

KiwiFlyer™

Magazine of the New Zealand Aviation Community

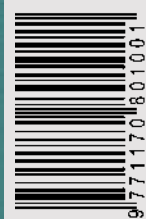
Issue 86 2022 #9



P-40 Kittyhawk White 51 Restoration

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From the Editor

Welcome to KiwiFlyer number 86. This issue starts with a reminder of the outstanding restoration skills we have in New Zealand. Earlier this year Pioneer Aero at Ardmore completed their ninth P-40 Kittyhawk, this one originating from a lakebed in Russia having been submerged there in WWII. It's on the cover of this issue, flying alongside the first Kittyhawk the Pioneer team completed more than 20 years ago. Gavin Conroy took the pictures and put an article together on the latest restoration with help from Steve Cox and Martin Hedley at Pioneer Aero, and test pilot Frank Parker.

If there's a theme to this issue it is one of innovation. At the other end of the scale to reconstructing a WWII Fighter, is the development of an aviation medical software system aimed at massively streamlining the administration of aviation medicals – for all those involved and particularly pilots. SkyCert, which has been developed in New Zealand now has more than half of all NZ aviation medicals under its wing. Chris Lapish explains the motivation behind the system and its success to date.

The Royal Aeronautical Society (NZ Division) held its annual symposium in November. This was a day packed with innovation, including presentations from Zenith Technica (3D printing of titanium satellite parts), Wisk (electric VTOL flight), Kea Aerospace (aerial imaging from the stratosphere), and Merlin Labs NZ (autonomous pilot systems). Paul Harrison attended on behalf of KiwiFlyer and reports on the event as well as the annual RAeS awards ceremony held at a dinner function after the symposium.

We know there are a lot of readers who enjoy our warbirds coverage and especially Gavin Conroy's photography, so this edition concludes with an additional portfolio from Gavin's UK trip earlier this year to the RIAT air show. Unsurprisingly, he managed to combine that event with a couple of days airborne alongside some of the greats of the UK warbird scene, most notably a pair of near original Spitfires who flew together in the same squadron in WWII.

This issue also has a contribution from Pen Mackay covering the NZ Association of Airwomen's annual rally and some advice from Oceania Aviation's Shaun Thompson on engine overhauls. Several of these contributors I've mentioned are new to KiwiFlyer. Welcome to you all.

Be safe. Enjoy reading.

Michael Norton
 Editor | Publisher 

Features

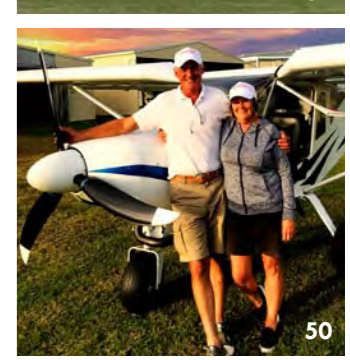
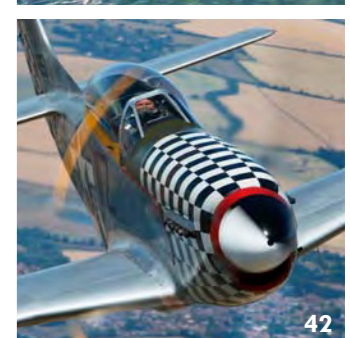
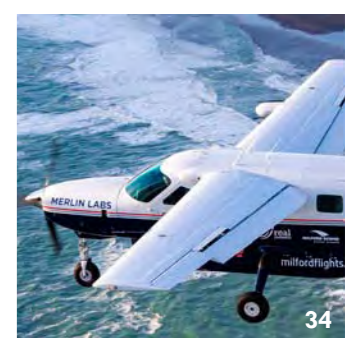
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What could be better than a flight alongside two Kittyhawks, on this occasion being Pioneer Aero's first and ninth restorations. Gavin Conroy took the photograph.



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About Us

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Helicopter rescuers honoured for bravery following White Island eruption

December 9th marks three years since Whakaari/White Island erupted in the Bay of Plenty with 47 people on the island at the time. A massive wave of steam, ash, acid gas and rocks were thrown across the crater floor. 22 people died, either in the eruption or from injuries sustained, including two whose bodies were never found. A further 25 people suffered injuries, with the majority needing intensive care for severe burns followed by very long recuperation periods.

On October 26th, seven people were recognised for their selfless heroism during the tragedy.

The highest honour (second only to the New Zealand Cross) – the New Zealand Bravery Star – has been awarded to Mark Law, Chief Executive of Kāhu NZ and the first rescuer to arrive at the crater just one hour after the initial eruption. The New Zealand Bravery Star is awarded to a person who displays “an act of outstanding bravery in a situation of danger”.

Having flown straight to the island after the eruption, then putting on a gas mask and wading through shin deep volcanic ash to look for and help survivors, Mark had no idea whether the volcano he had just landed on would erupt again. He told the Bay of Plenty Times that “It was a very strange place. It was eerily quiet, other than the big rumbles that were going on and the little murmurs of people asking for assistance.” There were 20 people in the crater area.

Mark radioed fellow Kāhu crew Tom Storey and Jason Hill, who were hovering near White Island Tours’ boat, Phoenix, halfway back to shore from the island, offering to take the worst injured. Having learned Phoenix had paramedic support, Tom and Jason joined Mark to search for survivors whom they found in varying locations and states of consciousness and covered in thick ash which was still falling. Jason returned to his helicopter on the island’s landing platform and flew to the crater from where they loaded five survivors and he lifted off for Whakatane Hospital. Mark retrieved his helicopter while Tom readied the next five people.

Tim Barrow and Graeme Hopcroft from Rotorua’s Volcanic Air arrived, helping them to lift the injured aboard before Mark left for Whakatane Hospital. Sam Jones and Callum Mill also arrived in a second Volcanic Air helicopter, helping to load two more of the injured into Tim and

Graeme’s machine which then departed for Whakatane. Sam, Callum and Tom remained to check for survivors and grouped the deceased together for later retrieval when the helicopters returned.

One level below the New Zealand Bravery Star on the honours list is the New Zealand Bravery Decoration – awarded for an act of exceptional bravery in a situation of danger. Tim Barrow, Graeme Hopcroft, Jason Hill, Tom Storey, Sam Jones and Callum Mill have all been honoured with a New Zealand Bravery Decoration award.

Mark says they barely thought about the danger. “A couple of times the volcano made a pretty loud rumble and we sort of looked at each other.” Mark’s biggest regret was not getting everybody off the island – having stopped because at that time “there were so many air personnel there.”

Although despatched, the operators of air ambulance and paramedic helicopters initially deemed it too dangerous for their crews to land, a sentiment which is understandable given the crews are paid employees and the aircraft are owned by Trusts. The rescues that took place from the essentially private and volunteer efforts of the commercial helicopter crews resulted in twelve injured being flown out from the crater floor over 40 minutes, and eight deceased repositioned for later recovery. Of the 12 helicoptered out, 10 later died from their injuries. “These 12 people, we gave them a go. That’s the most important thing,” said Mark.

The awards were made by Prime Minister Jacinda Ardern who commended the recipients for “their exceptional courage” and for “demonstrating the values New Zealanders hold dear.”

Tiger Moths to Topdressing DC-3s

Neville Worsley’s new book, Tiger Moths to Topdressing DC-3s takes the reader on a personal journey of more than 60 years through Neville’s life and career in aviation. As the title suggests much of his career was to do with ag aviation and strip flying.

Neville’s book started out as a Covid lockdown project with an intention to preserve for his family, the story of his numerous logbooks and diaries. There were plenty of stories to tell, covering some 60 years as PIC in hundreds of different aircraft across more than 75 different types including Tigers, Cubs, Beavers, Fletchers, Airtruks, Skywagons,

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DC-3s, and many more. He tells of a leading a gypsy lifestyle as various opportunities came up, relates all sorts of experiences and incidents along the way, and shares numerous tips and tricks just as applicable now as they were then.

One of his mates read an early copy and convinced him to see about getting it formally published. Neville nearly always carried his camera with him, so the book is superbly illustrated with more than 250 photographs.

It might be based on his flying records but don't get the impression that this is an extended logbook. Neville's story moves at pace from one interesting tale to the next. Quality of writing can often be told by trying out a random page so here's a sample: "I was using Beaver AZB from a good sloping airstrip with a decent drop off the end. On one load when I was coming back to land I noticed what looked like a dog on the end of the airstrip and hoped it would move out of my way as I was landing. Then I noticed it wasn't a dog at all, but the tail wheel off the Beaver. It must have broken away on the previous take-off, luckily not dropping away as I was flying, otherwise

we probably wouldn't have found it. I could have damaged the tailplane on landing if I hadn't seen it lying there. The Beaver had such beautiful controls that I managed to fast taxi up to the loading area on the brakes, keeping the tail in the air by moving the control wheel forward with just enough power to hold it there. I made sure I gently lowered the tail to the ground as I turned the aircraft around to face down the airstrip. We loaded the wheel and flew to Gisborne for repairs, taxiing up to the maintenance hangar with the tail in the air until the engineer came out with a trestle for me to lower the tail onto."

Unlike many published life stories in modern times, this is not a self-prepared, self-edited work. To Neville's credit he sought professional editing and publication services and although currently only available directly from Neville, the result stands alongside anything you would find on the shelves of your local bookstore. Exceeding his modest expectations, word of mouth sales have already surpassed the first print run and more have had to be ordered.

Anyone interested in New Zealand

aviation history and how flying 'used to be', and particularly anyone interested in ag aviation, will very much enjoy this book. At \$70 plus postage, buy one for yourself and another as a Christmas gift by contacting Neville on 021 0239 5922 or dh822dc3@gmail.com

Central Aero Engineering become Stewart Systems Distributor

Central Aero Engineering of Hamilton have been appointed as the sole NZ distributor for Stewart Systems who produce non-hazardous, waterborne products for covering and painting aircraft. Managing Director Paul Waterhouse says that the company has extensive experience of the Stewart Systems range and looks forward to working with clients to achieve great finishing results on their aircraft.

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Restoring P-40E Kittyhawk 'White 51'

Gavin Conroy image

Check out the beautiful lines on this magnificent P-40, another New Zealand based restoration to wow the Warbird world.

Earlier this year, Pioneer Aero at Ardmore completed their ninth P-40 Kittyhawk restoration. Gavin Conroy is a regular visitor and observer of the projects at Pioneer Aero and was also alongside the aircraft with camera in hand during its first flights. With additional contributions from the Pioneer Aero team plus test-pilot Frank Parker, Gavin relates the very interesting story of 'White 51'.

I remember seeing some photos in the 1990s showing a P-40 being flown out of a remote location in Russia and was amazed at the lengths the team went to get it out and ensure the aircraft would have a better future. I thought it would be a nice aircraft to be able to see in the flesh one day, but at the time I didn't expect

this would happen in New Zealand. Even better was being able to photograph it several times in flight 30 feet off our wing tip.

In Russia as White 51

The story of this genuine combat veteran fighter is quite remarkable. It was built in late 1941 as Curtiss P-40E Kittyhawk, Serial Number 41-13570, with Construction Number 814. It was accepted by the USAAC on 23rd January 1942 and assigned to Defense Aid on the same day. It was then sent to the Soviet Union as part of the Lend-lease program. Once in Russia it became tactical number 'White 51'.

In the early hours of 1st June 1942, the aircraft sustained combat damage and crash landed in Lake Kod Ozero, west of

Murmansk. It was flown that day by Jr. Lt. A. V. Pshenev of the 20 GIAP, 14th Army, and shot down by a BF-109 of II/JG5.

Jr. Lt. Pshenev survived the crash, swam to shore, and made it back to the Russian lines on foot, while the P-40 remained dormant under water for decades.

Recovery

The aircraft was recovered from Lake Kod Ozero on 31 August 1997. It was lifted from the bottom of the lake with lifting bags then moved to the shoreline. It was at this point that its identity was confirmed by the location of many 814 stampings on the aircraft. Also located was battle damage including to the starboard side of the engine which may have contributed to its loss by way of

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coolant or oil leaking from the engine with eventual overheating. The aircraft was in particularly good condition due to being in freshwater and previously undisturbed. There was evidence of battle damage repairs which would indicate that it participated in previous combat operations as well.

