



The newsletter of the Sport Aircraft Association (Auckland Chapter) Inc

Sport Aviator

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In This Issue:

- Paul Blackmore - Oshkosh 2011 Report
- New Section - Tips, Techniques and Technology
- Member Profile - Phil Richards

www.saauckland.org.nz

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Front Page

Peter Armstrong's DynAero MCR 4S.
This aircraft will be the subject of this month's club presentation.

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Next Meeting

WHEN: Thursday 25th August 2011 -7:15pm

WHERE: Auckland Society of Model
Engineers Club Rooms
Peterson Road, Panmure Basin
Mt Wellington

SPEAKER: Peter Armstrong

SUBJECT: DynAero MCR 4S

Peter will be speaking to us about his recently fledged DynAero MCR 4S.



Hi All

I am wondering why I came back to Winter. I think it is called WORK. I had a great trip away.

The Waka in the Thames went really well. It was the first Waka on the Thames in 100 years.

It was quite challenging dealing with the different departments that control the river and timing the Waka launch and retrieval around the other river users. Plus controlling the support boat which I was on and organizing the camera man on the support boat to get the shots he needed.

We had to keep away from the Waka at times so that the photo shoot people from the banks could get a clear shot of the Waka without us in the picture.

Cell phone fun !!!!!

In the end, the Waka and the crew were safely landed and every body was happy with the exercise and the shots that you will see for years to come.



I then flew back to LA and on up to Sun Valley Idaho to deliver some paintings, relax in the sun and catch up on my sleep.

I then went to Florida and went flying in an Aircam for some more training on stalls and short take off and landings. I flew about 2 hours each day for 4 days with a coffee (hot water and lemon for me) break after an hour.

Part of my trip was to go to Baltimore and talk to a collector about his collection of African Art and while in Florida I was told there was a man with an Aircam going from Baltimore to Oshkosh. I contacted him and arranged to meet up with him in Baltimore and he offered me a ride to Oshkosh.

It took us 12 hours till we arrived in Oshkosh. I really enjoyed flying in to [the event].

Below is our arrival in Oshkosh.



On the Friday, Claudius was asked if he would give a ride to a person that really wanted to fly in an Aircam. When he was told who it was, he agreed. See if you can work out who he is from the picture below.



I set up camp next to the Aircam. I had decided to travel light so I pitched a survival tent and it worked really well. I tried out a survival sleeping bag but I woke up in a sweat. They certainly work.



It was a great experience, and I am pleased to be home in this amazing country

See you all Thursday

Cyril Wright



Hard to believe but it is the end of August already. The year seems to be rapidly slipping by and I don't seem to have achieved much on my build at all this month. Oh well I guess there is always next month.

I'm certainly looking forward to the warmer weather that spring will (hopefully) bring.

The last week has brought some extremely cold weather conditions to the whole country and like many others I was very surprised to see snow / graupel / hail or whatever it was, falling in the CBD of Auckland City. Although quite a novelty, hopefully we won't see too much more of such weather extremes this winter.

In this month's newsletter you will find a number of project updates from various Chapter members. The first update is from Kevin Moir who kindly hosted me on a visit to his house earlier in the month and showed me the progress he has made on his Taylor Monoplane.



It is always interesting to visit other builders and compare notes with my own progress. With Kevin's Taylor, the similarities to my KR project are quite marked so I could relate well to his progress to date.

Also this month, Paul Blackmore has provided a review of his visit to Oshkosh 2011. Paul fulfilled a long time ambition to go to Oshkosh and has provided us with his impressions of the event and a few photos.



This month I have also introduced a new column called **Tips, Techniques and Technologies**. A bit of a mouthful I realise but hopefully the information contained in the section will be of use to Chapter members who are building and/or maintaining aircraft.

As the name implies the section contains tips and techniques provided by fellow Chapter members and also from mailing lists I follow.

Note that the section also includes links to websites of suppliers of products and/or services which may also be of use to builders. I mention this as I would like to make it clear that any supplier references included are not sponsored submissions and only included if I think they may be of use to Chapter members.

If you have any hints or tips of your own you would like to share with the rest of the Chapter or suggestions for other articles please feel free to let me know.

The Member Profile this month is of Phil Richards. Phil is the Auckland Chapter's Composite mentor and he kindly agreed to speak with me for the column.



I hope you enjoy this month's newsletter and I look forward to catching up at the meeting on Thursday.

