

**Welcome to the newsletter for the Bay of Plenty Branch, NZ Division, RAeS for October 2015**

## **October Meeting Recap**

September continued the progress of the Bay of Plenty Branch, with a good turn-out of new members and guests with eighteen attending. The meeting was hosted by the Branch Chairman and members of the establishment committee.

He welcomed two new recently paid-up members attended, namely David Love, the Chairman of the Board of Management of Classic Flyers and Andrew Duffy, a LAME, who was able to fit this into one his stints back in NZ between his shifts maintaining the helicopters which service the oil rigs operating from the Barrow Island base for the off-shore oil and gas exploration and recovery centres in the Australian north-west. Welcome, David and Andrew!

The chairman announced the appointment of Dr David Lyon as Deputy Chairman and the addition to the committee of Jack Best, JP.

Jack brings a wealth of background in aviation to the committee. As well as his role as a JP, he is currently involved as an engineering assistant at *Solo Wings* where he gets to provide a helping hand in the assembly of some of the latest generation of imported sport and light aircraft types along with the *Rotax* aero-engine agency the company currently represents in NZ. Welcome Jack!

The first of two lectures titled **The Rise and Fall of Regional International Airports** was presented by Dr David Lyon, who has a PhD in Aviation. As noted, the lecture had been delivered to the Air Transport Research

Society annual conference in Singapore in July 2015. Using data from the Airways statistics of the regional airports in NZ which had taken the plunge into the international arena, David's research showed the rapid climb and then steady decline of the international air traffic of the airports involved. These statistics also showed the stellar exception, namely Queenstown which became a star for Central Otago with its direct connections with the Australian east coast. In contrast, a later comment from David Love, noted the level of debt taken on by the Rotorua Council to cover the set-up cost as well as the ticket subsidy for each passenger. David Lyon went on to explain that while both the airports at Rotorua and Hamilton had invested heavily in set-up, he foresaw Hamilton (with its longer runway and existing facilities) could still emerge as the one regional airport to establish itself again as an international providing a new airline partner can be found.

In thanking David for his interesting lecture, Mike Feisst, who had worked on the Hamilton Airport during its re-development for the boom times of international flights, noted it was such a shame all the very expensive baggage x-ray and other specialist equipment had so quickly become redundant when the last operator pulled-out.

In the second lecture, Des Underwood introduced the meeting to the development of Solar Impulse Project and went on to background the remarkable €150M project to demonstrate solar powered flight. He described the Solar Impulse 1 and 2

development of its carbon-fibre designs, along with the construction of the current Solar Impulse 2 (Si2) variant, with its 63m wingspan and 17,278 solar cells and 633kg of batteries which first flew at Payerne Air Base on 2 June 2014. Incredibly, these solar cells are the thickness of a human hair at just 135 microns.

For the two project founders and pilots **Bertrand Piccard** and **André Borschberg**, the lecture went on to detail the real adventure not only to prove the viability of the associated technology on the 35,000km round the world flight (#RTW) of the unique aircraft but to test the single-pilot set-up necessary to remain aloft for five days and nights. After having broken so many records to demonstrate the possibilities available for solar flight, albeit at slow speeds, for the pilots and those on the support teams, the #RTW flight sadly came to an abrupt end in Hawaii when the Lithium-ion (**Li-ion**) batteries had been irreparably damaged. An investigation found too much insulation around the battery containers in the nacelles and the batteries overheated on the five day trip from Japan, the longest flight Si2 had ever made.

For those who followed Si2's #RTW flight on Twitter **@solar\_impulse** the news is the aircraft was placed in storage in Hawaii while new batteries were made and installed before the flight back to Abu Dhabi was set to re-start in April 2016.

Si2 demonstrated one of several commercial applications for solar powered aircraft where un-piloted variant could be flown at high

altitudes as a communication relay at a fraction of the cost of satellites and operate solely on solar power.

Des concluded his lecture by noting Solar Impulse project had once again proven there was always a new challenge in aviation!

## Aviation News

The April edition of RAeS Aerospace magazine (available free to members of the NZ Division) featured a double page view of the KC 516 *Adventourer* which remarkably has been developed in Auckland by the recently renamed Innova Composite Helicopters Ltd at the North Shore Airfield. The newly designated **KC630** claims to be: 'the world's first helicopter with a full monocoque fuselage fabricated entirely from rigid composite materials', using the proprietary *EvoStrength*<sup>™</sup> technology. Test flying of the earlier versions led to two crash landings, the second leading where the crew were injured. While previous plans included certification of the 5-6 seat earlier new type in 2017, it is not clear what target the new company has set. See: <http://www.compositehelicopters.com/>



Figure 1 - KC 630

The KC 630 was preceded in 2011 by Aurora Helicopters Ltd, in Manaia, South Taranaki when three versions were built and 130 hours

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were flown of the 2-seat carbon-fibre design powered by a T62 turbine rated at 160 shp.