It was slung under a KA-25 helicopter and moved to a suitable location for dismantling. The period photos show chains cutting into the trailing edges of wings as it was flown out which made restoration more difficult later but at least the aircraft was saved. In 1998 it was shipped to the Frontline Museum, at Sandown Airport, on the Isle of Wight in the UK and put on static display.

In 2003 the aircraft was purchased by Brad Epple and moved to Missouri in the USA where restoration commenced. After some progress was made however, Brad decided not to proceed and to instead put the project on the market.

The aircraft was then purchased by Claudio Coltri and during September 2015 was moved to Pioneer Aero for further restoration to an airworthy condition. At Ardmore the project would be managed by well-known P-40 identity John Saunders who (along with two of his own P-40 restorations underway in New Zealand) has been involved with this aircraft since 2000. Steve Cox and Martin Hedley at Pioneer Aero would lead the restoration and once complete, Frank Parker would be the test pilot. John, Steve and Martin, and Frank have all written of their experiences with White 51 in the following.

Project Management - by John Saunders

I was approached by a mutual Italian friend, Giovanni Marchi in about 2013 to help Claudio find a P-40 that would be a suitable candidate for a rebuild to airworthy status. Basically, Claudio had me go visit all the 'For Sale' P-40s and Projects - about six options around the world and we jointly chose White 51 in Missouri. We chose this aircraft mainly due to its combat history, but it was also quite original. I saw it for the first time when it was with Airframe Assemblies back in 2000. It was put on the market to be sold so we put an offer to purchase it but US based Brad Epple bought it instead. Wind forward a few years and with some arm twisting we eventually we acquired it from him. I took on the role as Project Manager in 2013, eventually shipping the aircraft to New Zealand for the restoration to be completed by Pioneer Aero. I ended up with a big old task ... enjoyable of course! Some of what I had

to do was draw up a restoration plan and keep it on schedule, sourcing parts and keeping costs under control. When you have an owner in Italy and the aircraft being restored in New Zealand having a project manager just helps keep things on track; in this case I was the eyes and ears for the owner. It is very satisfying to see the aircraft finished and ready to be sent back to Claudio. He had planned to come to New Zealand towards the end of the restoration and to see it fly but Covid made that impossible.

The Allison 99 series engine originally came from a P-40N variant. It was overhauled by Bud Wheeler, owner of Ace Allisons in Pennsylvania who did an excellent job. In fact during testing the engine was run up to 3000 rpm and 60 inches of manifold pressure but now that it is in the aircraft it has been restricted to 52 inches - if the throttle is pushed through to the wartime emergency power.

I must also give a word of thanks to Steve Cox, co-owner of Pioneer Aero Limited. Steve has been instrumental since I took this project on in 2013. We disassembled the aircraft together in the USA and it has been a difficult restoration at times, but Steve and the Pioneer Aero team got on with it and the result is more than what we could have asked for.

**Restoration by Pioneer Aero
contributed by Steve Cox and Martin Hedley**

This project arrived in a partly restored condition. The wings, horizontal stabiliser and fin were visually complete, and the fuselage and chin cowl were partly done. We started with a thorough examination of all the work that had been completed. This was to ensure everything was completed and restored to an airworthy standard. There is a significant amount of original



Frank was on cloud nine flying this machine which performed flawlessly during its test flight programme.

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The left wing being prepared for the return of its flaps.



This is where white 51 got its name - now returned to its factory colour scheme.



The Allison engine being wired up to run.



Getting closer now. Note the magnificent set of three radiators.

'White 51' structure in the wings and fuselage, most of which cannot be seen now the restoration has been completed. Several areas were revealed that needed to be re-worked to allow the restoration to move forward.

Alongside the structural work, the system components were receiving the restoration treatment as well. All the original White 51 components that came with the project were assessed to see if they were able to be made serviceable. There were many components, both structural and from the various systems, which were able to be re-used. Many of them still have the construction number of 814 stamp present. Extra effort was made to ensure that these components were incorporated in this hugely historic airframe to keep the originality high.

Interestingly, the top cowl, complete with the induction trunking, and both the side cowls are some of the parts with the 814 stampings. It is a rare occurrence these days to have an aircraft fly with the same cowls fitted that it flew combat with, in 1942! Some of the other notable original components from White 51 are the empennage fairings, canopy, windscreen, horizontal stabiliser structure, and the instrument panel.

Those components that were missing or unserviceable were replaced either with genuine wartime parts or with newly fabricated components.

There are many WWII Curtiss built components included in this restoration. These include the engine bearers, engine mounts, throttle quadrant, pilot seat, undercarriage legs, hydraulic rams, and an extensive list of smaller components too numerous to name. There are also many wartime manufactured non-Curtiss built components used, for example the engine, the propeller, fuel pump, hydraulic pump, electrical items, instruments, pitot head, and more.

Once the wings were able to be joined together, we fitted all the internal systems into them. This was done with the wings standing upright in cradles with the leading edge facing down. This gives the best access possible. Once the fuselage was structurally completed, the fit-out of various systems inside that was also started. This centred on the cockpit as it is the busiest area and therefore takes the longest to finalise. There are many things to consider as flight control cables, control column, rudder pedals, hydraulic lines, brake lines, pitot / static lines, electrical wires, engine control push rods and other items all sit within fractions of an inch of each other yet each component must be allowed to perform its task correctly.

It was often a juggling act as to who was working in the cockpit. The cockpit is in original configuration except for the modern avionics requirements. Also, at this point we hung the engine on the front of the fuselage. This allowed the time-consuming task of getting the engine cowls mounted and fitting correctly to be carried out. Because both side cowls and the top cowl are original White 51 components we carried out repairs to the battle damage and corrosion rather than replace components. As an aside we were informed that the horizontal stabiliser structure also had battle damage repairs. Having the engine fitted allowed the engine controls, engine instrumentation, and most of the plumbing to be completed as well.

Room for two

A modification we completed for this aircraft involved the fitting of a second seat and dual controls. This is done by not fitting the fuselage fuel tank or the armour plate behind the pilot's seat, instead fitting a seat in the fuel tank location, making the



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The data plate back in pride of place.



The fuselage coming together - a huge amount of work getting to this point.

scalloped panels removable, making the front seat tiltable, fitting dual flight controls, dual engine controls and instrumentation. This allows the owner to share the enjoyment of flying a historic aircraft, while also being able to configure the aircraft to an original appearance, single-seat option.

Reuniting the wing and fuselage

Attaching the fuselage to the wing is a major milestone as the aircraft subsequently looks so much closer to flying. However, as with all projects it was a case of 90% done 90% to go. There were many things that needed to happen before this work could be dealt with. At the completion of this there were two big tasks that could now be attended to. Firstly, fabricating the wing root fairings - there are three a side and with minimal flat surfaces they are a challenge for those involved. Secondly, fabricating the exit duct which is a series of complex curved panels which join the aft end of the coolers to the front of the wing.

Steadily the to-do list got smaller and smaller. Fitting the propeller and spinner gave the aircraft a finished appearance but there was still a long way to go. Finalising the connections between the wing and fuselage allowed fluid to be put in and leak checks to be conducted. Then we were able to start evaluating the various systems and in due course the engine was able to be brought back to life.

Making some noise

The culmination of the restoration was the aircraft running on the ground at full power at 3000 rpm and 52" boost. It was a magic noise from the short 'E' style exhaust stacks. These give more of a barking sound compared to the fish tail style exhaust

stacks. It is exciting and scary all at the same time sitting behind 1250 hp as the engine angrily does its thing! As the engine nears full power the aircraft squats a little as the oleos compress and then you can really feel the engine through the seat, rudder pedals and control column. We test these engines right the way through their specified figures. Full power engine runs are necessary to make sure everything is working correctly, as the pilot needs all that power on take-off.

Flight testing

With the completion of the restoration, testing and all the associated paperwork it was time to carry out the test flying. We were very fortunate to have Dave Phillips working with us as well. He wrote the flight manual for the aircraft based on the experiences of himself, Frank Parker and John Lamont, combined with the original P-40 notes from Curtiss as well to develop a manual on the type. There were very few issues during test flying - nothing unexpected or difficult to resolve.

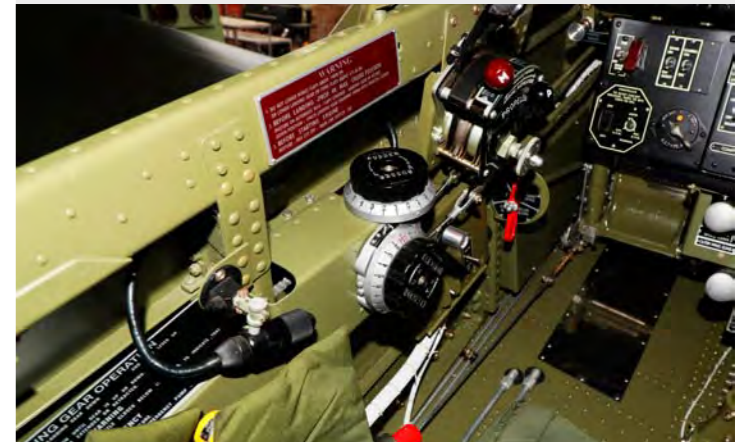
As with any restoration project there were challenges to overcome and issues to sort out. But nothing is insurmountable and everything was sorted out such that the aircraft has been completed to the condition it was when it left the factory in 1941. That is very satisfying for not only all of us here, but also the contractors involved in making or restoring parts for the aircraft.

Gratitude

With complex projects like this there are many parts that either needed to be restored or made from scratch if they were no longer deemed to be airworthy. Several New Zealand based companies stepped up to help with this massive undertaking. Classic Aero



The attention to detail in the cockpit is stunning.



At top of picture is the throttle quadrant. The silver knobs behind are for trim.



1 GIPPSAERO AIRVAN GA-8 ZK-ZTP
2004 model. Airframe 10,268 hrs since new. Lycoming IO-540KIA5 s/n RL-2750-48E. Hartzell Prop. Cargo Pod. ADS-B. Dual Controls. Misc spare parts. NZ & Aust logbooks. Leather upholstery. \$550,000 +GST if sold in NZ.



4 2006 DIAMOND DA-40F ZK-JME
4 seat, 180 hp tourer. \$225,000 +GST if sold in NZ.



2 2000 CESSNA T206-H STATIONAIR ZK-NVC
2120 hrs since new. Cessna Millennium Edition. ADS-B Compliant. Maintained to Cessna Maintenance Manual. \$695,000 incl. GST (if any). Ask about our Export price.



5 1976 EMBRAER-820C CHIEFTAIN ZK-DSY
10 seats. Engines 900/900 since o/h March 2014. Props 120/120 since o/h 2017. New NZ CoA Oct 2022. Imported from Australia 2021. Complete Australian logs. Immediate ex-Ardmore. US\$160,000 / NZ\$273,500 +GST if sold in NZ



3 CESSNA 182-P SKYLANE ZK-RLG
1972 model. 7837 hrs since new. O-470-R25 engine. 2964 hrs since new, 1100 since o/h. \$185,000 incl GST (if any).



6 SOCATA TB-20 'TRINIDAD' ZK-JFC
Only 1206 hrs since new with one owner for 31 years. Always hangared. Exterior paint 2 years old. Excellent 4-5 place roomy interior. 250 HP Lycoming 1206 hrs since new. Bendix-King IFR avionics, ADS-B out, autopilot with altitude hold. 1154 lbs useful. 150-160 kts cruise. \$250,000 incl GST.

1999 PIPER SENECA V ZK-NAP
4600 hrs since new. Engines: 1293 & 896 hrs to run. Calendar 6/25 & 6/21. Props: o/h 2019 50/50. Garmin and King avionics. Part 135 qualified. \$495,000 +GST if sold in NZ.

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GOT FURTHER QUESTIONS?

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Frank Parker warming up the P-40 for a test flight.



The three 50 cal machine guns look brand new.