Happy building or flying

Cheers

Gavin

5 Last Meeting Summary

From Peter Armstrong's DynAero MCR 4S Flies

Peter Armstrong informed the Chapter that after four and a half years of construction his DynAero MCR 4S aircraft had made its maiden flight the previous day with Norm Bartlett at the controls. The aircraft now had a grand total of 37 minutes on the Hobbs.

Peter indicated the first flight had gone very smoothly with Norm only finding a couple of minor issues.

Peter said he hoped Norm would be able to continue with the flight test program in the coming weeks if the weather continues to hold out.

DynAero MCR 4S First Flight Review Norm Bartlett

Norm Bartlett then gave a summary of the first flight of Peter's DynAero.

Norm said that the weather on the day of the first flight was looking fairly bleak in the morning with low cloud and rain and the wind blowing at 10-14 knots 90° to the runway. However the cloud eventually lifted to a base of about 2500 feet which was sufficient for the flight to take place.

With the weather clearing, Norm and Peter took PSA out to the end of the runway and went through the run up together and when they were satisfied that all was in order Peter exited the aircraft and left Norm to it.

Norm lined up on the runway and opened the throttle on the Rotax. He indicated it was quite unusual to see 5000 rpm on the gauge after being used to aircraft with engines that turn much lower revolutions.

The acceleration and time to rotate speed of the MCR was very quick. Norm said he found he barely had time to monitor any of the three display screens in the cockpit. The plane rotated off the runway and quickly climbed to 2200' where Norm took the plane through a set of check maneuvers to test its flying characteristics.

Norm described the aircraft as very well trimmed, lightly loaded and dynamically very neutral which was especially apparent in the turn. He said he could put the MCR into a turn and literally take his hands off the controls and it would stay in a constant turn without any tendency to roll in or out of the turn.

Once finished with the handling evaluation, Norm turned for home and set the aircraft up for the circuit. Turning in for landing and as the aircraft decelerated below 80 knots, Norm said a voice starts to relay the airspeed to the pilot.

On the final approach for landing, Norm said the MCR handled the crosswinds well and after touch down the plane tracked straight down the runway.

Norm wrapped up his talk saying he was very impressed with the DynAero and was looking forward to continuing with the test program.

From Norm Bartlett Flying Program for SportAvex 2012

Norm Bartlett also presented the current flying program currently assembled for SportAvex 2012.

SAA Display Aircraft		
Aircraft	Reg	Who
G202 Aero Display	NUT	Richard Hood
Helicopter Display		Phil Hooker
Cessna 152		Phil Hooker
Technam Twin		Phil Hooker
Mosquito Helicopter		Blair Holland
Glasair III	MKP	Buster Persson
Europa		Gavin Lee
Jet Longeze		Grant Nicholls
BD5		Grant Nicholls
Spitfire Micro		Harry Harris
Harmon Rocket		Dave Simpson
Hatz Biplane		John Martin
Trike		Colin Alexander
Motor glider		Colin Alexander
Cri Cri	LBW	Nev Hay
Corby Starlet	TOY	Don Wilkinson
Corby Starlet	TNT	David Wilkinson
M24 Gyro		Mike Ross
Jabaru J230		Bruce Stinton
T51 Mustangs		Peter Walton and others.
Pitts Special		Dave Monds
Furio		Giovanni Nustrumi
RV 7		Steven Jones
Aircam	SUN	Cyril Wright / Alistair McLachlan
Airshow Display Aircraft		
Supermarine Spitfire	SPI	Brendon Deere
Aerobatic MX2	MXT	Doug Brooker
Hawker Hunter	JIL	David Phillips
BAC Strikemaster	STR	Brett Nicholls
DH Vampire	RVM	Brett Emeny
L 39 Albatros	VLK	Peter Vause
Cessna A 37	JTL	NZHAT – Maurice Hays
Douglas DC3	DAK	Fly Dakota -Geoff Cooper
RNZAF		Ian Brunton & Jim Rankin
Yak Team		Brett Emeny
Roaring Forties		Frank Parker
DH Tiger Moth	BEN	David Phillips
Xtra 300	LLG	Grant Benns/Wayne Ormrod
FG-1D Corsair	COR	?
P-51 Mustang	TAF	Graham Bethell
P-40 Kittyhawk	CAG	Frank Parker
P-40 Tomahawk	RMH	?
Messerschmitt 108	WFI	Colin Henderson
Boeing Stearman	XAF	BOPCA Company – Andrew
DH Dominie	AKU	NZHAT – Maurice Hays
DH Devon	KTT	NZHAT – Maurice Hays
Fletcher FU-24	JAA	Super Air (Derek Williams)
Warbirds Aircraft		Warbirds Association

6 Last Meeting Summary Continued

From Evan Wheeler Pilots Fined for Matarangi Landings

Evan Wheeler noted that CAA has successfully prosecuted two pilots for landing aircraft at Matarangi Airfield when the airfield was closed over this summer just gone.