### **Branch Matters**

The committee has been very heartened by the number of new membership applications with subs having been paid by direct credit into our bank account.

As noted previously, the committee has opted for \$20 until 31 Dec 2015 or \$50 from now until 31 Dec 2016. Remember to add your name into the Direct Credit reference field so we can track who has paid.

The committee held its latest meeting on 14 October and among other things resolved to:

- make a donation to Classic Flyers for each of our meeting hosted in the facility,
- review the final draft of the Branch Rules for distribution ahead of a General meeting to confirm them, and
- other Branch activities as planned.

### **Branch Activity Plan – 2015**

**Friday 6 November 15** – meet at 5.30 at AvGas Café, Classic Flyers, 9 Jean Batten Place, Mt Maunganui for 6.00pm start. Details of the lecture for this month follow:

- **Gliding in the Bay**

This lecture will be presented by Adrian Cable who is the President of the Tauranga Gliding Club. After starting his flying career in the RAF in 1978, where learned to fly on Jet Provost Mk5 out of RAF Cranwell, Adrian made his first flight in a glider from Tauranga in 1991. Since then he has become an A Cat Gliding Instructor as well as tow pilot trainer. He has twice served as Club CFI and this is his second term as the Club President.

On the wider front, Adrian has served as the National Operations Officer for Gliding NZ (GNZ), a role with delegated authority from the CAA to control gliding in NZ. Last season he competed in the South Island regional gliding champs, flying the club [Duo Discus](#). Having flown frequently in the South Island, this event was the 50th Anniversary Gliding Contest and he flew as PIC (Pilot in Command) with Mark Tingey (on his first contest in the mountains) and together they won the 20m class.

Adrian will be assisted by David Lyon who is one of the tow-plane pilots who will identify the aircraft types used by the Club and why.

For some of us, the progress of technology and design in gliding has been little more than we see displayed at the odd airshow. For those in the sport, the progress has been significant. For those aviation enthusiasts in Tauranga with ever an ear to sounds in the sky, some may have heard the sound of a small jet attached to a glider.

The Tauranga Gliding Club has participated in these developments and among its line-up of

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gliders still in use are seven different types, spanning the entire progress in gliding. We are privileged indeed, to have the opportunity to hear about these developments from an expert and later to visit the Gliding Club as part of the meeting to see these gliders.

We will assemble at Classic Flyers as usual.

## **Sun 22 Nov**

**Charity Lunch at Classic Flyers, RAF Benevolent Fund – 12.00 – 3.00** - \$60 per ticket, 2 courses with silent auction & raffle; to book phone Jenny, Classic Flyers 572 4000 or Melanie 578 8759.

## **Fri 4 Dec 15 General Meeting and Social Event**

- Approve Branch Rules, elect a Branch committee, and
- A talk-back session on what members would like to see in future meeting topics and Air Field Days locations.

## **Branch Activities – 2016**

- **No Branch meeting in January 2016**

## **Fri 5 Feb - Branch Meeting and BBQ at the Tauranga Gliding Club**

The theme for this meeting follows our November meeting on 'Gliding in the Bay' which will give Branch Members the opportunity to take a short flight over the Mount, the cost of which we will advise later for the princely sum of \$70.

We plan to have a lecture as well, for those who don't want to take-up the gliding option.

- **Friday 4 Mar - Branch Meeting**
- **Sun 13 Mar – Air Field Day – Tauranga Airport – hangar and site visits with lunch at Classic Flyers**

## **Aviation Events - 2016**

- **Sat 23 Jan - Tauranga Air Show #1**
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- **Sat 19 Mar - Tauranga Air Show #2**
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- **25th, 26th, 27th, 28th March 2016 – Warbirds Over Wanaka International Airshow - Easter Weekend**

### **Bay of Plenty Branch Committee**

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## Aviation News - EXTRA

In Whitianga a NZ Division member, Jim Evans AMRAeS has been leading a 'build a plane' programme at the Mercury Bay Area School for the past three years. Comprising Level 11-13 students, the programme has comprised the following light aircraft build and restoration projects.