Frank Parker heading out for an early test flight.

Machining Services in Blenheim scanned or designed parts we needed. Tony and his team made hundreds of Curtiss specific parts for the aircraft. Replicore built a new set of radiators which looked and perform magnificently. Allison Avionics in Christchurch carried out the restoration and testing of the instruments. Auckland based restorer, Rob McNair restored some of the engine cowls, in particular the side cowls - a big job as we wanted to use the original cowls on the aircraft.

Our thanks go out to these companies and to everyone else who has helped; there are simply too many to mention. We are also indebted to Claudio Coltri and John Saunders for entrusting us with the project.

Number Nine

Restoring this magnificent machine has been a great thrill for all of us at Pioneer Aero. This aircraft that first flew in the USA, saw combat in Russia, survived a crash landing and immersion in a lake for over 55 years, spent time in the UK, began to be restored in the USA then came to New Zealand to be completed - has now headed off to Italy to begin the next stage of its life.

This is the ninth P-40 project Pioneer Aero has completed, all of which we are proud to have restored to airworthy status.

Test Flying — contributed by Frank Parker

Occasionally you get lucky. In this case I was invited to complete the test flying program on the Curtiss P-40E Kittyhawk better known as 'White 51' as it inched along the Pioneer Aero 'production line'.

I have been associated with the team at Pioneer since 2003

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when I had the opportunity to fly what was then Garth Hogan and Charles Darby's P-40N1 Kittyhawk ZK-CAG 'Currawong' and have had the opportunity to test fly several Pioneer rebuilds since then. This close association allows me to follow the project from an early stage and to get to 'know' the aircraft as it is built up. I also know the guys who are working on it, and we can regularly share progress over a 'cuppa'. I see this is an important part of the process that builds trust and knowledge in both directions.

The P-40 is a 1938 vintage production aircraft and its flight characteristics are well documented. Accordingly, the test flight program is straight forward with the aim to confirm the aircraft's flight parameters and performance.

A modern restoration such as this, is the product of meticulous detail from a team of professionals and in most aspects the product is superior to the one from the factory floor 80 years ago. It has been checked, rechecked, scrutinised and ground run to ensure everything is up to today's exacting standards. It is certainly worth a lot more than it was back in WWII when it came off the production line costing just under forty thousand US dollars!

The test pilot's task is to confirm the flight performance. Nonetheless, despite the extensive inspections and pre-flight checks, the first take-off has your full attention. Will the engine and propeller perform as anticipated? Will the flight controls have the correct 'trim'? Will the 'gear' work correctly? Are the temperatures and pressures correct - and a myriad of other things? Accordingly, the first flight is simply over the airfield, fly the aircraft, keep a close eye on T's and P's, check slow speed handling, and land!

During the first test flight I throttled back to 140 knots and the Allison gave a rather throaty 'intake backfire' (think of a deep cough and a shake). This also led to an interesting approach to land with regular 'coughs' around base and on final. This is why the job has a high pay grade!

The problem turned out to be a 'carburettor issue' requiring it to be returned to the USA for repair. With Covid, holidays and shipping this took several months to complete and get back to New Zealand.

With the carburettor fixed we were on to phase two of the test flying which turned out to be plain sailing. After a seven-hour test programme the only adjustments needed were a tweak on an aileron trim tab and an engine idle adjustment. Otherwise the aircraft performed flawlessly, a real testament to the dedication of the team at Pioneer Aero.



From left, Martin Hedley, Steve Cox, Frank Parker, and John Saunders.

Is it time for a hangar summer clean?

Hangars are a great place to store not only the aircraft they were built to protect, but also all manner of things that the aircraft owner may want to keep. Actually many owners treat them as a garage and warehouse in addition to an aircraft hangar.

This is not an uncommon practice, but it can lead to hazardous conditions that concern insurers who provide coverage for the hangar as well as the aircraft within them. Every now and then there are fires started by unsafe storage practices and poor housekeeping that destroy aeroplanes that the hangar was meant to protect.

Aeroplanes seldom, if ever 'self ignite'. It's more likely the loss will be caused by faulty wiring or an appliance that malfunctions. Also living quarters built into hangars are another source that can contribute to the cause of fires.

Hangar fire prevention is based on using common sense. Ignition sources and combustibles in a hangar are usually in plain view if you take the time to look for them. Here are some items to consider when walking through your hangar:

1. Fix any faulty electrical wiring and connections. This includes frayed wiring, overlong extension cords, broken or corroded fixtures and switches. A main switch by the door that turns off electricity to the entire hangar is a good safety feature.
2. Oily rags used for maintenance and cleaning are a common spontaneous combustion source. These should be removed or stored in a fire-rated container.
3. Don't tolerate fuel leaks in your aeroplane that cause detectable odours. Just fix them.
4. Batteries are a potent heat and ignition source. The long-term or routine connection of unattended chargers in or out of the aeroplane or vehicles is not recommended.
5. Make sure there is a fire extinguisher available. Be sure you have

the correct type and that it is current and fully charged. It should be in the most accessible part of the hangar.

6. The number one domestic fire hazard is normally cooking. You should not leave the hangar when you're cooking.
7. If you have an old beer fridge, you should know that one-third of all residential fires are caused by appliances and electrical faults. If the appliance isn't suitable for home, it shouldn't be in your hangar.
8. There's really no good reason to store fuel in a hangar other than what's in the aeroplane. There should be no draining of fuel or fuelling in a hangar including mogas for microlights and LSA's. This is asking for trouble and static-induced fuel fires from plastic containers are alarmingly regular occurrences. The same situation can be created by draining fuel from an aircraft within a hangar.
9. It is important to get rid of the oil-soaked carpets and rubbish and remove the boxes of junk you've been storing, to eliminate a source for a fire.
10. Establish a check list for the hangar by the door as a reminder to check for appliances to be turned off, fuel containers to be emptied or removed, and rubbish to be carried out.

Aircraft and related parts that have not been replaced by other parts are normally covered by your aircraft policy. Your hangar and other contents are generally covered by a premises and contents policy. If you are not sure if a particular item is covered or not you should check with your broker to make sure you have the coverage you need. A little prevention will go a long way to avoid a claim and even higher premiums under these policies.

To discuss any aviation insurance questions, contact Bill Beard or Arden Jennings at Avsure / Crombie Lockwood on 0800 322 206.

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When it's time for engine maintenance

Whether due inspection or overhaul, engine maintenance time comes with a myriad of variables and often quite some expense. Within Oceania Aviation's engine shop at Hamilton Airport, there is a wealth of experience available to manage the process in the most efficient and cost-effective way possible. Production Lead Shaun Thompson explains some of the processes and planning required to achieve the best possible result.

Overhaul, Bulk Strip, Repair, Panic?

There comes a time in every engine's life where it either needs to be replaced or stripped down and rebuilt to ensure ongoing serviceability and reliability. This can leave you as an owner feeling overwhelmed with the multitude of scenarios and options on hand. Our job is to make the hard decisions simple and work with you to find the best options for getting your engine up and running again. Generally, as an owner you will fall into one of three categories:

- 1: Your engine is due for overhaul
- 2: Your engine is running 'on-condition' but has started to show signs of deterioration and needs to be repaired
- 3: Your engine has suffered a prop strike and needs to be stripped for inspection

Although the above scenarios are all different, they follow a very similar process through our shop.

We begin with the initial contact to discuss your situation, engine specifications and required timeline for your build. From this we can provide estimates for any options that were discussed and decide on the best course of action. Once the engine arrives at our facility we begin the strip and inspection; this is normally a task undertaken with much interest and a slightly odd fascination, especially if the engine is unique or has been sent in as a result of deterioration or a prop strike. We can find all sorts of weird and wonderful defects, from the usual internal corrosion issues common on low utilisation engines to engines that have suffered failures during operation causing cracked crankshafts or twisted and bent conrods. Once this phase is complete, we will contact you again with a strip report, hopefully only full of good news, and another estimate for any extra work that is required or recommended. Once the extra work and parts have been accepted and ordered, you can sit back and relax! We will push the engine through to our assembly bay where it is built up before being painted, run in our test cell and given a final check over. At this point we will be in contact to let you know we are done and that your engine can make its way home.

Parts and Planning

It is important as an owner that you are proactive when it comes to your upcoming engine maintenance. If you have an engine due for overhaul in the next 12 months, it is time to start looking at your options now. As we are a Lycoming distributor, we have the very best chance of bringing all the parts together for your engine but allowing this time for planning means that we can purchase parts direct from the supplier within their lead times. Sourcing parts is an ongoing issue, and we are constantly checking on orders to ensure there have been no delays out of the factory



After and before: Freshly overhauled engine, Bent conrod, Cracked flange.

and/or shipping hold ups. Supply chains are still recovering, and it can sometimes be the most simple and unexpected part that causes us the biggest headache. Even though these problems have all stemmed from Covid, there is no indication of supply chain issues easing for the foreseeable future. If your preference is for a factory exchange engine, we would suggest looking even further ahead as factory lead times are currently 12 months from time of order and then the engine still needs to be shipped all the way back to here. Our supplier relationships do also help us to acquire urgent parts as well as sell parts at a very competitive price, and customers can trust that they are getting genuine parts for their engine.

Vast experience

Between myself and our two resident engine boffins Greg Mundell and Phil Wright (who have countless decades of aviation wisdom to draw on), we have a vast store of knowledge that we are always willing to share in the interest of keeping customers airborne. Our engine shop at Hamilton Airport is purpose-built and provides us the ability to repair and overhaul engines and components from all major brands. We have an in-house NDT wizard for any Magnetic Particle, Eddy Current or Fluorescent penetrant work we may need to do and with sister company Engine Components NZ available for all machining work, we have developed a solid reputation as a leading specialist in piston engine overhauls.

We are always happy to accommodate the requirements of different owners and operators and enjoy being able to make your engine woes disappear. This philosophy alongside the love of a challenge and of sending shiny engines back home to their owners, means that Oceania's customers are dealing with professionals who are also engine enthusiasts, and who keep the customer's interests always foremost in their thinking.

For more information

For more information Contact Shaun on 07 858 0332 or shaun.thompson@oal.co.nz or visit oceania-aviation.com for more about Oceania Aviation's extensive range of rotary and fixed-wing MRO services and parts supply.