The fines handed down were in the thousands of dollars bracket and Evan reminded members that we all need to make sure we read NOTAMS and do not land at airfields that are closed as the CAA will prosecute pilots who flout the rules.

Guest Speaker Mike Tunnicliffe

The guest speaker for the evening was Mike Tunnicliffe who spoke on the background and development of the steam engine he has designed and is building for his Pietenpol aircraft.

Mike started his talk by asking the rhetorical question of “why a steam engine?”. His answer was the last time it had been done was in the 1930’s and as such he wanted to tackle the project to satisfy his own curiosity about whether it was feasible and to prove that it could actually be done.

Mike walked us through the history of steam powered aircraft which dates back as early as the mid 1800’s. He also covered off the history of steam powered cars and motorcycles which he says have been the source of many of the ideas he is encompassing in his engine design.

For Mike this is the third steam engine he has build, with the two previous engines having been fitted to small boats he has owned.



The engine Mike is building for the Pietenpol is however a very different design from his previous ventures. The three cylinder radial engine encompasses the simplest design approach that Mike could conceive of while keeping it as reasonably light as he possibly could. As Mike puts it “I want to produce an engine which will work reliably and produce adequate power

without introducing any radical design features which would make the engine unreliable.”

Mike has calculated that when complete the engine will weight around 75lbs. He estimates that the associated burner/steam generator will weight around 150lbs giving a total engine mass of about 225 pounds which is very close to the original weight of the Model A Ford engine that the Pietenpol aircraft was designed around.

The steam generator for the engine is as the name implies not a steam pressure vessel but purely a generator producing the high temperature steam required to drive the engine.

Mike explained how the more heat available in the steam, the more power that can be derived from the gas as it enters the engine. Thus the higher the temperature of the steam then the smaller the size of engine required to produce the same horsepower.

Mike has designed the engine to be a total loss system which will provide sufficient steam for about 40 minutes of flying time. As Mike puts it, “it is about demonstrating the engineering concept not about long distance flying.”

The steam generator itself will use diesel or avgas as its primary fuel and will use fan assisted burner to heat the water in the jacket tubing. Mike showed the design he is using of a spinning dish in which the fuel is dripped and which spins the fuel out to the edge where it is atomized by the fan forced air blowing past the dish before being ignited in the burner section.

Interestingly Mike says that he is going to regulate the power of the engine by increasing or decreasing the amount of fuel flowing to the burner, not by regulating the level of steam entering the engine. He said there will likely be around a three second lag in response from the engine to throttle commands but although slower than an internal combustion engine, it will be faster than the response a jet engine can give.

Mike says the advantage of controlling the burner in this manner is that it simplifies the design of the engine, negates the need for a steam regulator mechanism which reduces the weight and complexity of the design.

Mike estimate that he would have some 1500 hours of time invested in the engine build thus far and guesstimates that he will likely have very little change out of 5000 hours once the engine is up and running.

Mike wrapped up his talk by taking questions from the Chapter members present. All in all a very interesting talk and we are looking forward to seeing Mike’s project flying in the [hopefully] not too distant future.

Kevin Moir. Update on his Taylor Monoplane.

During the past month Kevin Moir kindly invited me round to visit to take a look at the progress he has made on his Taylor Mono plane project.

Kevin has been working on the Taylor now for five years since purchasing the project off Bob Siren.



The Taylor Fuselage sitting in Kevin's garage workshop

Since the last update in the SAA magazine back in October 2009, Kevin has removed the wings from the aircraft, completed covering the rudder, nearly completed fitting the canopy and is in the process of covering the fuselage with Seconite fabric.

Kevin told me he is applying the Seconite as per a system recommended to him by Robbie Gentry. This system requires a coat of clear lacquer to be firstly applied to the plywood skin. This is then covered by Seconite cloth, which is tacked at the edges and ironed to shrink the cloth. Finally a second coat of clear lacquer is applied to bond the Seconite to the fuselage.

Kevin has completed the first two steps of this process and has the cloth applied and ironed. He only has the final coat of lacquer left to apply.



The Seconite fabric on the fuselage

I commented on the colouring of the ply skin Kevin has used on his turtle desk. Kevin said he had used Gaboon Ply which was extremely light and flexible. However he did comment that this ply had caused him some problems with the outer surface of the ply drying out and cracking since it was installed. He has had to fill the cracks and apply a layer of lightweight deck

cloth fibreglass to the Gaboon to try and prevent any further occurrence of splitting.