First up in 2012 was a new-build from a kit version of the [VANS RV 12](#) two-seat pictured below.



This was followed in 2014 by a restoration project of a [Taylor Coot](#) amphibian, pictured below.



In 2015, the Area School added a follow-on RV12 Project as one a Special Programme.

For those wanting to see the progress reports of the project:

<http://www.mbas.ac.nz/index.php/events/special-programmes/new-rv12-project>

An extract from the webpage notes: "The duration of the build project will be over 12 months and the build team of students and mentors from the community will take on the challenge of building a VANS RV-12 kitset two-seater aeroplane".

To keep the local sponsors and others up to date with progress, the build team posts a weekly *Progress Log* – this one from 23 September.

**Mercury Bay Student Aviation Trust**  
**RV12 Project Log**

Date	Hours	No. of students	Job reference
23rd of September 2015	12:30 – 17:00	2	Fitting tail cone fairing and port and starboard wing construction




**Goal of the Day**  
Today's goal is to complete the tail cone fairing, this entails all mounting fixtures are in place, all fireglass panels are correctly aligned and all parts are free from any moving parts of the aircraft.

**Final fitting of the Tail cone fairing**  
Bernadine and Norm have been busy putting the final touches on the tail cone fairing. Very slight adjustments have been made to ensure a perfect fit. The tail cone fairing needs to be removable, nut plates have been fitted all around the fairing so that removal is as simple as undoing 24 screws. With this fairing removed access is given to the end of the fuselage for servicing.

**Port and Starboard Wing Construction**  
Both wings are well underway, Jordan has lost count of the sheer number of rivets that he has put in today. Jordan, alongside Roger, Brian and Jim have set up a production line system where one person drills and inserts/removes cleco's/rivets while the other person follows with the pneumatic riveter and rivets all the parts together. It has proven to be a very efficient way of getting through a large number of rivets. Grommets for the wing wiring were fitted today so that the wiring has safe passage from the plane's fuselage, all the way out to the wing tips. Wiring plugs have been fitted to the fuselage ends of the wings so that both wings are getting very close to having the skins put on. It won't be long now until the wings start to look like they will make the RV12 fly.

Many students were away today as the school is currently in the middle of exam week. We wish all students the best of luck with their exams and we eagerly await their return.

Thank you for reading. More next week, Mercury Bay Student Aviation Trust Team

Mercury Bay Area School  
Whitianga, Bay of Plenty, New Zealand  
Principal: Mr. Peter G. Macgregor



From the first *Progress Report* on 4 Feb, the team has posted 31 build sessions to date where the fuselage is complete and on its wheels and the wings are progressing.

Bravo to Jim Evans for his great work in leading the MBAS special programme at Whitianga.

In an phone conversation with Jim, he commented: 'the project was always in need of funds'.

A brief history of the [VANS RV12](#) includes:



The Rotax 912 ULS power-plant assembly, rated at 100 hp (75 kW) being prepared at MBAS, Whitianga

We look forward to watching progress with the RV12 project at Whitianga!

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On the same theme, in the UK, the RAeS has set-up a 'schools build a plane' programme which has been co-sponsored by Boeing and the Light Aircraft Association in the UK.

Links to this programme include:

<http://aerosociety.com/Careers-Education/buildaplane>

<http://www.sbapchallenge.com/>

<http://www.boeing.co.uk/boeing-in-the-uk/community/sbap.page#/>

RV-12	
	
<b>Role</b>	Light-sport aircraft <sup>[1]</sup>
<b>National origin</b>	United States
<b>Manufacturer</b>	Van's Aircraft
<b>Designer</b>	Richard VanGrunsven
<b>First flight</b>	November 9, 2006
<b>Introduction</b>	2008
<b>Status</b>	Kits and complete aircraft both in production (2013)
<b>Produced</b>	2008-present (kits) 2012-present (complete aircraft)
<b>Number built</b>	355 (November 2014) <sup>[2]</sup>
<b>Unit cost</b>	US\$64,850 (base kit price, 2013) <sup>[3]</sup> US\$123,000 (fully assembled, fully equipped, 2013)

NEWS FLASH – 27 Oct 15 - [Kiwi Regional Airlines](#) started the first scheduled air services from Dunedin to Queenstown flying a Saab 340, along with other services to Hamilton and Nelson. Led by Ewan Wilson, some will recall his earlier international venture, *Kiwi Air* which operated out of Hamilton. Interesting too, the new domain name incorporates the old brand name: <http://flykiwiair.co.nz/> and includes Hamilton at the northern end of its NZ network.