before the first flights of each day.

The first flights each day are at 6:00am, and the smooth, cool morning air is glorious to fly in. Flight times are prearranged with your instructor via a booking system. Breakfast is at 8:00am and the Chief Flying Instructor's daily brief as well a weather briefing both take place during breakfast.

The day's first lesson briefing is held at 10:00am. Lunch is at midday, and late meals for both lunch and dinner are available for students and Instructors who are flying during meal times. Typically, a second briefing will be given at around 2:00pm on the subject we will practise during our next flight.

One of my favourite lessons was non-normal circuits, where for whatever reason it becomes necessary to deviate from the typical order of events in the circuit - such as flapless landings or take-offs, simulated engine failure or radio failure.

Flying continues throughout the afternoon and at 5:45pm the students who are not flying or on kitchen duties attend a flag down ceremony in formal attire. Dinner is at 6:00pm, and after-dinner flying continues until 8:00pm. Lights are out at 10:30pm. You tend to sleep quite well.

Jet Modellers at Tokoroa

Roger Perrett from Australia won the Supreme model award of the event with his 1/7 scale F-100D equipped with full ordnance.

New Zealand Jet Modellers held their annual 'International Jet Spectacular' event at Tokoroa airfield over the weekend of 10-12 February. If 'model' conjures thoughts of something you might build on your kitchen table though, think again. These models could be upwards of 3 metres long, are powered by Jet A-1 burning turbines producing north of 45 lb thrust, and fly through radar traps at 400 kph. NZJMA member Steve Engle reports on a great weekend:

Friday was a setup and scrutineering day with pilots arrived from as far away as Germany. Mike Ryden and Roger Perrett came over from Australia. Of course there were plenty of keen NZ participants; Karl Hansen left Whangarei at 4:30am to make it down to Tokoroa for a day of flying with his turbine helis before returning home the same day. That 'is' dedication to the hobby.

Curious fellow pilots eagerly watching as the wraps were taken off new models, with twin-boomed Ripmax Xcalibur proving very popular.

Scrutineering was thorough. Each pilot had to start their jet, then turn off their radio transmitter to prove that the turbines ECU would failsafe and shut down automatically if by some small chance, there was a radio link failure. This did indeed identify a couple of instances where the turbines continued to run, and they therefore required some reconfiguring.

Readers of this KiwiFlyer issue might have noticed we exhibited at the Tauranga Airshow a few weeks before our event, so we had great public turnout.

Despite the airfield being closed by NOTAM, including white crosses at each end of the runway, a full size plane came and landed during the event. We politely informed his CFI.

24 pilots with 35 models participated in the event this yea. Thousands of hours of time & effort are evident in this image.

On the flightline

24 pilots with 35 models registered for the weekend. This was actually a low turnout, the upside being no queues for the flightline or bbq - and it was a lot more relaxing for the organisers.

Tony Withey treated the crowd to a smoke display from his scale Aermacchi, as he practiced for his pending Wings Over Wairarapa display intended as part of a tribute to No. 14 Sqn.

Michi Besler - our German visitor - was a very proficient flyer, 'throwing' around a thrust-vectored J-10 model (in McLaren F1 colours). His tumbles and hovering were very impressive.

For me, the most impressive new models were two F-100 Super Sabres. Roger Perrett brought his BVM F-100D Super Sabre over from Australia. This is 7 feet long at 1/7th scale and weighs 30 lbs. Its Jetsmunt turbine produces 45lb thrust, although Roger has the turbine's ECU dialled down to reduce output as he says he doesn't need all of that power. It flies with full ordnance and drop tanks, and Roger has detailed it to represent a Vietnam combatant, with all the paint flaws, dirt and wear that these aircraft exhibited when in combat. Roger says that detailing work consumed countless hours over 18 months. Quite rightly it was star of the show and won the supreme pilots' choice award.

Competitions

Various fun competitions were run over the weekend.

Pilots had a target speed challenge of 185 kph. This was won by Stuart Hellyer with his Composite ARF Flash. He then attempted to overload my (calibrated) radar gun by proceeding to do a high-speed pass at 385 kph.

Dan Scott received a special award for the 'Lowest aerobatic manoeuvre', unfortunately too low to ensure his plane's survival!

The Purdy brothers impressed their fellow pilots so much that Scott won the 'Best Sport' prize for their high-speed low-level aerobatics/antics.