Kevin has also completed a significant portion of the work required to fit the canopy to the fuselage.



Kevin's two part canopy

The canopy is in two parts and will use an opening system very similar to the Pulsar where the canopy slides forward on a rail on the forward fuselage. Kevin said he adopted this method after his original idea of having the canopy swing open to the right had caused the perspex to start cracking near the hinge. Kevin figured if it was starting to crack just sitting in his garage then it was likely to get considerably worse once in use. As such he reworked the mounting system to follow the Pulsar approach.



The forward 'Pulsar' style canopy rail

Kevin is using a simple rail system mounted on the fuselage longerons with channel runners he has fabricated himself to keep the canopy running straight forward and aft.

After a great afternoon chatting about building, I somewhat reluctantly headed home leaving Kevin in his workshop. Kevin himself says that progress has been slow as other commitments in his life take priority however he is making progress and with luck it will not be too long before we see the Taylor flying in the skies around Auckland.

8 Chapter News Continued

Don Wilkinson. Update on Corby Starlet ZK-TNT

We have completed the alterations to match TOY. Cabin shifted back 150 mm and lowered 80 mm. Cowl modified. Now ready for paint process again with acrylic house paint. Dulux X10 by recommendation.

Photo is of canopy in place.

This is a beautifully detailed construction. Full marks to Alfred Hirzel and his worthy mentor Dave Campbell - Morrison (DCM). I am trying to maintain the standard

Cheers

Don



Peter Armstrong. Update on MCR 4S ZK-PSA

We have made 4 flights of which I went up for an hour with Norm. David Rose has gone up as an observer as well. Just little things to fine tune.

Handling is magic, very neutral as Norm stated. In 60 degree banks it keeps going around on its profile without losing/gaining height or varying its roll.

Stall tests this week and then onto endurance testing and me learning to land it such that it re-usable each time. Pictures below were taken by Nev Hay.

Cheers Peter



9 Chapter Project & Aircraft Lists

Chapter Projects

Make/Model	Rego	Member	Status
Auster J5F	BDY	Les Wilson	Restoring
Bede BD5	ZIP	David Rose	Building
Cessna 150L		Craig Thomas	Repairing
DeHavilland DH-83C	AQB	John Eaton	Restoring
Europa XS Tri-gear	ROB	Rob Waters	Building
Fisher R80 Tiger Moth	CCC	Jon Farmer	Rebuild
Jack Thompson 1		Kevin Moir	Building
Lancair 235		Rod Sullivan	Building
Menestrel HN-700		Stephen Chilcott	Building
Osprey 2 Amphibian	XRT	Richard Thompson	Restoring
Pietenpol Aircamper		Mike Tunnicliffe	Building
Pitts S1-SS	MPH	Stuart Mackereth	Building
Rand KR-2	CCK	Walter Reinauer	Repairing
Rand KR2S		Gavin Magill	Building
Rearwin Sportster(37)	ALX	Tony Payne	Rebuild
Rutan Long Ez		Wayne Cunningham	Building
Sonex Tri Gear	PDB	Paul Blackmore	Building
Taylor Monoplane		Kevin Moir	Building
Titan T51 Mustang		Gary Mitchell	Building
Titan T51 Mustang	FDL	Warren Sly	Building
Van's RV-4		David Grove-Hills	Building
Van's RV-6		Ian Chapman	Building
Van's RV-12	YRV	Alan Coubray	Building
Waix		Bruce Turner & Chris Wade	Building

Chapter Projects Other

Make/Model	Rego	Member	Status
Nexus Mustang	NEX	Stuart Wards	Plans
Rand KR2S		Karl Pudney	Plans
Pazmany PL2		Frank Ciochetto	Stored
Helicycle		Allan Cameron	Unknown
Murphy Rebel		Eric Breetvelt	Unknown
Safari Helicopter		Dick Ussher	Unknown
Witman W-10	RET	Cliff Bellingham	Active
ATEC Zephyr 2000S	ZFR	Kevin Hartley	Arrived

