

Warbirds Over Wanaka 2010 Contributed by Chris Gee

SINCE ITS humble inception as a country fair by legendary aviation and business entrepreneur Sir Tim Wallis in 1988, The Warbirds Over Wanaka airshow has grown into the nation's major aviation event. This year more than 65000 visitors flocked to Wanaka Airport from all over the world to witness what must be one of the world's most unique boutique airshows.

Held at Easter every two years, the airshow is (since 2006) run by the Warbirds Over Wanaka Community Trust which was established to help ensure the legacy and vision of Sir Tim. The airshow brings millions of dollars worth of business into the Wanaka region and has become famous the world over as a "must-see" event.

Despite everything the region and the airshow (including trade

fair, wine and food festival, classic cars and more) have to offer, it will always be the fantastic array of rare Warbirds and classic aircraft that remain the centre of attention. From graceful pre-war bi-planes to thundering modern fast jets, Warbirds Over Wanaka will always have something to excite the nerves and bring back memories of times long gone.

The finale on Sunday was nothing short of spectacular, culminating in a massive airfield attack, with The Warhorses moving in to defend the airfield as multitudes of aircraft made their attack runs supported by pyrotechnics. The Harvard's, Spitfire, Corsair, Kittyhawks, Zero, LA-9, Yak-3M and Mustangs all flew together in what certainly looked, sounded and smelled like the real thing.



A6M3 Zero: One of the star attractions this year was the Mitsubishi A6M3 Zero from the Monica Museum of Flying in Southern California, arriving via an ocean journey from Long Beach to Tauranga, then a multi stop ferry flight to Wanaka. One of only three examples still flying today, this was the second visit to New Zealand by a Zero, the other example is still located at the Auckland Museum. Powered by a Pratt and Whitney R1830 Engine the Zero was flown by Col. Stephen W. Barber and Col. Jason Somes to spectacular effect, with many low passes and engagements with the Allied Warbirds. The Zero flew in a number of re-enactment scenarios, including the Pacific Campaign of WWII where she was chased down by two Kittyhawks and the Corsair.



LA-9: (left) This Lavochkin LA-9 is the only example flying in the world today and was a key part of what made this airshow unique. Beautifully restored by Pioneer Aero Restorations in 2003, this LA-9 was luckily able to fly once again after a new propeller was fitted at Wanaka. The LA-9 first entered production in 1946 and was flown by the Soviet Union, China, Romania and North Korea. There are only four other airframes in existence, located in museums around Asia. The LA-9 was shown off in some fantastic displays by John Lamont. Unfortunately this was the last display of the LA-9 in NZ before heading to its new home at Virginia Beach, USA. The aircraft is already back at Pioneer Aero Restorations for disassembly and shipping.

MkIX Spitfire: (right) The Supermarine MkIX Spitfire is perhaps the most famous of the Warbirds and was flown this year by Sean Perrett and John Lanham. This Spitfire is owned by the family of renowned Kiwi fighter pilot Alan Deere and is the first restored in New Zealand. It formed the lead to the 'Finale' of the show where thanks were given to all the veterans. A real highlight was the Commemoration of "The Forgotten Campaign" of Burma, where the Spitfire and Zero flew together.



FG-1D Corsair: One of the most potent carrier-capable aircraft of WWII, this ex-RNZAF Goodyear FG-1D Corsair flown by Keith Skilling, has both a unique look and sound. Its distinctive "bent" wings were designed to keep the landing gear short and robust for carrier landings and give clearance for the enormous 13' 4" diameter propeller that gave it a speed of over 400 MPH. Despite its 2000hp Pratt and Whitney radial engine, the Corsair has a reasonably quiet, deep sound and as it flew overhead some well-timed breaks in the commentary reminded us as to how this aircraft got the nickname "Whispering Death" from the Japanese.



P-40 Kittyhawk: (above) There were two Curtis P-40 Kittyhawks flying together this year, with one of them performing a 'live-firing' of its six .50cal machine guns against the Zero during the re-enactment of the Pacific Campaign. Flown by Frank Parker, the P-40 fired its guns while passing in front of the crowd at over 240mph. Warbirds Over Wanaka is the only Airshow in the world where live ammunition (they were blanks) is fired from a classic flying machine and this added an exciting touch to what was already an exhilarating flying display. (See the 'Kitty with Claws' article on page 22).



Yak-3M: (above) Owned and flown by Arthur Dovey, the Yakovlev Yak-3M was the smallest and lightest combat fighter of WWII. This example was modified from a Yak-11 Trainer to Yak-3M Fighter in Russia before being finished by Pioneer Aero Restorations in Auckland. During WWII the Yak-3 proved more than a match for the Luftwaffe FW-190 and ME-109, and an order was sent to avoid engaging them at low altitudes.