A dead-stick landing

Turbine failures are quite a rarity these days. I personally can't recall any in the last 15 years, yet this year we had two separate occurrences. They were different brands and using different fuel sources, so hopefully that's got rid of any bad luck for a while.

One of those failures was in Colin Austen's quarter scale scratch-built Panther. Colin performed a flawless 'dead-stick' landing back onto the runway.

The other turbine failure was in Mayur Topiwalas' 3 metre Saudi Hawk. He was a little less fortunate and damaged an undercarriage leg during the forced landing.

Thanks to

The local ATC kids fundraised by looking after the gates (gold coin donation) and the barbeque. We're very happy to be able to support the community in this way.

A big thank you to our sponsors Z Energy, Jet Centre, Traplet Productions, Hobby City, Intairco and Festo. The valuable prizes offered help attract entrants.

Chris Pickering and his volunteer team put many hours into preparing the airfield and tidying up afterwards. Harvey Stiver kindly scrutineered the models. Hank Meerkerk and Murray Belfield provided hangarage for our jets and gear. Thank you all.

To find out more information about the NZ Jet Modellers Association and future events, visit www.nzjma.com

Tony Withey's 1/5 scale RNZAF Aermacchi puts on impressive smoke displays.

Michi Besler flew a great display in Paul Connor's thrust-vectored, overpowered J10.

Quarter scale F-104 Starfighter 'The Widowmaker' with Paul Connor & crew.

Colin Austen dead-stick landed his Grumman Panther after a turbine failure.

Mayur Topiwala and his giant 3 metre Saudi Hawk.

ZK-MEB Supermarine Aircraft Spitfire Mk 26B

Having been completed over the last four years, this Supermarine Aircraft Spitfire Mk 26B appears on the register to Ivan Campbell of Campbell Aviation Ltd., the sole NZ distributors for the Supermarine Mk26, Mk26B Spitfire and Titan T51 aircraft kits.

The two-seat Spitfire combines performance with an enviable style. Construction is the same as original Supermarine Spitfires from the 1930s with a stressed-skin aluminium structure and a graceful elliptical wing. Interestingly the reason the construction is the same is in part because permission to proceed was granted by a direct descendant from the original Spitfire manufacturers - so these new Spitfires are not replicas but continue on with the mark series i.e. Mk 26B.

ZK-MEB has V8 power and should cruise at 170 kts. It has a restricted VNE of 220 kts which was set in the UK. American based Supermarine Aircraft have been manufacturing the Spitfire kits for around 20 years, and now have their products in over 8 countries. This 90% scale aircraft not only looks like a Spitfire but sounds good too with the installation of a 6 litre 400hp fuel injected Holden LS2 V8 engine which came included with the package from the factory.

A note to non warbirds followers: Don't be confused by the registration on the sides of this Spitfire as on one side it is EB then the roundel, then the M and on the other side it is M then the roundel then the EB this is because the M denotes the squadron code and that is always painted in front of the roundel.

ZK-UVC Comper CLA.7 Swift

This Comper Swift, a small British racing aircraft built in the early 1930s, has just finished a three year restoration project by Jay McIntyre and his team at JEM Aviation in Blenheim.

Shipped to New Zealand in January 2014, this aircraft was built in 1932 and for two years toured around Europe, before being sold into Australia to become VH-UVC. It was based around the Melbourne region for most of its flying career. In 1962 it suffered an undercarriage leg failure which put it out of the air from then on. It changed hands quite a few times with each owner intending to rebuild it. Luckily it was kept altogether, then in 1997 it was bought by its current owner Roy Fox of Sydney who ultimately arranged for the aircraft to be shipped to JEM Aviation for the restoration.

UVC's restoration would involve a total rebuild of all the woodwork including the spars, as over time the existing wood had dried out and suffered from excessive compression damage and cracking. However all the metal fittings were able to be re-used once they had been stripped and repainted and then the aircraft was re-covered using Ceconite and dope before being painted. The fully restored 90hp Pobjoy engine was also re-fitted having first been run on a test stand.

CAA have completed the CoA checks (back in November 2016) and the Comper Swift is now due to fly at the end of this month. It is on the NZ register for the purpose of the test flying period and will have the VH blanked and replaced with ZK during this time. Once the testing has been completed, cowlings

will be painted and the aircraft will be de-rigged and returned to its undoubtedly happy owner in Australia.