Chapter Aircraft

Make/Model	Rego	Member
Aerosport Kahu Gyroplane	RCP	Chris Wade
Aircam	SUN	Cyril Wright
Airtrainer CT4 (Syndicate)	DGY	Norm Bartlett
Avid	PCM	Graham Smith
Bolkow Junior BO 208	CJF	Keith Trillo
Brantley B2B	INK	Nick Koreneff
Cessna 172	DKH	David Horton
Cessna 172D	CCI	Graeme Weck
Cessna C182	WKK	Brian Wigley
CFM Shadow C2	FSG	John Granger
Corby Starlet	TOY	David & Don Wilkinson
Corby Starlet CJI	TNT	Alfred Hirzel
CRICRI Cricket MC15	LBW	Neville Hay
Draine Turbulent D31	CFY	Kevin Paulsen
DynAero MCR 4S	PSA	Peter Armstrong
Europa XS	EPA	Gavin Lee
Falco F8L	TBD	Giovani Nustrini
Falco F8L	SMR	George Richards
Falcomposite Furio LN27RG	LLG	Giovani Nustrini
Fisher Dakota Hawk		Gary Mitchell
Grumman AA-IC Lynx	EFV	Brian Wigley
Grumman Cheetah AA-5A	ERJ	Chris Watkins
Isaacs Fury II	JHR	Rex Carswell
Jabiru J200	CHW	Chris Watkins
Jodel D18	OWL	Mike Tunnicliffe
Jodel D18	SCJ	Stephen Chilcott
Lancair 360	MHS	Norm Bartlett
Micro Aviation Bantam B20	XIE	Bob Syron
Mike Whitaker MW6S	MWS	Grant Sandiford
Morgan Aero Works Cheetah	CCB	Jon Farmer
Murphy Rebel	DKZ	David Horton
Murphy Rebel	WEM	Evan Wheeler
Murphy Rebel	WEC	Graeme Weck
Petrel Amphibian	JAQ	John Eaton
Piel Super Emerald	FMM	Peter Nicholson
Piper Cherokee Archer I	DQX	Leo Johns
Piper PA38 112 Tomahawk	VBM	John Eaton
Piper Pacer PA-22/20	PAT	David Wilkinson
Pitts 12	PTS	John Eaton
Pitts		Paul McGruer
Ragwing Special	MIK	Bob Syron
Rans S6ES Coyote II	TNA	John Struthers
Rans Sacota S10	CLT	Craig Thomas
Safari Helicopter	IJE	John Eaton
Sequoia Falco F8L	TBD	Giovani Nustrini
Socata Tobago TB10	JIE	Stuart Wards
Sonex (Syndicate)	JQP	Paul B, Sandy W, Bruce T, Chris W, Gavin M
Taylor Coot A	JST	Alistair McLachlan
Taylor Monoplane	CRS	David Grove-Hills
Thorp S-18T	MBY	Mike Boyles
Titan T51 Mustang	WSV	Peter Walton
TL2000 Carbonsting	PLR	Phil Richards
Ultravia Super Pelican	JDI	Jon Farmer
Vans RV-7A	MIS	Dave Cogan
Van's RV-6	PRV	Kevin Paulsen
Zenair CH 601 B	ZXZ	David Rose
Zenair CH601	JFN	Peter Herrick

If Chapter members are aware of any changes to or aircraft missing from the lists on this page please forward an update email to the editor at gavin.magill@gmail.com

Paul Blackmore provides a review of his visit to EAA AirVenture Oshkosh 2011.

My son Roy and I attended Airventure for the first time this year. The decision to go was relatively last minute and driven by the fact that re-arrangement of the school terms for the rugby world cup meant that it would coincide with NZ school holidays. To keep costs down we decided that we would camp at Oshkosh and use public transport wherever possible. Our itinerary took us to Chicago via Sydney and Los Angeles. For first timers to the USA, the flight from LA to Chicago was fascinating as it was a crystal clear day. The rugged Utah, Colorado mountains and endless Nebraska cornfields laid out in a perfect grid.

After a Chicago subway trip to a 3 star hotel and a much needed shower and sleep we went shopping in a Chicago department store to purchase a cheap tent, air mattresses and camp chairs which would become our accommodation at Oshkosh. While we could have purchased these supplies in Oshkosh I was perhaps needlessly concerned over availability and the problem I would have if I could not purchase a tent in Oshkosh.

The next day we took a Greyhound bus to Oshkosh. After travelling by airline, Greyhound busses are a bit of a shock, first in first served for seats with tickets not guaranteeing travel.

Camp Scholler at Oshkosh is absolutely massive. When we arrived at about midday on Saturday, the Camp was already about 75 percent full. This meant that the nearest camping was probably about 1.5 km from the AirVenture gate. Fortunately a friendly Warbirder with a golf cart helped Roy and I find a good camp site near an amenity block. The camp is very well run, amenity blocks are kept clean and while at times in high demand it is always possible to get a warm shower with minimal waiting. Coffee, food and beer are available at the camp store.