P-51D Mustang: Flown by Graham Bethell and Robert Borrius-Broek, the two North American P51D Mustangs opened each days flying and proved to be a great crowd pleaser. P51D's flew duo and solo displays along with formation displays with the Vampire and L-39. Often cited with turning the tide of the war with their ability to escort the Allied bombers all the way to Berlin, the Mustangs range, versatility and Packard-Merlin engines made them into one of the most legendary Warbirds flying today. One example is painted in the colours of the Canterbury Territorial Air Force.



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Jurgis Kairys: 2010 marked the welcome return of “The Mad Lithuanian” Jurgis Kairys to Warbirds Over Wanaka. The multi-award winning World Freestyle Aerobatic Champion loves performing here at Wanaka and really pulled all of his tricks out of the bag this time. Along with some breathtaking aerobatics and supported by pyrotechnics he flew threw a smoke ring, barrel-rolled around a C-47, raced against cars and wrote his signature “J” in the air with smoke while spinning seemingly out of control in the sky.



KiwiFlyer’s Wanaka Correspondent Chris Gee, interviewed both Jurgis and Peggy during their visit to Wanaka. Look out for his reports in our June/July issue.

Peggy Krainz: Wingwalker Peggy Krainz and Pilot Friedrich “Friedel” Walentin brought their Boeing Stearman all the way from Stuttgart in Germany to perform at Wanaka. Their display proved to be a major highlight of the airshow, with Peggy’s death-defying transition out of the cockpit and onto the top of the wing, then out onto the wing itself, accompanied with Peggy’s choreographed dance moves and Friedel’s graceful aerobatics.

Sir Tim Wallis and Brian Hore beside Dave Hughes’ replica of ‘Miss Torque’, the newest Titan T-51 Mustang from Campbell Aviation. Readers may remember the original P-51 ‘Miss Torque’ owned by Sir Tim and Brian Hore which spent many years in the Wanaka area. The aircraft provided a walk down memory lane for Brian and Sir Tim with Brian commenting that the cockpit “felt just like the original”.



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F/A-18 Hornets: For many it was the four Boeing F/A-18 Hornets from 3 SQN RAAF that stole the show, performing tight four-ship formation flypasts and mock ‘pop-up’ airfield attacks, launching flares, and of course being VERY VERY LOUD. Based out of Christchurch for the duration of the airshow the F/A-18’s gave an exhilarating display of raw power and precision flying. On Saturday of the Airshow All Blacks Captain Richard McCaw was flown past a very jealous crowd in the rear seat of an F/A-18, where he addressed the crowd over the PA before returning to Christchurch.



Harvards: The venerable North American AT-6 Harvard has become a staple of the Warbirds aviation scene in New Zealand, with thousands of Kiwi pilots having been trained on them, both by the RNZAF and as trainers to move onto more advanced Warbirds. Of the 202 Harvard’s operated by the RNZAF there are still 16 airworthy examples in New Zealand. Many of these aircraft are owned by Syndicates and they are a common sight at aviation events throughout the country performing aerobatic and formation displays.

LC-130 Hercules: The United States Air Force saluted the key role New Zealand plays in its Antarctic operations by sending one of its Lockheed LC-130 Hercules equipped with retractable ski and with the apt name “City of Christchurch”. LC-130’s and Boeing C-17’s operate out of Christchurch International Airport to McMurdo in Antarctica as part of Operation Deep Freeze, a joint mission that has supported the National Science Foundation and U.S. Antarctic Program since 1955. The aircraft was on open static display for the duration of the show and welcomed a steady stream of visitors.





SH-2G Seasprite: The Kaman SH-2G(NZ) Seasprite is a highly versatile platform and performs a number of roles for the RNZN including ASuW/ASW/SAR and Utility roles. It is operated by No.6 Squadron RNZAF, which comprises both Air Force and Navy personnel. The SH-2G can be operated from the ANZAC Frigates TE KAHA and TE MANA, as well as the new Canterbury Multi-Role Vessel and the Offshore Patrol Vessels. This wonderful helicopter showed off many of its abilities during its display, including the 'Rescue' of a survivor off a moving speed boat that was being towed along the runway. Operated by a crew of three the Seasprite can be armed with Torpedoes, Depth Charges, a MAG-58 Machine Gun and the AGM-65 Maverick missile.



UH-1H: The venerable Bell UH-1H Iroquois has been the backbone of the RNZAF helicopter capability since 1966. Operated by No.3 Squadron in the Tactical Airlift, Special Operations and Medivac roles it is also on constant standby as a Search and Rescue platform. The sound of this helicopter and its two bladed rotor is unique and immediately identifiable. The Iroquois was displayed expertly with steep 'wing-overs', run-on landings and the winching of a crew member into a moving NZLAV from the Army's Queen Alexandra's Mounted Rifles. They also helped the organisers of the airshow solve the problem of a car which was "parked across an emergency exit" by dropping it from 1000ft into a paddock, much to the delight of the crowd. The UH-1H fleet is due to be replaced by NH-90 Helicopters in late 2013.