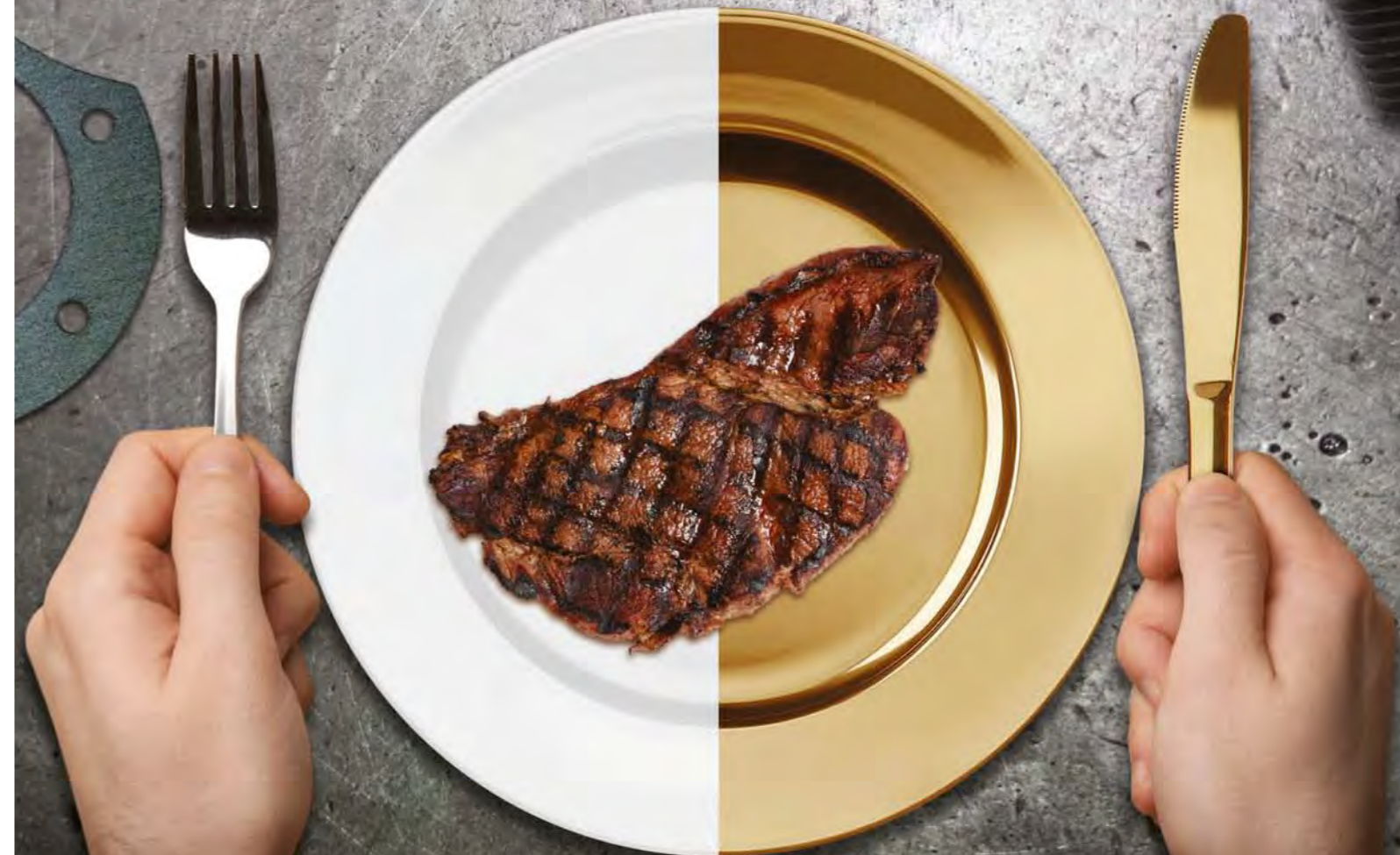


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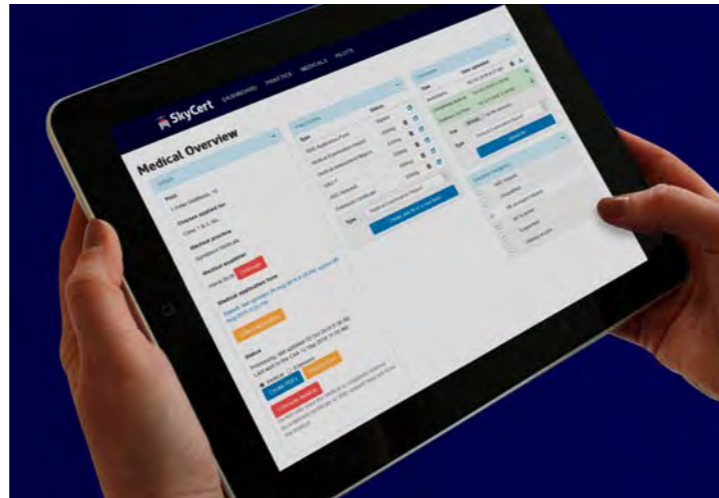
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SkyCert Online Aviation Medicals

NZ developed software making medical administration easier for everyone

Developed in New Zealand from 2017 by a team including Pilots, Doctors and Operators, SkyCert is a secure online aviation medical administration program designed to better manage and massively streamline the process of gaining and maintaining aviation medicals. There was no other program that addressed the needs of all stakeholders, for example helping pilots to manage their career, or how often have you wondered why you have to recall and rewrite your entire medical history at each medical renewal... So popular has the software become that one of the developers, Chris Lapish, says SkyCert is now looking after more than approximately 50% of all NZ aviation medicals. In this article Chris describes the genesis of their system, the benefits arising to pilots, Medical Examiners and the CAA, plus how to join the Kiwi born and bred system if you aren't already using it.



SkyCert in Pole Position

When Lewis Hamilton started out, he was part of a two-person team – Lewis and his Dad. The other kids had loads of money, huge support teams, and often sponsorships. Lewis would show up to races in the oldest, cheapest car. And win.

What Lewis and his dad had was the ability to analyse how to win races and the nerve to go all out at the corners and go for it.

SkyCert is a bit like that except that we have the most technically advanced program. It didn't have international corporate backing but with keen observation of what pilots, employers, aeroclubs, flying schools, medical examiners and the regulator needs; and by constantly listening to those stakeholders and refining its products, SkyCert has created a product that looks so simple - but is actually incredibly sophisticated.

As Lewis Hamilton knew, taking care of the details and responding quickly to new challenges is what makes for a winner.

We have a variety of NZ winners using SkyCert. We are very proud of their comments. As an example consider Tom Schnackenburg, famed for his contribution to yacht design and Team NZ - who is also a keen pilot. Team NZ has been very successful on the global stage punching far above their weight.

Tom says: "I find SkyCert to be a very innovative and reliable program. It is complex and thorough yet remarkably intuitive

and forgiving to use. From what I have seen, it does a great job understanding and providing what each stakeholder needs, including private and commercial pilots, companies in the industry, medical experts and also the CAA. There is an important mix of accessibility and privacy in the data management.

"Speaking as a Kiwi, I am delighted and proud to see such a competent expression of home-grown initiatives, specifically designed and implemented into NZ aviation."

We also have senior pilots from the world comparing us with other systems written just for Governments, rather than also for what is important for pilots and their medical examiners.

An A380 Captain says, *"Having completed Class 1 medicals for over 30 years in NZ, the Netherlands Kenya, and the UAE, I find SkyCert the easiest and most user friendly out of all of them."*

Another user says, *"SkyCert is an absolute pleasure! A user-friendly, efficient and a well-polished system. I hold a number of licences and SkyCert far exceeds anything currently available."*

SkyCert has influenced the industry for the better. Pilots are more likely to walk out of their medical with their certificate at the doctors. Pilots also love the small cert.

Before Remuera Doctors came onto SkyCert we were looking

after about 50% of all NZ medicals with about 60% of NZ Medical examiners. SkyCert was written in 2017.

Security

In case you are wondering about security, and who isn't: If your medical was done on paper, it is guaranteed not to be as secure as if it was done in SkyCert. Paper medicals are exposed to risk every step of the way. SkyCert was written by one of New Zealand's best programmers who teaches all over the world. Our security partner looks after the cyber security of the big corporations as well as banks. They say the quality of our work is to a higher standard than what they normally see.

SkyCert has been protecting and encrypting pilot's medicals since 2018. If your medical is still done on paper, it is nowhere as secure as SkyCert.

Overhead Join and more

We care deeply for pilots. In March 2020 we created our pilot mental health programme, Overhead Join. It brings a tear to my eye when I hear stories of how this has helped pilots who were down on their luck. They needed the industry to reach out and help.

We offered a format for zoom medicals in 2020 during Covid, rather than in person ones. The CAA brought this online in 2021.

A Pilot's Story

Lets consider a typical pilot established in SkyCert. Their medical may be due in 9 months. They have just been to their GP or specialist for something. They log into SkyCert and update their application form (medical Logbook) with the new item so they don't forget. Later SkyCert starts reminding them before their medical runs out. Their medical examiner is one that uses the integrated SkyCert booking system. The pilot has just finished a late sector into LA. Even though things are still closed in NZ, the pilot wants to book the renewal now. The pilot logs into SkyCert on their iPad, selects the location, date, time and even the examiner they want to see, then books their renewal.

SkyCert encourages the medical to be done up to 30 days before the cert runs out. SkyCert is able to future date a new cert up to 30 days without any loss of paid currency. This way if something was regrettably to come up at the medical, the pilot still has 30 days of currency up their sleeve. If the pilot needs more time to wait for the specialist, a 60-day extension can easily be done in SkyCert. i.e. if you come early, you are likely to be able to keep flying for 90 days while the issue is sorted out.



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The pilot's medical is coming up. SkyCert reminds the pilot of the booking and to go. The pilot then finishes the medical application that was started 9 months ago. If the pilot had not started one previously, he would start one now. SkyCert automatically fills in everything the pilot had entered on the previous 11 medicals done in SkyCert. You don't have to either remember what you said previously or retype it.

Once finished you press the sign button in SkyCert. If you have forgotten to answer a question SkyCert prompts you. This enhances pilot privacy. If you are doing a paper medical a person needs to read your form to make sure you have filled it all out. This is usually the receptionist or nurse. They now know all your private secrets. In SkyCert only the medical examiner generally looks. No one else has any need. Also, only staff granted access can see.

If you have any items to provide for the medical you can ask SkyCert and it will suggest what you need. If you were asked to do something at your last medical it will have reminded you previously, for example a BP reading at the GP 6 months ago.

You can upload these reports or documents using the SkyCert upload button. Your info is then provided to your examiner in a secure way, unlike an emailed copy.

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Te Pūkenga



Alex McCaw (JK) and Nick Oakley (LB) soar along the Craigieburn Range west of Springfield.



L-R: Bruce Drake, Ashley Glubb, Andy Aitken and Andrew Yates with a Skylark glider in 1961



K6 glider being flown over Wigram in the early 1970s



T31 2-seater at Harewood in 1952



The Canterbury Gliding Club at Camp Hamner in 1957



Alex McCaw instructing ATC students in 2015



75th Celebration Dinner at the Christchurch Botanic gardens

75 Years of Soaring at Canterbury

A major anniversary was celebrated at the Canterbury Gliding Club in October. KiwiFlyer gliding contributor Jill McCaw has been involved with the club for 34 of those years and was there to enjoy the occasion.

Canterbury Gliding Club celebrated 75 years of soaring in October. The occasion was marked by a formal dinner followed by an open day at the club's Springfield glider field. Glider pilots are generally of the shorts and t-shirt variety of Kiwis, so seeing people out of their jandals and into suits and gowns was rather lovely, and fun. Six previous club Presidents were there alongside the current one as well as many pilots who have achieved National and World Records and acclaim through the years. Stories were told and past members and their achievements remembered.

The following day on the airfield people returned to their usual mode of dress and members proudly showed off the club's

present facilities to past members, family and friends. It is ten years since the club moved to its current and permanent home at Springfield and we are very proud of the runways, hangar, club rooms, campground and amenities that have been developed on the former farm.

No formal records were kept of the early days of the club, but long-term club member Stew Cain, created a booklet on the club's history based on recollections and photographs by then current and past members, for the Club's 50th anniversary in 1997. Much of the following information comes from that booklet.

Canterbury is the second oldest gliding club in New Zealand and although formed in 1947, flying did not commence until 1952. This was because for the first few years they were a gliding club without a glider. The first order of business for the group of enthusiasts was to source one. Members also joined the Canterbury Aero Club in order to learn to fly Tiger Moths

and other light aircraft. Dick Georgeson with his foster brother Jon Hamilton (two pioneers of NZ gliding) ordered a Slingsby Prefect and the club ordered a Slingsby T31 for the cost of £439. It needed to be assembled. The T31 was finally test flown on 1st November 1952.

Moving from a glider building club to an actual flying club caused a few headaches as instructors were in short supply, however, once set in motion the club went from strength to strength. They purchased a Tiger Moth for a tow plane and flew out of Christchurch Airport running training courses from 6-8am weekday mornings to encourage people to learn to fly.

There is a lot that could be written about those early days, but one of the highlights of this time, for me, reading through the 50th anniversary brochure, is the way pilots were extending their wings, learning about cross-country flying, and making some quite extraordinary

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flights in the flimsy wood and fabric gliders that were available at the time. Dick Georgeson in particular, a man who had grown up on the Mackenzie Basin and been fascinated by the lenticular clouds overhead, pioneered flights into mountain lee waves. I'm also delighted to tell you that Helen Georgeson, Dick's wife, received New Zealand's first FAI Silver C badge in New Zealand – something that had all of the men a little annoyed.