After dreaming about it for 20 years I'm here!

Sunday was the Sonex factory open day, a great time to meet the Sonex staff, pick up a few supplies and generally catch up with other Sonex builders. The new tricycle gear single seat Onex was on display along with the jet powered Subsonex which has now had its first flight.

Monday of course was the opening of Oshkosh, walking through the gates I had to pinch myself – I was really there! It is hard to describe the scale of Oshkosh, there is just so

much to do and see across all aspects of general aviation. While I had planned to attend a lot of forums, I found myself for the first few days just looking around at aircraft, trade displays, kit manufacturers and in the afternoon watching the airshow. Towards the end of the week I spent more time listening to forums and attending workshops. While one week is probably enough time to be there, it is just not possible to do and see everything.



Roy and Fifi – the only flying B29

The airshows were dominated by professional airshow performers, while spectacular and truly impressive, these tended to be largely the same from day to day. The night airshow however was different, think low level aerobatics in the dark while letting off fireworks from wingtips!



A beautiful evening for the very popular night airshow and fireworks display

All in all, our trip to Oshkosh was a most memorable experience. Camping on site at Camp Scholler is a great low cost option that puts you right at the centre of things. [It is] easy to get to [the Airventure] site in the morning, and close to the evening activities as well. I was impressed by the South African group who have a well organised dedicated group camp area. They have storage on site for tents and camping equipment and from all accounts seem to have a great time. I wonder if we could do something similar, perhaps an ANZAC camp in collaboration with the Aussies. While next year might be too soon for me – I'll definitely be going back.

11 In The News & On The Web

Vulcan Bomber XH558 at Windermere Air Show - 24 July 2011

Bob Keith forwarded me some stunning photos of Vulcan Bomber XH558. I didn't think I was going to be able to include them in the newsletter as they are subject to copyright but after a bit of hunting I eventually found them in this Flickr album.

<http://www.flickr.com/photos/40812808@N06/5971274387/in/set-72157627147530679/lightbox/>



EAA AirVenture 2011 & 2010 Videos

A couple of great videos from AirVenture 2011 & 2010

http://www.youtube.com/watch?v=s8SKE7HGVqQ&feature=player_embedded

http://www.youtube.com/watch?v=FcFOzE4K5NE&feature=player_embedded

Still Dreaming of that Flying Car

Like many Auckland traffic commuters I often find myself wishing for a personal flying vehicle. I always read any new developments with great interest in the hope that someone will figure out an effective means of realising the dream. For those of you who also might be interested I found the following link and thought this Dutch developed technology which has government backing definitely shows promise.

<http://www.pal-v.com/>



40 Jets To Make Low Altitude Visit To Warbirds Over Wanaka 2012

Nev Hay sent the following email on to Gordon Sanders who forwarded it on for the Newsletter. Fairly self explanatory but should make for great viewing.

“40 jets to make low altitude visit to Warbirds”

An impressive array of up to 40 privately-owned jet aircraft will make a low altitude visit to the Warbirds Over Wanaka International Airshow next April as part of the Hong Kong to Christchurch Silver Fern Air Race.

Following races from London to Christchurch in 1953 and Singapore to Christchurch in 1987, a group of businessmen and aviation enthusiasts, some based in Queenstown, are holding a Hong Kong to Christchurch Air Race from 26th March, 2012 until 8th April 2012. The race aims to boost travel and business opportunities between Hong Kong, Malaysia, Australia and New Zealand.

The aircraft will fly from Hong Kong to Kuala Lumpur then on to Melbourne before concluding the race in Christchurch. Organisers had deliberately chosen Christchurch as the destination to illustrate to the world that the city is alive and well. A scenic extension will see the corporate jets traverse Fiordland and fly over Warbirds Over Wanaka.

"Some air race followers and participants will take Gold Passes and other hospitality options at the Airshow and the spectacle of seeing large corporate jets flying over will be amazing" said Mandy Deans, Warbirds Over Wanaka event manager. Ms Deans said the Silver Fern Air Race fitted the show's international mandate and enabled organisers to further support the aviation world and Christchurch, from whence many patrons came.

"The Silver Fern Air Race is delighted to be involved with Warbirds Over Wanaka with entrants pleased they are able to fly over around 65,000 spectators" says Ron Collins, CEO of the Silver Fern Air Race. Exactly when during the show the fly over would take place is yet to be finalised.

Ticket sales for Warbirds Over Wanaka were excellent with much interest from around New Zealand and Australia in particular, Ms Deans said.