P-3K: New Zealand's maritime area of interest represents approximately 1/12 of the world's ocean surface, so it is fitting that No.5 Squadron is equipped with what is widely considered the best Maritime Patrol aircraft in the world. With a range of over 6000 km and loiter time of 8 hours the Lockheed P-3K Orion has been operated by the RNZAF since 1966. Originally P-3B's they were upgraded to P-3K's in the 1980s. Currently the aircraft are being converted to P-3K2 standard by L-3 Communications in the USA. This upgrade will include replacement of the Data, Sensor, NAV, COM and ground systems.



C-130H: Since 1965 The RNZAF has relied on the Lockheed C-130H Hercules for its Strategic & Tactical Airlift capability. L-3/Spar Aerospace in Canada has been contracted for the upgrade of the aircraft including its airframe, avionics, new 'glass' flight decks, NAV/COM suites and night vision systems. The Hercules performed a number of manoeuvres during its handling display such as the 'Khe-Sanh' or 6-into-3 approach and STOL display, as well as a classic 'wheelbarrow' pass pictured above.



Kiwi Blue parachute team: The Kiwi Blue Parachute Display Team put on a spectacular display each day after jumping from the C-130. Immediately after departing the aircraft they formed into a freefall star formation, before deploying their parachutes and forming a 'Stack' formation, with ankle mounted smoke canisters adding to the effect. This Author had the opportunity to watch them jump from within the C-130 on rehearsal day. Their professionalism was obvious as they kitted up and double checked each others equipment, before inching forward in a huddle and, once given the signal, tumbling out of the aircraft...

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PBY-5A Catalina: (above) Since arriving in 1994 with The Catalina Group of New Zealand this Consolidated PBY-5A Catalina has become a common sight at aviation events throughout New Zealand. However at the Warbirds Over Wanaka airshow this year the aircraft got to 'show its teeth' with participation in the Pacific Campaign re-enactment, where she ran a simulated attack against a static submarine and was 'bounced' by the Zero until the two Kittyhawks and Corsair saved the day. The aircraft's wide parasol wing and large waist blisters allowed for excellent visibility, versatility and long endurance. This ensured the Catalina was used extensively in all theatres of WWII and remained in civilian use for long afterwards.



Yak-52s: (above and below) Due to its high performance, G loading (+7/-5), accessibility and ease of operation, the Yakovlev Yak-52 has become the 'Warbird' of choice for many New Zealand pilots, even though the type was never a military aircraft. There were many examples present at the airshow and their aerobatics, mass takeoffs and formation flyovers were a great sight (and sound) to behold.



DC3: (right) After a proud history and with over 16000 examples built worldwide there are only two Douglas DC-3's still flying in New Zealand. Both of these aircraft made a grand contribution to the action at Warbirds over Wanaka 2010, especially during the 'European Theatre' re-enactment when they flew in formation as part of the 'Airborne Assault'. The 'Fly Dakota' DC-3 has display pilots and crew who are parachute jump rated and a removable passenger door which allowed the Kiwi Blue team to jump from the aircraft during the display. New Zealand is one of the few places in the world where pleasure flights in classic aircraft are still available, following some extremely questionable security rules being applied to passenger capable aircraft such as DC-3's. The requirements for over wing emergency slides (the trailing edges of the wings are only a few feet off the ground), cockpit voice recorders (the noise is so great that any conversation is inaudible) and armoured cockpit entry doors (the surrounding structure would not support it and the extra weight to do so would remove the ability to actually carry passengers) have grounded many classic passenger aircraft around the world. Luckily common sense still reigns in New Zealand.



Vampire: (above) Brett Emeny's De Havilland DH115 Vampire from New Plymouth made a welcome return to the airshow. Its distinctive 'howl' and flat take off were memorable as well as its formation flights with the L-39 and P-51D. The Vampire was designed with a unique configuration to make the best use of the technology available at the time and was the first jet aircraft operational with the RNZAF in 1951 staying in service until 1972.



L-39: (above) Two examples of the Aero L-39 Albatross flew at the airshow this year, one from New Plymouth and one based at Jet Flights in Wanaka. The L-39 flew solo displays as well as formations with the Vampire and P-51D. A highly successful aircraft made in what was Czechoslovakia, the L-39 became the standard Warsaw Pact jet trainer and is still in widespread use throughout the world today.