The club moved to Wigram Air Force Base in 1959 and ultimately hangars and a club house were built or otherwise procured for the site. The club operated here for many years with flights over the Port Hills and long, long tows into the mountains for wave and cross-country flights. Away trips were popular with the club flying out of Simon's Hill, Birch Hill (near Aoraki/Mt Cook) and Omarama in the Mackenzie, and Burnt Hill and Hanmer in Canterbury. Wardell's farm in Omarama became the regular site for Christmas Camps, shared with the South Canterbury Gliding Club from Timaru. Small baches were built alongside a willow shaded water race. The camps were family friendly. Once the town strip in Omarama was established, Canterbury was involved in the development of the Omarama Soaring Centre, with hangars, campground and amenities block alongside the 'Terminal Building', a meeting room and bar created from the original airfield's hangar. There is now a café running out of the old club house (relocated ElectroCorp home) and many large hangars. The centre is a wonderful asset for aviation in the region.

When the conditions were right for soaring at Mount Herbert and the hills of Banks Peninsula the club frequently flew from fields in Teddington, at the head of Lyttleton Harbour. Wigram itself wasn't a good site for cross-country flying because the easterly sea breeze tended to wipe out any chance of thermals after mid-morning. The club would often find a friendly farmer's paddock somewhere inland and operate for a day. It was noted that every time they flew in the Hororata area the weather was good, so the Hororata Domain Board was approached to see about creating an airstrip on the crown land that the Board managed. In very short time the club was able to take out a 35 year lease on the run-down area east of the racecourse. The club then found themselves with an airfield to develop. As Stew Cain pointed out in his booklet – these are the periods that focus a Club and weld it into a single unit. The Hororata Soaring Centre was officially opened on Saturday 13 November 1969. The club flew frequently from the site, enjoying its ease of access to the mountains and the fact that the easterly generally didn't arrive until very late afternoon.

Over the years, the club upgraded aircraft, gliders and towplanes. In 1967 Canterbury became the first club in the country to trial a Piper Pawnee top dresser as a tow plane, something that rapidly became standard once the CAA approved the trial. The club leased several but bought their own, ZK-CNG in 1974. This aircraft was the club's principal tow plane, putting in sterling service and hundreds of hours, for nearly 40 years until it was no longer cost effective to maintain and run and was sadly replaced.

Fibreglass gliders came to the club in 1972 with a single-seater Schempp-Hirth Open Cirrus. This glider was deemed far too slippery for the ordinary pilot to fly and a huge number of hours and experience were required to be able to fly it. Part of the problem was the all-flying tailplane which made attitude control, and consequently handling near the ground (on take-off and landing) very twitchy.

In 1979 the club welcomed its first fibreglass twin-seater training glider, a Grob Twin Astir. A single seat version of this

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NW arch over Springfield and the Rakaia River.



Labour weekend camp at Flock Hill in 2007



The grid at the 2021 Springfield Champs



An aerial view of Springfield in 2012



Derek Kraak (current President) celebrates at the 75th Anniversary



Jerry O'Neill & Dick Georgeson open the new hangar at Springfield in 2012



Nigel Ackroyd (ex President and CFI) reminisces at the 75th Celebration

glider was already owned by the club. The Astirs, fondly known as concrete swans were the stalwart of training fleets world-wide for many years. The Canterbury Club still owns two twins, purchased in 1989 and 1995 and still giving excellent ab-initio training. A Schempp-Hirth Janus Ce was also bought in 1995 for cross-country flying. While the Astirs won't be retired in a hurry, the club does have a DG1001 from DG Flugzeugbau GmbH on order. These are the new standard in training gliders, and it will be a welcome addition to the fleet, bringing it into the 21st century.

The site at Hororata proved to be the club's saviour when the Wigram Air Force Base was closed in 2009. The club moved operations to Hororata where they already had a hangar, and an old schoolhouse was brought in and renovated as a clubrooms. However, it was becoming apparent that Hororata wouldn't work as a long-term home for the club. The lease was due for renewal in 2011 and would be for shorter than 35 years, plus, some members of the local community were against the club, in spite of our regular use of the pub, dairy and cafes. Then President, Jerry O'Neill explained what happened next: "I knew... that if the club could not renew the lease, or had a lease with unfavorable terms, then gliding would be virtually finished in Canterbury." He engaged a lawyer to review the club lease at Hororata and provide a legal opinion.

What the lawyer told him confirmed his thinking. "I knew the best option for the club was to own an airfield. I resolved to find and personally purchase a suitable site as soon as possible because farm prices were very low at that time. This was before the dairy boom." In partnership with Dick Georgeson and Jon Hamilton, the two men who were instrumental in the club's beginning all those years previously, a farm was eventually purchased near Springfield at the very base of the Southern Alps.

Jerry says, "After the purchase a trust was formed to hold the land asset and a trust deed ensures the property is available for the Canterbury Gliding Club to use well into the future.

"This ownership structure is about as good as any club can get. We have unrestricted use of a great piece of land while having a strong trust deed that sets out all the parameters so future club members and committees are kept on track. I strongly believe this approach will prove itself in the future. The Canterbury Gliding Club now has a framework for sustained growth."

This has proven to be the case. After ten years of operations on the Springfield site the club is going from strength to strength with summer instructors ensuring a seven day a week operation, high club member numbers and morale, and a new glider on the way. Of course, hundreds of people have been involved in getting the club to where it is today; there are the thinking people, the fundraising people, the people who attended working bees to create runways, pull down hedges, polish glider wings and mow lawns. The club still relocates the fleet to Omarama over the summer period for some fantastic flying, as well as enjoying the other recreational opportunities the area has to offer.


The Canterbury Gliding Club is in great heart, and I've personally been involved with the club for 34 years (making me one of the old farts). The club has provided me with defacto family, close friends, and wonderful memories. It's been a huge part of my life. I'd like you to raise a glass and drink a toast with me - to the Canterbury Gliding Club and the next 75 years.

If you'd like to try soaring, look up your local club at gliding.co.nz and go for a visit. You're sure to be welcomed.

Jill McCaw

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Some of the many aircraft visiting Hawera for the NZAWA Rally over Labour weekend.

NZAWA Rally at Hawera

More than a year had passed since the previous rally of the NZ Association of Women in Aviation, so it was with much anticipation and enthusiasm that a large group recently gathered at Hawera. Pen Mackay reports on a very enjoyable long weekend.

There was a number of firsts when members of the NZAWA (New Zealand Association of Women in Aviation) gathered in stunning flying weather at Hawera over Labour Weekend.

This year's traditional Queen's Birthday Weekend rally was delayed by COVID

worries, and Hawera was the first opportunity for the flying enthusiasts to catch up and compete since Motueka in mid-2021.

Delaying proved to be the right decision says NZAWA President, Margaret Wright. "Hawera did its bit by providing

two perfect flying days, despite high winds before and after the weekend.

"Due to daylight saving, aircraft were arriving into the early evening which is a real plus and not possible in early June. Warmer weather is also great for a rally. The biggest negative of holding the rally at this time of year are the equinox winds.

"I'm sure it will be vigorously debated among our members whether the rally will return to the first weekend in June as King's Birthday weekend, or will stay with Labour weekend – or even be held at a different time of the year when the weather is most settled."

The NZAWA has no home airfield and every year holds its rally at a different aero club. About 120 gathered at Hawera – hosting the NZAWA for the first time – from throughout the country.

Although the organisation is made up of recreational pilots, the annual rally brings together a hugely diverse group of women from all corners of New Zealand's aviation community.

"This year we had student pilots attending their first rally," says organiser Beverley Pranker. "We had women who've been coming each year for more than 50 years. We had Air Force pilots, air traffic controllers, flight attendants, and Air New Zealand Captains, all united in their love of also flying a light aircraft."

"The fact that the pilots return year after year illustrates their passion for flying, and their delight in catching up with each other," says Margaret Wright. "The atmosphere is a mix of affection and support, and fierce contest," she laughs.

The Hawera rally was also the first in the history of the organisation to stage an engineering competition. Four young trainee aircraft maintainers competed for scholarships and a trophy (see sidebar).

NZAWA member Joan McLeod attended her first rally in Timaru in 1962. "There were only about 30 or 40 people there and I don't remember seeing many, if any, young pilots. There's a huge difference now with so many young women showing an interest in recreational aviation, and in a flying career. When I got my commercial pilot licence, I couldn't find a job. Nowadays, young women can do anything in aviation."

Find out more at www.nzawa.org.nz

Pen Mackay 

New Engineering Scholarships



AEANZ Engineering Competition winner Grace Hills



NZAF engineering scholarship winners with NZAWA president Margaret Wright, from left Shar Illingworth, Margaret, Georgia Gray, Devon Gardner.

The organisers of the Hawera rally say including an engineering contest reflects the growing importance of women choosing aircraft engineering as a career.

"It's the first time in the NZAWA's 62-year existence that we've held an engineering event," says Margaret Wright. "We were beyond thrilled that the New Zealand Aviation Federation provided three scholarships of \$8,000 each to pay for one year of aircraft engineering tuition at Nelson-Marlborough Institute of Technology.

The Aircraft Engineers Association of New Zealand (AEANZ) also supplied three \$500 scholarships for accommodation during the rally, as well as a trophy, and the NZAWA paid for other rally expenses of the scholarship winners.

"The present situation in this country is that women comprise just one percent of the total number of aircraft engineers, and we desperately need more engineers. By providing a competition for female engineers, the NZAWA is saluting their skill, and recognising their vital role in the

future of NZ civil aviation," says Margaret.

One of the four young women competing at Hawera, 18-year old Georgia Gray, started out wanting to be a pilot but swapped to engineering after an RNZAF 'School to Skies' camp last year. "I thought aircraft engineering looked quite interesting so I signed up for a Nelson training course at NMIT. I'm so glad I did. I'm really enjoying it and I'd tell anyone who thought it might also be for them to just go for it. It's a really good trade for a female to get into. You train exactly the same as the males, and I feel good if I do better than them!"

Georgia, 21-year old Shar Illingworth, and 22-year old Devon Gardner won the NZAF scholarships. Twenty-two year old Air Force trainee aircraft Grace Hills won the AEANZ trophy for a series of engineering tasks at the rally itself.

"We loved having the engineers become involved this year," says Margaret, "and we fully expect the contest to grow in the future as more and more young women look to aircraft engineering as a career."

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Royal Aeronautical Society

NZ Division Symposium 2022

After a two-year halt on the annual Royal Aeronautical Society (NZ Division) Symposiums due to COVID-19, on 4 November 2022 at Parliament buildings in Wellington, a symposium with the theme of New Zealand Aerospace in a Post-COVID World was held. Paul Harrison reports on the day's presentations and the Society's annual awards ceremony, held at a formal dinner following the symposium.



Simeon Brown MP - National Spokesperson for Transport

The theme of this year's Symposium looked at the New Zealand Aerospace – Diversification, Environment, and Innovation in a post-COVID world. Drawing on a range of experts from government, science, and industry, each session had a panel of three or four presenters, with question-and-answer time at the completion of their talk.

RAeS NZ Division President Shaun Johnson made the opening remarks and welcomed everyone to the physical annual symposium after two-years of absence owing to COVID-19. He noted with gratitude the presence of Geoff Wilkinson, President RAeS Australia Division.

The symposium was opened by keynote speaker Simeon Brown MP, National spokesperson for Transport and The Public

Service. Simeon welcomed all to the symposium and stressed the importance of the aerospace industry sector in the overall development of New Zealand's place in the world of technology.

Diversification and the Environment

The first session covered Diversification. This covered how the increasing diversity in thought and approach is benefiting the sector and the participants who have diversified their core business to adapt and overcome the challenges they face. LtCdr Richard Gearing RAeS (UK) joined the symposium by video link explaining how the RAeS Diversity and Inclusion committee is reviewing and assessing how the RAeS can increase its operation across

these spheres.

He was followed by another UK presenter Katherine Corich; CAA UK who outlined the current challenges, priorities, and innovation activities within the UK aviation sector. An RNZAF perspective on diversification was provided by GpCapt Mike Going RNZAF, who gave a presentation on how the Air Force is diversifying its workflow techniques, the diversity in the workforce and the application of these methods to the workforce.