ARRIVALS - November/December 2016

BIC	ICP Savannah S	Mr T Den Haan	Cust	Microlight Class 2
GZW	Schleicher ASW 27-18E	Mr P C Chadwick	Christchurch	Glider
HGY	Bell 206L-1	Heliflite Charter & Training Limited	Papakura	Helicopter
HNE	Hughes 369E	South-West Heli Lease Limited	Te Anau	Helicopter
HZV	Cicaré SVH-4	Mr T C Pike	Waimauku	Microlight Class 2
IFG	Eurocopter EC 120 B	Heli Adventure Flights Limited	Taupo	Helicopter
IIM	Guimbal Cabri G2	Adventure Helicopters Limited	Tauranga	Helicopter
IMB	Bell 206B	Opie Equipment Ltd	Silverdale	Helicopter
IRO	Eurocopter EC 120 B	Volcanic Air Safaris Limited	Rotorua	Helicopter
ISE	MBB MBB-BK117 B-2	Airwork (NZ) Limited	Papakura	Helicopter
IYY	Kawasaki BK117 C-1	Heli A1 Limited	Otorohanga	Helicopter
KDL	Pacific Aerospace 750XL	Pacific Aerospace Limited	Hamilton	Aeroplane
KDN	Pacific Aerospace 750XL	Pacific Aerospace Limited	Hamilton	Aeroplane
KTH	Niki Rotor Aviation Kallithea	Gyrate NZ Limited	Mount Maunganui	Gyroplane
LAF	Fisher Dakota Hawk	Mr R R Rayne	Nelson	Microlight Class 2
MEB	Spitfire Mk 26B Replica	Mr I H Campbell	Rangiora	Amat Built Aeroplane
MJA	Martin Aircraft Series 1	Martin Aircraft Company Ltd	Christchurch	Jetpack
MJC	Martin Aircraft Series 1	Martin Aircraft Company Ltd	Christchurch	Jetpack
MJE	Martin Aircraft Series 1	Martin Aircraft Company Ltd	Christchurch	Jetpack
MJG	Martin Aircraft Series 1	Martin Aircraft Company Ltd	Christchurch	Jetpack
MLE	Titan T51 Mustang	Mr I H Campbell	Rangiora	Amat Built Aeroplane
NVC	Cessna T206H	George Bostock Limited	Hastings	Aeroplane
RDA	AutoGyro MTOsport	Mr T S Smith	Whakatane	Gyroplane
RDP	AutoGyro Cavalon	D P & S J Laing Family Trust	Dunedin	Gyroplane
RVQ	Vans RV 7	Mr D G Cranna	Papakura	Amat Built Aeroplane
UVC	Comper CLA.7 Swift	JEM Aviation Ltd	Blenheim	Aeroplane
ZYX	Diamond DA 42	Mr K Li	Auckland	Aeroplane