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Warhorses: Not all the action in is the sky over at Wanaka airport. The 'Warhorses Over Wanaka' contingent, many of them members of the Historical Re-enactment Society, has become a major part of the airshow. With two 'camps' set up at the airfield, one Allied and one Axis, the warhorses have authentic WWII clothing, armour and weapons. They carry out fire fights throughout the event, including a major fight involving live firing of 105mm howitzers and armoured vehicles. At the end of the day both sides of the warhorses came together to defend the Airfield as part of the spectacular finale. This year the warhorses had an array of vehicles involved in their display, most from the WW2 and Vietnam war eras and included Gun tractors, Chevrolet quad 'mini-trucks', army motorcycles, a 35 Tonne Abbot self-propelled howitzer, a Unimog, a six-wheel GMC truck and various jeeps and Landrovers.



Crowd Shots: (left) Oban (9yrs) & Tana Hansen (6yrs) show their appreciation to the Pilots after the Sunday Finale; (right) Some very pleased Gold Pass holders!



Entertainment: The Boogie Woogie Bugle Girls, from Hamilton, offered entertainment throughout the public days of the airshow. With authentic renditions of the Andrew Sisters and classic songs from the WWII era, they added much to the atmosphere and with the warbirds screaming overhead helped solidify the sensation that, despite the cellphones and digital cameras, we were indeed in the 1940's.



Jack Stafford: One of the very distinguished VIPs present was John 'Jack' Stafford. In 1945 he was awarded the Distinguished Flying Cross after a very successful tour flying the Hawker Tempest with 486 Squadron in Europe during WWII. He is credited with shooting down eight V-1 flying bombs, an Me-262, two Me-109, a FW-190 and a Dornier Do-217, as well as seeing significant action supporting the allied airborne invasion of Arnhem and other raids. He spoke eloquently to the audience of how he remembered the Me-262 encounter and his sorrow that it had to happen on Christmas Day.

Making the Most of Combustion

If poor engine performance or rough running isn't caused by a fuel system or electrical problem, then it is probably related to one or more of the engine cylinders and top end. The team in Aeromotive's Cylinder Bay are experts in the investigation and remedy of such problems.

Valve spring problems and breakages are the other common problem encountered, these frequently being determined as the cause of rough running.

AEROMOTIVE at Hamilton Airport have a fully equipped Cylinder Bay capable of repair, overhaul and the building up from new kits of all Lycoming and Continental engine cylinders. This bay is run by Gary Williams and complements the Aeromotive Engine Shop, performing both in-house and outside contract work for other maintenance organisations. Current workload is approximately 200 cylinder overhauls per annum, with 50% of these being for in-house engine jobs and 50% from outside. Engineering Manager Brett Puddle notes the advantage this in-house capability provides in regard to obtaining an immediate analysis for customers whose aircraft have been brought to the hangar specifically for engine problems or for other routine maintenance.

On occasions, the team have also undertaken assembly-only work on behalf of other providers, a notable recent job being for Brisbane Aero Engines who supplied parts to Aeromotive for assembly and fitting to an aircraft during its stay in New Zealand.

Common Problems

The most common problem the Cylinder Bay deals with is exhaust valves which typically wear and cause trouble in advance of other cylinder components. These are a frequent cause of poor performance due to high leak down rates (the time for which the cylinder will hold a given pressure), though a high leak down rate can also lead to the discovery of split cylinders and cracks. At times, this can be an elusive process – a recent case of green staining around an intake port which gave all the indications of being a gasket problem turned out to be a pin hole through the casting.



Brett Puddle setting up for port re-facing.



Gary Williams re-facing a rocker in the Aeromotive Cylinder Bay.

Once it has been necessary to remove a cylinder, typical investigation work will include removing valves and springs, measuring the bore, measuring valve stems for necking (which indicates stretching), measuring the valve guide for size and out-of-round, then taking whatever actions are deemed necessary. Reassembly will include re-facing and lapping valves where needed. It is rare to find problems with pistons or rings but when there is, then new rings are fitted and the bore is honed.

Time for Overhaul

The time for full cylinder overhaul will either be at the normal due time or when problematic running and troubleshooting has led to the discovery of cylinder cracks or excessive wear. The cost of building a new cylinder from factory kit components is currently quite competitive with a traditional overhaul and many customers are taking the 'new' option.

The overhaul process usually involves retaining the pistons but replacing rings and honing the bore, matching opposite pistons for weight, replacing exhaust valves and guides, refacing the exhaust port, replacing rocker bushes and refacing rocker faces, as well as fitting new manifold studs.

With a wide range of parts in stock, turnaround time for cylinder overhauls is normally a matter of days only and while this depends to some degree on workload, urgent jobs can more often than not be accommodated to the customer's requirements.

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