The final presentation in this session was from Alex Altobeili, Patrick Lalor and Jessica Tucker from the BECA company. BECA is involved with several aerospace companies providing advice on the benefits and challenges being faced by



Shaun Johnson - RAeS NZ Division President



Mark Rocket - Kea Aerospace CEO



Catherine McGowan - Wisk Asia-Pacific Region Director

the aerospace industry in NZ. BECA's philosophy is to assist creative people together transforming our world.

The second session was entitled Environment and presented by: David Jacobson (Z Energy), Dr Linda Wright (NZ Hydrogen) and Gary Freedman (Electric Air). David Jacobson covered how Z Energy is coping with the challenges of operating in a world where environmental considerations now play a more important role in how a business successfully operates, and the new standards and regulations that they must work with.

Dr Linda Wright from NZ Hydrogen has a long career in driving innovation and change across sustainability, solid waste, and renewable energy sectors.

She talked about her current work in developing strategic alliances of the private sector entities to deliver a range of hydrogen products across New Zealand. Gary Freedman of Electric Air described how the company was formed and its aspirations:

“ElectricAir is a social enterprise on a mission to clean up our skies. Electric planes are cleaner, quieter, and cheaper to operate. We believe New Zealand is a no-brainer for electric planes, with one of the highest rates of short haul flights per person of any country in the world and an electricity grid powered from predominantly renewable sources. We want to see more owners and operators choosing to go electric and our first aircraft, the Pipistrel Alpha Electro, is

paving the way.” The Alpha Electro is a two seat aircraft manufactured in Italy and Slovenia by Pipistrel, with interchangeable battery units that power an electric motor which directly drives the propeller. The only liquid in the aircraft is coolant for the motor.

Innovation – Part One

The afternoon started with a session on Innovation (Part One). The first speaker was Dr Delwyn Moller from the University of Auckland. She spoke on collaboration between NASA, ANZ, and MBIE to combat global problems as they relate to the changing environment. She concentrated on The Rongowai Mission which is the fitting of a GNSS receiver on Q300 ZK-NFA as part of NASA's

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climate mission. The equipment provides detailed information on the topographical features that the aircraft passes over during a scheduled flight. The equipment will remain on this airframe until 2030. Once back on the ground the data is passed via standard cellphone networks to the University of Michigan. The first flight was on 13 September 2022. The information gained will provide near-term science benefits for wetland and soil-moisture monitoring, coastal dynamics and ecosystem health. It will also be part of long-term monitoring of local and regional climate change impacts, working with international science communities.

Rebecca Langton from NZ CAA spoke on how the regulator was approaching the challenge of certifying emerging technologies in aviation. CAA Rule Part 102 provides the basis for innovation and regulation for unmanned platforms. It provides the CAA's Safety and Security Regulatory Strategy; the Emerging Technology Programme (ETP) led by the CAA Emerging Technology Unit (ETU). This unit assesses risk of new innovations and communicates to the respective contributors their assessment of the risk, and steps to mitigate any risk. They



L to R: Dr Delwyn Moller, Rebecca Langton, James Powell

also look at the 'social license' impact on new technology (pilotless aircraft operations is an example) and the benefits new technology can provide within a regulatory framework.

James Powell, Chief Financial Operator and the MK-II Aurora Chief Engineer of Dawn Aerospace gave an overview of the company and current operations. Dawn Aerospace is a NZ registered company pushing the boundaries of space technology and engineering in green

satellite propulsion, sub-orbital launch vehicles and novel orbital launch systems, with the first product being satellite propulsion systems. Dawn Aerospace's world-leading proprietary technology means these systems have a much higher thrust than conventional propulsion systems. Their system exceeds performance of traditional toxic fuels such as hydrazine. The systems allow for precision orbiting, maintaining orbit, extending satellite life, rapid constellation phasing, avoiding

space debris and controlled de-orbit. Their technology is both very high thrust and environmentally friendly.

Their second development is an aircraft capable of maintaining non-atmospheric flight. The Dawn Mk-II Aurora is the latest in a series of test vehicles that will one day launch satellites into space. It is the second rocket-powered aircraft or 'spaceplane' produced by the company and will be capable of flights to above 100 km altitude, the border to space, before returning to land at an airport. It can be refuelled and flown again within hours. The aircraft has a length of 4.8 m, a take-off weight of 350 kg, and an empty weight of 118 kg. Using HTP/Kerosene as a propellant, it is designed to reach a maximum speed exceeding Mach 3 and a maximum altitude exceeding 110 km. The initial flight campaign was run from Glentanner Aerodrome. Taxi testing commenced in early July and five flights occurred between 28 and 30 July 2021, reaching altitudes of 3,400 feet.

Dawn Aerospace has completed 48 flights over the last 13 months with the Mk-II Aurora, to complete Phase One testing of the vehicle using surrogate jet engines. Tests of the vehicle under rocket



James Powell, CFO and Chief Engineer at Dawn Aerospace with the Dawn Mk-II Aurora

power are expected before the end of the year. In Phase Two of the test programme, the Mk-II Aurora will be fitted with a rocket motor for flights to over 100 km altitude and 3500 km/h. If achieved, it will be the first vehicle ever to reach space twice in a day.

Innovation — Part Two

In the final session of the day, Peter Sefont of Auckland-based Zenith Tecnica provided details of the company and

its aerospace relationship. Primarily a manufacturing enterprise, Zenith Tecnica specialises in Electron Beam Melting (EBM) which is a Powder Bed Fusion Additive Manufacturing (AM) process. Utilising an incredibly powerful beam of electrons, this form of AM heats and selectively fuses metal powder together. The design of the finished part is achieved through the creation of a 3D CAD model that is digitally sliced into thousands of individual layers, acting as a blueprint

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for the beam to follow. A product example is waveguides used in satellite communications and data transfer systems.

Using this technology Zenith Tecnica has built up a team of manufacturing experts where 60% of their products are space related and 70% of the product is exported. Their structural Titanium hardware has been on-orbit since 2017. They have an eight-year partnership with Maxar Space Technologies who specialise in space robotics technology.

The next presentation was from Wisk. In 2010, a team set out to explore the possibilities of electric VTOL flight. In 2019, that team and its generations of aircraft became Wisk through a joint venture between the Boeing Company and Kitty Hawk Corporation. In addition to being an investor, Boeing is also a strategic partner to Wisk, providing development, testing, and certification support. Another focus this year is to continue their collaboration with Air New Zealand, with a particular focus on sustainability.

Catherine McGowan, the Asia Pacific Region Director for Wisk said that in New Zealand specifically, the company has several initiatives underway that are advancing not only Wisk's vision of

safe, all-electric, autonomous flight, but also the broader future of AAM.

The company has flight tested its sixth generation of autonomous aircraft 'Cora' which will carry four passengers, flying up to 4000 ft, at up to 110-120 kts, with a range of 90 miles. Catherine says while flight testing has been a core component of the work in NZ, there has always been a strong focus on systems and research, and Wisk is passionate about coming up with creative solutions, whether that's to do with engineering, or how it shapes a safe and thriving urban air mobility ecosystem.

Mark Rocket of Christchurch-based Kea Aerospace presented Kea Aerospace as the only high-altitude flight company based in the Southern Hemisphere. Their mission is to create insights from the stratosphere that will improve life on our planet. Their vision is to be a world leader in stratospheric flight operation and data collection. Mark was the leader for setting up Aerospace Christchurch (now titled Aerospace NZ) that promotes the interests of the Christchurch and Canterbury aerospace community including aviation, space flight, rocketry, manufacturing, engineering, geospatial mapping, data analytics, education, training, and services.

The Kea Atmos aircraft is a game-changer for the aerial imaging industry, providing the full data picture needed to monitor land, waterways, and coastline. Being solar powered with zero emissions, it's also the ideal technology solution for climate change research. The Kea is capable of continuous flight, solar powered, with zero emissions and can carry different payloads. Their current plan is to have the first flight of the Kea Atmos Mk1 in 2023, with commercial operations starting in NZ in 2024 and Australia in 2025.

The final presentation of the symposium came from Shaun Johnson, CEO of Merlin Labs NZ that has its headquarters at Kerikeri and a staff of 12. The parent company is an advanced aerospace technology company headquartered in Boston, with flight test and systems support in the USA and NZ. Based in Boston, Merlin won \$105m in funding for a project to robotise the USAF C-130J Hercules that the company is revealing publicly for the first time, as well as its recent achievement of a key regulatory milestone: NZ CAA approved Merlin's plan to prove the safety of a single-engine Cessna Caravan cargo plane kitted out with an initial limited autonomy package, making it the first company to win so-

called 'certification basis' for such a system.

Merlin NZ has the use of a NZ registered Cessna 208 Caravan at Paraparaumu that is the platform for development of the autonomous pilot system, working through a programme of reduced pilot actions to eventually become fully autonomous. One of the first steps is to create a Natural Language Process (NLP) that takes audio input and interprets it into commands that can be flown by the other components of the system. This will take ATC voice instructions and convert them for the aircraft to respond appropriately.

Conclusion

At the conclusion of the symposium the consensus from the participants was that the aerospace industry in NZ should be looking at how all can make the aerospace community more diverse, sustainable, and innovative. One way of encouraging new persons into the industry could be to support the STEM school programmes. There are clear government aerospace strategies in place and it is now time to develop a plan for the various aerospace components to exploit those strategies.

Paul Harrison 



Wisk image



Kea Aerospace image



Merlin Labs image

From top: Wisk Cora, Kea Atmos rendering, Merlin Labs Cessna Caravan.

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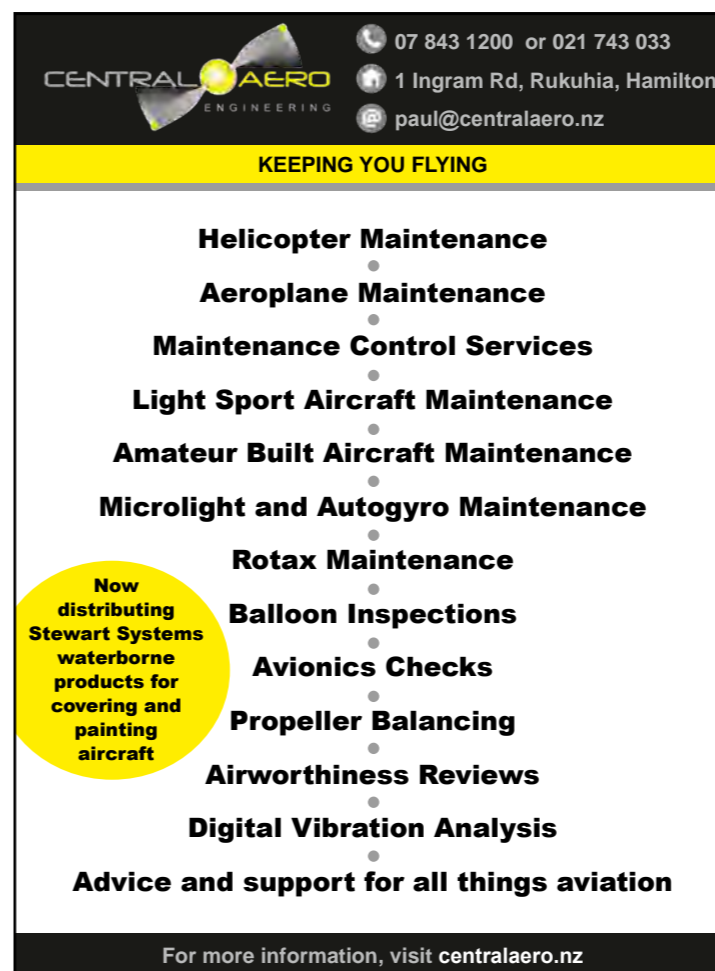
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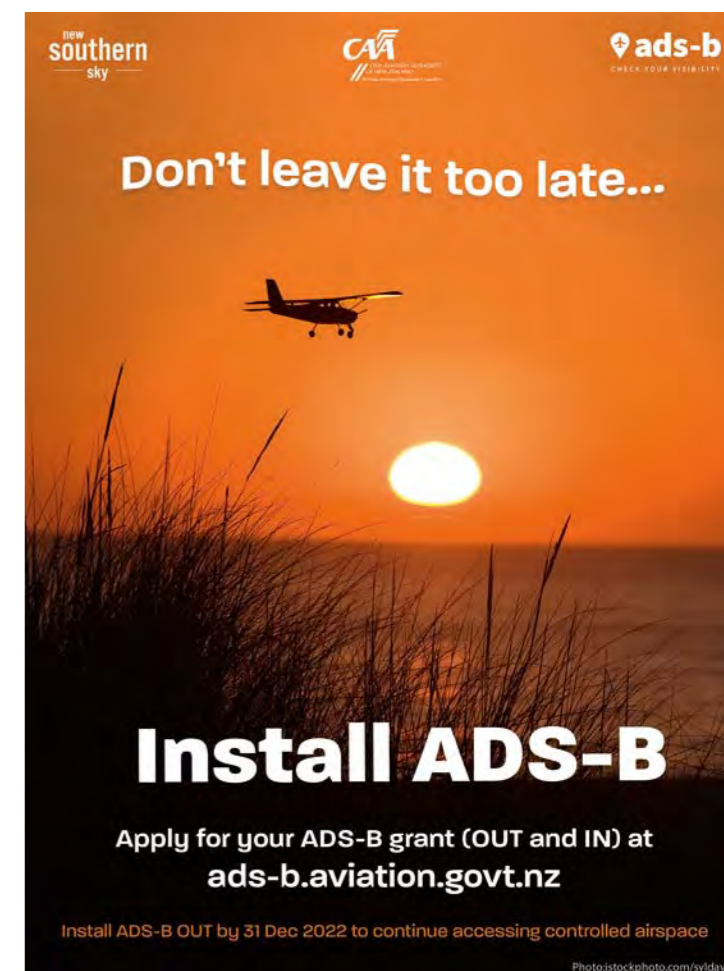
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Royal Aeronautical Society Awards 2022