TRANSFERS - November/December 2016

BZU	Cessna 172B	Classic Flights Limited	Wanaka	Aeroplane
CJP	Jabiru UL-T	Mr A M Guyan	Auckland	Microlight Class 2
CXL	Cessna 150H	Mr J L Ainsworth	Christchurch	Aeroplane
DCM	Piper PA-34-200	Air Hawkes Bay Limited	Hastings	Aeroplane
DEH	Piper PA-28-140	J K Syndicate	Rakaia	Aeroplane
DMN	Isaacs Fury II U/L	New Zealand Warbirds Assn Inc	Papakura	Microlight Class 1
DPD	Cessna 177RG	Mr T Dunser	Auckland	Aeroplane
DUK	Cessna 172M	Aerial Spotters (2017) Limited	Mount Maunganui	Aeroplane
DXY	Cessna 172M	Aerial Spotters (2017) Limited	Mount Maunganui	Aeroplane
ELH	Cessna 172N	Aviation Adventures Limited	Lyttleton	Aeroplane
FHQ	Piper PA-28-181	Dr C Davis	Lower Hutt	Aeroplane
GEH	Schleicher Ka 6CR	Mr T R Hardwick-Smith	Eltham	Glider
GLA	Schempp-Hirth Ventus-2cM	GLA Syndicate	Blenheim	Power Glider
GPH	Hoffmann H 36 "Dimona"	GPH Syndicate	Pukerua Bay	Power Glider
HEB	Robinson R22 Beta	Mr R M Hill	Oxford	Helicopter
HGF	MDHI 369E	Te Anau Helicopter Services Limited	Te Anau	Helicopter
HIC	Schweizer 269C	Patchett Ag-Air 2015 Limited	Blenheim	Helicopter
HLS	Eurocopter AS 350 B2	Independent Helicopters Limited	Christchurch	Helicopter
HMR	MBB MBB-BK117 B-2	Helilink Limited	Auckland	Helicopter
HNE	Hughes 369E	Te Anau Helicopter Services Limited	Te Anau	Helicopter
HNX	Eurocopter AS 350 BA	Kaikoura Helicopters Limited	Kaikoura	Helicopter
HRS	Bell 206B	Heliops Southland Limited	Otautau	Helicopter
HUC	Eurocopter AS 350 B2	The Helicopter Line Limited	Queenstown	Helicopter
HWM	Bell 206B	Precision Helicopters Limited	Urenui	Helicopter
HYA	Eurocopter AS 350 B2	Action Helicopters Limited	Queenstown	Helicopter
ICT	Eurocopter AS 355 NP	Helicopter ICT Limited	Auckland	Helicopter
IEP	Eurocopter AS 350 B2	Glacier Country Helicopters Limited	Franz Josef Glacier	Helicopter
IHF	Eurocopter AS 355 F2	Government Of Tokelau	Palmerston North	Helicopter
IHF	Eurocopter AS 355 F2	Helicopter Services (BOP) Limited	Taupo	Helicopter
IHV	Eurocopter EC 120 B	Fiordland Helicopters Limited	Te Anau	Helicopter
IJM	Robinson R44 II	Muzzle Farming Limited	Kaikoura	Helicopter
IKO	Eurocopter AS 350 B2	Helicopters Queenstown Limited	Queenstown	Helicopter
IMJ	Eurocopter AS 350 B2	Precision Helicopters Limited	Urenui	Helicopter
IND	Bell 206L-1	Frontier Helicopters Limited	Whakatane	Helicopter
IOH	Rotorway Exec 162F	Mr D M Hill	Helensville	Amat Built Helicopter
IRS	McDonnell Douglas 500N	Central Helicopters (2014) Limited	Opotiki	Helicopter
IWC	Eurocopter EC 120 B	Heliworks Queenstown 2012 Limited	Queenstown	Helicopter
IWC	Eurocopter EC 120 B	Mr B H Henley	Wanaka	Helicopter
JFG	Cessna 180K	Mr S J Mcchesney	Hamilton	Aeroplane
KCW	Cessna 177RG	Michael & Amy Law	Auckland	Aeroplane
KFL	Convair 440/580	Air Chathams Limited	Chatham Islands	Aeroplane
KID	Cessna A152	Kapiti Districts Aero Club (Inc)	Paraparaumu	Aeroplane
MGC	Ibis Magic GS-700	TJ Duncan & JC Templeton Syndicate	Lane Wanaka	Microlight Class 2
MPL	Impulse Aircraft Impulse 100 TD	Mr J D Stewart	Wyndham	Microlight Class 2
OPA	Vans RV-6	Mr S A Opie	Auckland	Amat Built Aeroplane
ORR	Dyn'Aero MCR ULC	Mr P J Karl	Hamilton	Microlight Class 2
OUR	Rans S-6ES Coyote II	Mr B J Burgess	Owaka	Microlight Class 2
PVC	Cessna 402B	Aerial Surveys Ltd	Nelson	Aeroplane
PYS	Alpi Aviation Pioneer 200	Mr T M Leefe	Invercargill	Microlight Class 2
ROC	Piper PA-34-200	Sky Surv Aviation Limited	Wellington	Aeroplane
RUA	Bruce Naish Gyro -1 Place	Private Owner		Microlight Class 1
RWD	Tecnam P92 Echo Super	Park Lane Trust	Timaru	Microlight Class 2
SAF	Gippsland GA8	Stark Airlines Limited	Hamilton	Aeroplane
SUG	Piper PA-25-235	Mr C R Stobbs	Upper Hutt	Aeroplane
TJD	Morgan Aero Cheetah Sierra 100	Mr M W Hammond	Lower Hutt	Microlight Class 2
VMP	Skywise Ultraflight SV-2	Mr P D Howarth	Opunake	Microlight Class 1
XLK	Pacific Aerospace 750XL	Kiwi Air Limited	Gisborne	Aeroplane
XSA	North American Harvard 3*	Mr B T Collins	Blenheim	Aeroplane
ZZD	Tecnam P2008	Mr T R Doig	Hastings	Aeroplane