Ticket purchases may be made at www.warbirdsoverwanaka.com or Free phone 0800 224 224 NZ or 1300 798 550 Australia.

<http://www.voxy.co.nz/lifestyle/40-jets-make-low-altitude-visit-wow/5/95884>

Other Interesting Links

Peter Armstrong spotted this great video of a guy demonstrating incredible mastery of his RC helicopter. <http://www.win7news.net/BAQJJK/110804-Helicopter>

Space Shuttle Discovery cockpit. Click on picture and move the mouse in any direction to scan. Don't forget to look at the ceiling! So many buttons, so little time! http://360vr.com/2011/06/22-discovery-flight-deck-opf_6236/index.html

12 Tips, Techniques & Technology

A new column this month of Tips, Techniques and Technologies from Chapter members or mailing lists I follow.

Bend Allowance and the K Factor From Bob Keith's Archives

Building a metal aircraft and not good at math's? Finding it tedious to working out bend allowance, setback and finding out the position of the sight lines? Well you don't have to.

The method I am going to explain is so obvious I hesitate to write about it, but you never know there may be one person out there it who will find it useful so here goes.

As an introduction let me say that in most cases all the bending you do will be simple angles with 2 faces usually at 90 degrees to one another but not necessarily so. It makes no difference, the procedure for bending these is the same. If it is not a simple angle it will be a U or Z section with maybe a doubler of the same shape nested inside or outside the main section.

Part1

Now the method I am going to explain does involve some waste material but the amount of waste material is considerably less than if you have to throw the actual part away because you made a mistake in your calculations or put it in the bending brake the wrong way round.

Lets start with a simple 90 degree bend in .025 inches thick 2024 Alclad and with both flanges required to be 1inch long.

First you need a piece of the required material the correct width and a little longer than 2 inches. Lets make it 2.125 for example.

First mark a line 1 inch from one end of the material. This will be your sight line which you will line up vertically with the front of the radius bar of your folder.

Make sure you mark your material in some way to ensure this will be the side that sits under the radius bar. It is quite a common mistake to place the metal in the folder the wrong way around so make sure it is marked.

If you think about it, when bent, that flange will be longer than the nominal 1 inch by the thickness of the material. That is an acceptable fudge factor and gives a bit of tolerance for rivet edge distance.

If you wish to be more accurate then that's your choice. I always like to have a little extra particularly when trimming to size with tin snips.

Of course you do need to ensure the radius on the folder is large enough for the thickness and hardness of the material being bent. If it isn't you need to increase the radius by bending up a doubler or doublers over the radius bar until the nose radius is correct.

On my home made folder I used a 3/16 diameter rod welded to the front of the bar (3/32 radius) and if you consult the chart on page 11-4 of the SAA Procedure Manual you will find that is suitable for both .032 inch and .040 inch 2024-T4 material. It follows then that if it is OK for .025 thick 2024-T4 sheet then it is also ok for any of these sizes in 6061material.

It is no problem if the radius is a little larger than the minimum, just don't make it smaller as the stress set up in the bend area will cause cracking.

Well, I digressed a bit but having placed the part in the folder the right way round and bent it to the required 90 degrees we

now have one flange 1.025 inches wide and the other a little wider and we need to trim this to size. You can measure and mark the trim line with a vernier or dial gauge or try my method below.

I made up a crude scribing block using a suitable block of wood with a brad nailed into the side. The head of the brad was cut off and sharpened to a point. Just tweak the brad up or down with pliers if it is not exactly at the correct height. I used this method to mark the trim line on all my ribs which were hand formed from O condition material then heat treated.

My wing rib flanges were .63 inches wide with the rivet line at .38 inches up from the face of the ribs. That left exactly 2D edge distance for the 1/8 rivets so that is why I set the gauge to .65 inches in case I was a bit slack in trimming the flange with the tin snips and went under the scribed line.

Same logic for the 1.025 flange I described above. Of course you will clean up all trimmed edges so they are nicely polished with no stress risers.

Incidentally you tend to use what you have and I used a small pair up tin snips with curved jaws and with the handles lengthened with bits of copper tubing for trimming the rib flanges. Sounds a bit stupid using curved snips to cut along a straight line but the curvature was not great and by using the tips of the blades when cutting it placed the handles out to the side away from the material I was trimming off.

Its best not to cut off too wide a strip at a time. If the piece you trim off is small it will curl nicely when cut and thus minimise any distortion on the part you are making. The trim line may be a little wavy using these snips but its going to be cleaned up and polished so is not a problem.