As part of the annual RAeS (NZ Division) Symposium, there is a dinner in which the society's awards are presented to individuals and groups whom the society has identified as being outstanding contributors to the NZ aerospace industry in the previous year.

Before the awards were presented, Joseph Mooney MP and National Spokesperson for Space gave the after-dinner address. He acknowledged New Zealand's passion for the aerospace sector and the opportunities it presents including for high-value jobs and he reviewed the many pioneering activities of Kiwis in aviation. Joseph said the country has been quick out of the blocks to build a new space industry from scratch and has rapidly become a leading nation in this sector. The MBIE reported in November 2019 that aerospace was already directly supporting an estimated 5,000 full time equivalent roles in NZ and another 12,000 indirectly.

He noted that to continue the momentum of the sector, the role of universities and other training institutions

to produce individuals who can take up aerospace careers needs to be encouraged. The STEM programme is one avenue to provide this necessary education. Another is the need for an adaptive regulatory framework, as regulators working with the sector is paramount to supporting and leveraging our unique position in the global aerospace industry.

The Awards

There were four awards this year. Three were presented by Chief of Air Force AVM Andrew Clark.

Group Captain Watt Award – Dean Crafts

This award was established by George Watt to recognise outstanding technical merit which enhances the efficiency of the RNZAF. The award is open to all ranks of the RNZAF, military and civilian. Dean Crafts was selected by the RNZAF Air Staff for his 12-month in-depth review of the Depot Level Maintenance (DLM) programme for the SH-2G(I) Seasprite helicopter fleet. This led to several changes

in the maintenance programmes for this aircraft realising a 7000-hour annual labour reduction, while still retaining overall aircraft safety and enhancing the efficiency of the RNZAF.

RAeS NZ Division Kestrel Trophy – Aircraft Maintenance Programme Unit and Aircraft Structural Integrity Team.

Established by the RAeS NZ Division in 2012 this trophy is presented annually to the Air Force unit judged by CAF


RNZAF to be the most excellent. The RNZAF's Aircraft Maintenance Programme Unit and Aircraft Structural Integrity Team (AMPU/ASI) was judged in 2021 to be the unit for their depth and breadth of excellent work which has positively impacted airworthiness, efficiency, and costs across several fleets through a wide-ranging review of procedures, processes, and data. The outcomes have generated direct benefits to the RNZAF that will endure for the life of type across those remaining platforms and which can also be applied to other fleets. (Owing to COVID-19 this award was not presented in the year of recognition).

Ian James Diamond Award – Corporal Michael Emmerson.

This award was established as a memorial to Ian James Diamond, GM of Engineering of Air NZ. The award is made to a young aviation professional wishing to embark on a course of higher academic study leading to a tertiary qualification in an aviation related subject. The award consists of a monetary grant, a citation, and a medal. Michael Emmerson has completed two years of study towards his Bachelor of Engineering degree at AUT with very high results. He plans to continue his study towards an Engineering Masters Degree in Project Management.

Duncan Campbell Award – Greg Reeve

The Duncan Campbell Award recognises excellence in aviation journalism, covering traditional print as well as digital communications. The award consists of a silver medal, a certificate, and a monetary amount. Greg Reeve (who wasn't present at the event) has made a significant contribution to aviation in NZ with his knowledge of practical meteorology and his passion for aviation. He wrote a manual for PPL pilots, converting complex terms into everyday language. He is a long time teacher and advisor to the Walsh Memorial Scout Flying School.

Paul Harrison 



AVM Andrew Clark (L), Dean Crafts (R)



AVM Andrew Clark (L), Corporal Michael Emmerson (R)



Shaun Johnson with AVM Andrew Clark and the RNZAF team receiving the RAeS (NZ Division) Kestrel Trophy.

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Mk IX Spitfires MH434 and MH415. These two very original Spitfires served with the same squadron in WWII.

Air-to-Air with UK Warbirds

Aside from the last couple of years when travel has been difficult, we have usually included a couple of pages on Gavin Conroy's annual trip to the UK Flying Legends Air Show. This offers a taste of the warbirds scene in the UK and for some readers at least, enough of a temptation to go and see for themselves. It didn't quite work out that way for Gavin this year, though he still managed a good amount of airtime with some fabulous warbird aircraft.

Normally if I can travel to England, I aim to align the trip with the Flying Legends Air Show to hopefully do some photo flights with the WWII warbirds flying at the show but unfortunately due to several reasons the show is no longer to be held at its normal home of Duxford. Sywell was to be the new venue but logistically it became just too difficult for organisers. The narrow roads in and out would have been one reason for this but other factors were at play as well.

So my trip this year centred around the RIAT show. That said, I was there a week before RIAT so was able to spend a few days at Sywell with Richard Grace and his team at Air Leasing. They had a newly restored Mk.XIV Spitfire out on the tarmac just as I arrived, with Richard taking the machine up on only its second flight since a full restoration. The aircraft was faultless which was obvious due to the nice low level pass he made at the end of the flight with the Griffon roaring through the sky behind its big five bladed prop.

I had a good look around the hangars and a sit in the Hawker Tempest II that is ready to fly but awaiting its carburettor to arrive (that was already well overdue). When that flies I hope for the opportunity to do some flying with it. Then we spent a couple of days doing photo flights out of Sywell. I was able to fly with twelve subjects altogether, eleven of them were WWII era fighters including five different Spitfires, two Hurricanes, and two Mustangs. The twelfth subject was a beautiful two seat Vampire that was passing through for a couple of days.

Early jet types are not so plentiful these days in England so the opportunity to fly with a Vampire was not something to turn down. It was a two seat trainer version and I came away with some lovely photos including one taken right at the end of the flight when instead of doing a normal break away the pilot rolled it inverted and dived away -very spectacular!

Of the five Spitfires photographed, four of these were new subjects for me including flying with what many are calling the "Holy Grail of Spitfires" those being Supermarine Mk IX Spitfires MH415 and MH434.

MH 434 has been with the Hanna family for decades; Ray's daughter Sarah could not bring herself to part with it after Ray passed away so it flies in his and son Mark's memory and had the distinction of being one of less than a handful of Spitfires that have never been fully restored since they served in WWII. MH415 belongs to this small group as well. It served alongside MH434 with 222 Sqn at Hornchurch in 1944. They even flew on combat missions together. The aircraft was the aircraft owned by Connie Edwards following the filming of the Battle of Britain in the 1960s. It was parked in a hangar for decades and emerged with a large number of Buchons

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A Mk.V Spitfire being chased by a Hispano Buchon.



Mk.V Spitfire EE602 racing through the sky. Not many Mk.Vs are still flying.



Tr.9 Spitfire ML407. This machine was flown by New Zealander Johnnie Houlton DFC during WWII. Find out more at www.johnniehoulton.info.



also used in the movie. Many of those are now flying with a couple more still to be restored.

MH415 was sold to an investment group based in Australia and was restored in Australia by Ross Pays company in Scone before being sent back to England to be finished off by Richard Grace and his team at Sywell.

Richard told me the aircraft is 95% original. Very little skin work was needed and only a small area rivets needed replacing, plus just one instrument.

Seeing these two magnificent machines flying just a few metres away was one of those once-in-a-lifetime experiences.

An aircraft with a New Zealand connection was Supermarine Tr.9 Spitfire ML407. This aircraft was flown by Jonnie Houlton during WWII and has been owned by the Grace family for decades. It was flown impressively on the day by Richard. It is now in two seat configuration similar to Doug Brooker's and is in high demand for people wanting to fly in a Spitfire. It was however configured as a normal single seater during its wartime service. I've wanted to fly with this Spitfire for a long time so it was great



The de Havilland Vampire showing off a wide range of angles.

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North American TF-51D Mustang 'Contrary Mary'.



Peter Teichman flying his P51D Mustang.



Republic P-47D Thunderbolt 'Nellie B'.



The tight cockpit of a Hispano Buchon.



Thunderbolt and Mustang break away.



Hispano Buchon 'White 9'.

UK Warbirds

that we could finally do it.

Also operated by Air Leasing are the Supermarine Mk V Spitfire EE602 and a Hispano Buchon known as 'White 9'. The weather and scenery were great for this flight as these two Merlin powered machines flew around the camera plane on each other's tails!

Peter Teichman was able to fly his polished North American P-51D Mustang 'Tall in The Saddle', the scheme it wore when flown with the Tuskegee Airman squadron. He was on his way home from an air show and not far behind him was another Mustang, this time a TF-51D version known as 'Contrary Mary'. That was flown with Republic P-47D Thunderbolt 'Nellie B'. It was interesting to compare these machines flying together, both legendary fighters in their own right. Supermarine Mk. XVI Spitfire RW382 was next and its appearance in USAAF markings made it look quite striking, people forget how the Spitfire was flown by the American Forces as well.

We finished off with a pair of Hawker Hurricanes that fought in the early days of WWII. Hopefully at one of the big air shows in England we will see a mass flight of Hurricanes; six were flown together at Shuttleworth in 2018 which was the most in one formation since the 1950s. With a few more either being restored or returning from other countries recently, at least ten could be flown together so perhaps it will happen sooner rather than later. They can't give the Spitfire all of the limelight!

That wrapped up a fantastic few days and made up for at least some of the fighters I had not been able to fly with due to Covid restrictions over the last couple of years. There are still more to come however so hopefully next year we will see the Flying Legends Air Show return in one form or another.

Gavin Conroy



Supermarine Spitfire RW382 wearing a striking colour scheme.

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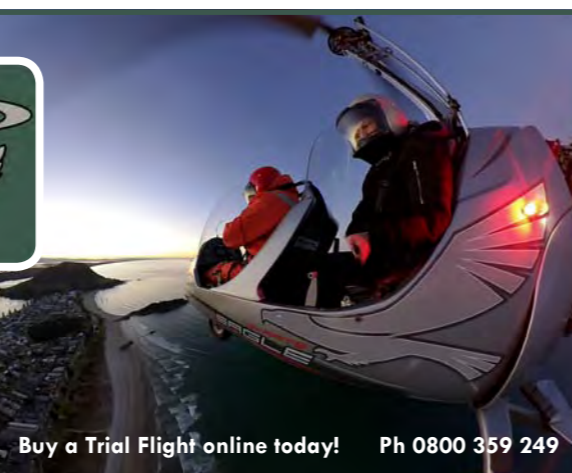
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A pair of Hawker Hurricanes - at times forgotten heroes.