DEPARTURES - November/December 2016

EAB	Raytheon 1900D	Eagle Airways Ltd	Hamilton	Aeroplane	Exp
EAE	Raytheon 1900D	Eagle Airways Ltd	Hamilton	Aeroplane	Exp
EAG	Raytheon 1900D	Eagle Airways Ltd	Hamilton	Aeroplane	Exp
EAH	Raytheon 1900D	Eagle Airways Ltd	Hamilton	Aeroplane	Exp
EAN	Raytheon 1900D	Eagle Airways Ltd	Hamilton	Aeroplane	Exp
EAP	Raytheon 1900D	Eagle Airways Ltd	Hamilton	Aeroplane	Exp
FHC	D.H.98 Mosquito T.III	AVspecs Limited	Manukau	Aeroplane	Exp
HHL	Aerospatiale AS 332 L1	Heli Harvest Limited	Manukau	Helicopter	Exp
HYY	Eurocopter AS 350 B2	The Helicopter Line Limited	Queenstown	Helicopter	Dest
INI	MBB MBB-BK117 B-2	Helilink Limited	Auckland	Helicopter	Exp
KDC	Pacific Aerospace 750XL	Pacific Aerospace Limited	Hamilton	Aeroplane	Exp
KDD	Pacific Aerospace 750XL	Pacific Aerospace Limited	Hamilton	Aeroplane	Exp
KFB	Gulfstream GVI	ExecuJet New Zealand Limited	Wellington	Aeroplane	Exp
LGL	Piper PA-28RT-201T	Excalibur Trust	Ohope	Aeroplane	Exp
TLD	Boeing 737-3B7	Airwork Flight Operations Limited	Manukau	Aeroplane	Exp

Wings Over Woodville

2017 New Year's Fly-in

Rare arrivals: B8 Agricola and Yeoman Cropmaster.

More than 60 guests gathered for lunch.

As the first aviation event in the world on New Year's Day 2017 got under way it soon become apparent that only the more experienced pilots in suitable aircraft would get to taste terra firma on Athbey Farm airstrip this year. Athol and Betty Sowry have hosted an annual 1st January fly-in at their Athbey Farm property 4 nm NE of Woodville for 12 years now. The event has become a local institution, but suffered in numbers this year due to the persistent wind that plagued aviators for the latter part of 2016. The saving grace however was having the wind straight on the nose on their 31 vector.

Nine aircraft braved the conditions to join the resident Ultravia Pelican Club, while many more aviators chose to arrive by road, swelling attendance numbers to more than 60.

Of special interest were the two classic topdressing aircraft attending, one being a first of type for Athbey airstrip. In for its second visit was Lindsay McNicol with his Yeoman Cropmaster, believed to be the only one of its type presently current in the world with a hopper fitted.

The jewel in the crown was the arrival of Hallet Griffin in his immaculately presented Auster B8 Agricola, the only one of its type in the world - at its first public showing since being (bought and) brought back to New Zealand. In its day the Agricola was a very successful, productive aircraft loved by the pilots and operators that flew them. However like all things in the NZ ag. aviation scene, it was all about timing, and for the Agricola its timing was wrong. It failed to become established, not helped by a reportedly rather poor demonstration tour when being promoted.

As a side interest, several vintage tractors were available on display for the aviators to view.

Following the lunchtime barbecue and traditional prize giving, it became apparent something was up as many gifts were now being presented with a reminiscence theme. Awards were given to the first two pilots to arrive at the first fly-in 12 years ago, and to the most loyal supporter over the years. Then it was announced this was to be the last New Year's fly-in on Athbey farm, the advancing age of the host as the reason. Before those present could vent their dismay, it was announced that the 2018 event would be hosted at Koputaroa and then 2019 at Waipukurau, thereafter to be shared between clubs across the lower half of the North Island.

Following this announcement Keith Turner, well known ag. fixed and rotary wing pilot (retired) called for the attention of all present and gave a vote of thanks to the hosts in recognition of the last 12 years, this being followed by generous applause from all.

Athbey Farm airstrip will continue to host smaller one off fly-ins when appropriate, and in fact already has.

ZK-BIC ICP Savannah S

Over the past year and 1000+ hours, Tony Den Haan of Cust has built his ICP Savannah. He has registered it as BIC for Built In Cust. Tony is a Jodel D11 owner and decided he wanted to build an aircraft that had a reasonable cruise speed but without compromising STOL performance, enabling him to get into places that other aircraft couldn't. He decided that the Savannah S was the way to go and bought a kit from Philip Seale of Westwind Aviation.

In January 2016 the kit arrived and Tony set to work, quickly realising that the proposed build time erred on the optimistic side as there were more than 5000 rivets to install plus changes he wanted to make along the way to personalise his aircraft. That said, the aircraft was still completed and issued with a permit to fly in December of the same year.

The airframe structure is of flat metal with load-resisting panels. The wing has a high-lift aerofoil with Junkers type flaperon (aileron+flap) and vortex generators that help increase the cruise speed but retain the very low stalling speed.

Two large lateral doors allow an easy access to the cabin and they may be removed for flying. The cockpit is designed to accommodate taller pilots however Tony did modify the seat to for additional comfort.

Tony installed a very low time Rotax 912 producing 100 hp that gives a cruise speed of 85/90 kts.

Being a tricycle undercarriage the nose sits low so there is great visibility on the ground and because of the larger tyres that Tony has fitted the aircraft can land on rougher surfaces.

ZK-BIC was on display at the recent SAANZ Fly-In held at Ashburton. Westwind Aviation can be found at www.savannahnz.com

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Ph: (09) 2999 442, Email: brett@heliflitepacific.com

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Contact Roger 021 744 811 or aeroferris@gmail.com

Rutan Vari-Eze For Sale

ZK-EZE Rutan Vari-Eze in service from 1986. Rolls Royce Continental O-200A engine 414 hours. Last flown 2008. Always hangared. Needs new paint. Aircraft engineers report available. As is where is. Price negotiable.
Contact Geoff on 027 935 9869 or gzt@orcon.net.nz

1 **1980 CESSNA 172RG "CUTLASS"** ZK-EWP
Only 2500 hrs since new. Engine 1425 hrs/4.5 years to run. Garmin GTN-650 touch screen GPS/COM. Autopilot with altitude hold. IFR. Brand new interior. $110,500 +GST if sold in NZ

2 **1977 PIPER PA28-181 ARCHER II** ZK-EBX
Engine 638 hrs and 1.5 yrs calendar before overhaul. Maintained to Part 135. Stretcher mod. Tidy in and out. $49,995 +GST if sold in NZ

3 **2011 TECNAM P2006T** ZK-MTW
Only 550 hrs since new. Motivated Seller. Asking: NZ$475,000 +GST if sold in NZ.

4 **de HAVILLAND CHIPMUNK** ZK-JIT
Ex- R.A.F. DHC-1 Mk22 6,780 hrs since new. 1160 TSO on Gipsy Major 10 Mk-2. $130,000 (incl GST if any)

5 **1985 PARTENAVIA P68C** ZK-SMB
Only 3350 hrs since new. Engines 910 TSO. High gross weight. $299,900 +GST if sold in NZ.

6 **1970 CESSNA 207 SKYWAGON** ZK-MDZ
18,563 hrs since new (Estimate as at 1st March 2017) SIDs compliant 2012. Operated Part 135. Well maintained and tidy aircraft. Engine TBO 1900 hrs up from 1700 hrs. 7 seats. Large cargo doors. Fwd baggage compartment. Inspect at Ardmore Airport. Available from 1st March 2017. Asking $139,500 +GST if sold in NZ

1998 EAGLE 150-B ZK-EGL
Only 430 Hours SN. GPS / COM, Transponder, Intercom, Full Gyro Instruments. 120 Knot cruise at 23 litres per hour. Factory demonstrator. $59,900 +GST if sold in NZ.

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2005 model. 408 hrs TTSN. Hangared Ardmore. US$385,000

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KiwiFlyer Event Guide

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: woodsy@clear.net.nz

March11th - 12th
Annual Mandeville Fly-in Weekend
With special guests: NZ Tiger Moth club members on a South Island rally. Everyone welcome, vintage aircraft through to microlights. Food, music, kids entertainment. Enquiries to Maeva Smith 03 2089755.

March 18th
Langley/Marshall Aerobatic 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
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 here, send an email to michael@kiwiflyer.co.nz Ph. 09 279 9924

KiwiFlyer

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