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ZK-XTA Zenith CH750 Cruiser



This Zenith 750 Cruiser is the first of its type in New Zealand and was brought in from Australia by John and Sheryl Kramer of Te Puke. John says he "wanted to fly bush, get in low on the dust, sand and shingle beds, set up camp and escape the never-ending pressure and chaos that was real estate post the global crises." He didn't want a fabric aircraft or an aircraft that required avgas and tail draggers were out. John did need a spacious cabin as he is 185cm tall and it had to be high wing so the choice came down to a Savannah or a Zenith. The Zenith won with its 30 m

take off roll, a good useful payload and a wide 1.27m cabin with bubble doors so John bought a kit and Jabiru engine while still living in Australia.

A few years on and family circumstances had changed which meant moving back to NZ. Building the kit wasn't going to be possible so kit and engine were sold and the hunt began for a complete aircraft. In 2018 John went to Oshkosh, met Zenith designer Chris Heinz and viewed the latest range of Zenith aircraft. It was the Cruiser that appealed.

An accomplished aeronautical engineer, Chris Heintz was a graduate of the E.T.H Institute in Switzerland. After serving in the Air Force, Heintz worked for Aerospatiale on the supersonic Concorde jetliner, and later became chief engineer at Avions Robin (France) where he designed several fully-certified two and four seat all-metal production aircraft. In his spare time, Heintz began to design and build his own aircraft, which he named the ZENITH, anagram of Heintz. Being an engineer, his all-metal homebuilt aircraft incorporated simple construction methods

throughout

John's search was now on for a CH750 Super Cruiser. He found XTA for sale in the north of Queensland. However it would be many months before this aircraft would arrive in NZ due to Covid lockdowns and travel restrictions. He did finally manage to get over to Australia and fly the plane before dismantling it and loading for transport. These are his comments on his first flight in ZK-XTA, "The aircraft was better than I anticipated, the build quality was exceptional with the integration of several features not found in many homebuilt aircraft. Letting the brakes go the nose pitched up and I swear we were off the ground in ten metres climbing at close to 60 degrees at 35 knots." He said that the EJ22, 160hp motor through a 13/8 reduction gear box on a 2 metre, three blade prop with 152 vortex generators on all lift surfaces (including under the tail), literally dragged the plane into the air at 1,450 fpm then cruising at 3250rpm maintaining a speed of 105 kts. The aircraft is now in New Zealand and after 8 challenging months John has it certified and flying.

ZK-EHK Kitplanes for Africa Explorer



Reiner Van Biljon's Kitplanes for Africa Explorer first flew in 2008 in South Africa. It started life with a Rotax 912UL but Reiner's good friend who had built an Explorer installed a 6-cylinder Jabiru. He says the combination worked fantastically well and sounded even better! Needless to say Reiner decided to do the same and says it was the best thing he could have ever done. Most of his flying was done on the Highveld where the normal density altitude on any given day was about 7200 feet. The extra horsepower meant a cruise speed of 95 mph could be maintained. Rainer says he could get it up to 120 mph but the ride was not as comfortable.

Established in Johannesburg, South Africa in 1993, Kitplanes for Africa first aircraft the Bushbaby made a name for itself as a true Bushplane in the Microlight and Light Sport Aircraft category and soon became South Africa's bestselling light aircraft. More than 300 have been sold. The Explorer came into production in 2003 as an upgraded Bushbaby. The Explorer is a 2-seat side-by-side aircraft with wings that can be folded in about 15 minutes. The aircraft uses about 21 litres of mogas per hour and can climb at 600 to 1000 fpm with a take-off run around 300m at the altitude that Reiner was flying in South Africa. Reiner is looking forward to seeing what the Explorer's performance will be like here.

RECENT ARRIVALS

BJK	Yakovlev Yak-52	Albany	Aeroplane
DCB	Rans S-21	Auckland	Amat Built Aeroplane
DKF	Tecnam P92 Echo Mk II	Hamilton	Aeroplane
EAZ	Tecnam P92 Echo Mk II	Gore	Aeroplane
EHK	Kitplanes for Africa Explorer	Masterton	Microlight Class 2
FRE	Kavanagh D-84	Cambridge	Balloon
HDG	Airbus Helicopters AS 350 B2	Porirua	Helicopter
HEH	Bell 206B	Porirua	Helicopter
HNR	Agusta AW139	Nelson	Helicopter
HTZ	MDHI 369E	Auckland	Helicopter
IUL	Bell 429	Auckland	Helicopter
LFI	Beech B200	Palmerston North	Aeroplane
LIA	AVserv Hylander EXP	Mount Maunganui	Microlight Class 1
OTU	North American Harvard 2A*	Masterton	Aeroplane
XTA	Zenair CH750 Cruiser	Te Puke	Microlight Class 2
YUG	Gippsland GA8-TC 320	Wellington	Aeroplane

RECENT TRANSFERS

AHD	Piper J3C-50	Wairarapa Flying Tigers Inc	Aeroplane
AYU	Auster J1B	Mr A H Ruddenklaui	Aeroplane
BAQ	Auster J1B	Mr M Punch	Aeroplane
CNM	Airborne Windsports Edge X 582	Mr J W A Blaauw	Microlight Class 2
DXG	Cessna 185A	Mr P R H Voyce	Aeroplane
EEO	Gardan GY-20 Minicab U/L	Mr D J Stuart	Microlight Class 2
EFP	Piper PA-28-140	EFP Limited	Aeroplane
FLT	Cessna 172N	Tauranga Aero Club (Inc)	Aeroplane
GEF	Schleicher Ka 6CR	Mr G J Wisnewski	Glider
GMF	Rolladen-Schneider LS 3-a	Mr J Foreman	Power Glider
GVM	Schempp-Hirth Discus-2cT	GVM Syndicate	Glider
GXD	Rolladen-Schneider LS 3	Mr M H Gerring	Helicopter
HCG	Airbus Helicopters AS 350 BA	Wanaka Tourism Limited	Helicopter
HDX	Robinson R22 Beta	Dr D N Allen	Helicopter
HMX	Schweizer 269C	Mr C J Pullar	Helicopter
HNN	Gummal Cabri G2	Mercury Bay Helicopters Limited	Helicopter
HPR	Robinson R44 II	NR Aviation Limited	Helicopter
HRI	Hughes 369D	Eastland Heli Services Limited	Helicopter
IFT	MD Helicopters 500N	Action Helicopters Limited	Helicopter
ILN	Airbus Helicopters AS 350 B2	Skywork Helicopters Limited	Helicopter
ILY	Robinson R44 II	New Zealand Aviation Specialists Ltd	Helicopter
ITS	Airbus Helicopters AS 350 B3	Over The Top Limited	Helicopter
IWA	Bell 206L-3	Kent Helihire Co Limited	Helicopter
LAP	Zlin Aviation Savage	Mr K Yu	Microlight Class 2
LBI	Tecnam P2008	Nicholas & Maree Key	Aeroplane
NPS	Tecnam P2002 Sierra UL	Mr C F Alexander	Microlight Class 2
OAY	Cessna TU206F	Merlin Labs NZ Limited	Aeroplane
OHA	Zlin Aviation Savage	D King & P Hogue	Microlight Class 2
RFS	DHC-1 Chipmunk T10	Vintage Wings Limited	Aeroplane
ROC	Piper PA-34-200	Landpro Limited	Aeroplane
RPA	Magni Gyro M16	Mr Simpson	Gyroplane
RPG	Magni Gyro M22	Mr C A Burtcher	Gyroplane
SHG	Alpi Aviation Pioneer 300	Mr T N Alexander	Microlight Class 2
SPN	Robin R2160	X FLIGHT LIMITED	Aeroplane
STV	Cessna 421C	421 Eagle Limited	Aeroplane
TAJ	Cessna 172R	Auckland	Aeroplane
TAP	Cessna 172R	Auckland	Aeroplane
TAQ	Cessna 172R	Auckland	Aeroplane
TAS	Cessna 172R	Auckland	Aeroplane
TAU	Cessna 172R	Auckland	Aeroplane
TBJ	Tecnam P92 Tail Dragger UL	Dunstan Group Holdings Limited	Microlight Class 2
WFG	Tecnam P96 Golf UL	Dunstan Group Holdings Limited	Microlight Class 2
WHY	Cessna 172N	Mr D R Bentley	Aeroplane
ZZZ	Micro Aviation B22J Bantam	Mr T M Gibson	Microlight Class 2

RECENT DEPARTURES

CGR	Gulfstream American GA-7	Mr D M Langdale-Hunt	Aeroplane
DZO	NZ Aerospace FU24-950	Super Air Limited	Exp Dest
HBB	Bell 206B	Campbell Copters Limited	Exp Dest
HDY	Bell 412EP	PHI International New Zealand Ltd	Exp Dest
HSD	Eurocopter EC 130 T2	Maverick 130 Limited	Exp Dest
JIL	Hawker Hunter FR 74S	Clevedon Aviation Ltd	Exp Dest
MGB	Cessna 182H	Mr T L Gibb	Exp Dest
MIC	Quicksilver GT500	Mr M Coleman	Microlight C2
NSP	Piper PA-31-350	AAA Flightshare Limited	Exp Dest
PGE	Pacific Aerospace Cresco 08-600	Super Air Limited	Exp Dest

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ZK-OTU North American Harvard 2A



Recently registered is Bevan Dewes North American Harvard 2A which has been undergoing restoration by Callum Smith at Twenty24 Ltd of Wanaka since early in 2020.

Constructed for a US Army Air Force contract in 1943 in Dallas, Texas, it was originally destined to serve in Britain's Royal Air Force. However, before delivery, the British diverted it for service with the Royal New Zealand Air Force as NZ1044. It arrived in New Zealand, along with seven other Harvards aboard the SS James S. Hogg in June, 1943.

After re-assembly at Hobsonville, the RNZAF officially took it on charge on June 26th, 1943. It flew with No.2 (Fighter) Operational Training Unit (OTU being where the registration mark

comes from) during the war, primarily out of Ohakea. The aircraft had machine guns and a gunsight, and served in an aerial gunnery training role bearing the side codes FE-9.

NZ1044 remained with the RNZAF after WWII, receiving an upgrade to Mk.2A status in August, 1954. Part of this work involved replacing some wooden components with their aluminium equivalents; it was the first RNZAF Harvard to undergo this treatment. Following these modifications, the Harvard is known to have flown with No.3 (TAF) Squadron between September 3rd, 1954 and November 18th, 1955 and made its last flight in 1958 when it was placed in storage at Wigram in July, 1962. In October of 1971 the Government Stores Board transferred the aircraft to New Zealand National Airways Corporation's (NAC) Technical Training School in Christchurch. Here trainee aircraft maintenance technicians practised their craft working on the now-static airframe for a decade or two before the aircraft was put back into storage once again until being sold to private owners in 2004, Harvard 1044 has passed through a couple of hands before Bevan purchased.

Twenty24 engineer Callum Smith said it's one of the most original Harvards he's ever worked on. "Because of the low hours on the airframe, and the fact it's been kept out of the elements for all these years, it really is in mint condition. We have started pulling it all apart to assess exactly what work is required to get it flying again but so far there are no major surprises," Callum said. Bevan said having the original logbook from that very first test flight in 1943 is an added bonus.

He said that Harvard NZ1044 is nearing the end of a 2.5 year restoration in anticipation for its first flight since 1958 - and he is hoping to have it airborne again before the end of the year. NZ1044 has been repainted in the colours it had when it flew with No.2 (F) OTU at Ohakea during 1944-45.

Foot Note: The Tiger Moth ZK-BFS which appears on the list of change of ownership to Bevan Dewes and Lucy Newell's company Legend Aviation Ltd has recently returned to the air after a 24 year absence having been stored in a hangar at a farm strip at Kokonga near Ranfurly. It now wears a unique paint scheme designed by Lucy Newell who is looking forward to sharing her new aircraft.

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