Part 2.

Making U or Z sections (A trailing edge spar for example)

This method assumes you are going to make up some test pieces from small strips of scrap material (.25 inches wide for example) before you bend up the actual part. Any scrap alloy will do as long as it is the same thickness as the finished part. Incidentally it makes sense to bend up a test strip even if you have worked out the bend allowance, setback and position of your sight lines and are confident your math's is correct.

Let's make up a channel 2 inches wide with 1 inch vertical flanges in .025 thick material.

To start we will make up our test strips .25inches wide by say 4.125 inches long. Starting from one end we will mark our first sight line 1 inch from the end of the strip (as per Part 1) and when bent it will end up 1.025 inches high. The second sight line is measured from the same end of the sheet and is placed 1.9 inches from the first or 2.9 inches from that end of the sheet. Bend up the 2 flanges remembering to turn the strip end for end when forming the second bend.

Now measure the width between the vertical flanges and determine if the channel is too narrow or too wide and by how much. Add or subtract this difference to the measurement for the second sight line and bend up a new test strip and check it for size.

In actual practice rather than rely on a nominal measurement it is better to check dimensions against the adjacent part. For instance when making a trailing edge spar it is a good idea to

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Bend Allowance and the K Factor Continues

lay the spar test strip against the end of a rib and check to ensure there will be no wing skin distortion due to height difference.

A reduction of .1 of an inch from the nominal width of 2 inches is about right for 3/32 inch radius bends but can be used as a starting point for any radius. The important point is to measure accurately the amount of error you have.

Using some scrap material to bridge the gap between the spar and the wing skin per paragraph above is a good method of determining the difference as you will know, or can measure the thickness of the scrap material.

You may be a little out with your first test piece but that does not matter, just adjust the sight lines on a second test piece and try again. It's that simple.

Finally it is important to position the sight line directly below the nose of the radius bar every time to reduce errors. Use a square scrap of sheet alloy against the nose of the bar to position the sight line accurately.

Mylar Aileron Gap Seals (From the KRNet Mailing List)

Aileron gap seals are very simple to make. You simply get some mylar wide enough and long enough to cover the gap and apply it to the bottom of the wing with 3M double sided tape.

Here are the links to where you can buy what you need.

http://www.surplussales.com/RF/RFTeflon-Mylar_sht.html

http://www.uline.com/BL_6025/3M-Double-Sided-Polyester-Film-Tape

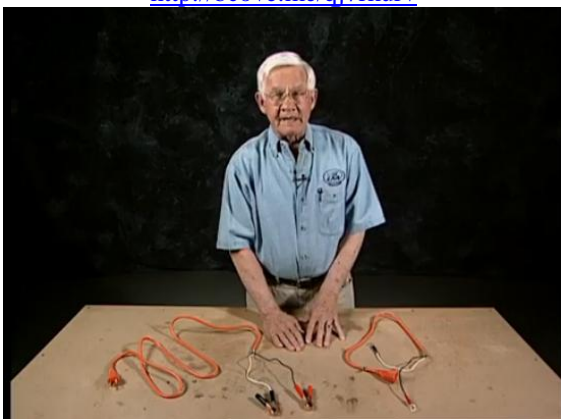
You can paint over this Mylar if you wish to. I installed mine in 2005 and have never had them come off.

Mark Jones (N886MJ)
Stevens Point, WI

Aircraft Alternate Power Supply EAA Hints For Homebuilders

A very simple, clever idea from the EAA Hints For Homebuilders section for permanently attaching a backup power feed to your aircraft battery that will enable you to recharge your battery from a car battery or battery charger without having to remove the battery from the aircraft. I will certainly be including it in my KR. Here is the link

<http://bcove.me/qj7rkury>



SodaBlast Cleaning & Paint Stripping By Nev Hay

Sitting around the table after the July AGM of the Auckland Recreational Airparks Trust meeting, and talking aviation speak in general, Brian Wiggley mentioned the necessity to repaint his Cessna and discussion followed regarding the best way to remove the old paint from the airframe. The usual methods were discussed with Brian expressing concern about any contaminates getting into the lap joints and causing corrosion if not properly removed or neutralised.

At this point Graham (Teagle) Smith mentioned the success he had recently when cleaning parts of his Avid Flyer using Baking Soda blasting. His explanation of the process had us all intrigued and I determined to find out more. What I found out 'blew me away,' so to speak, and whilst there is probably a down side to using the cleaning method I strongly suspect that the up-side would far outweigh that and keep any Greenie happy and further, not endanger our aircraft or surroundings.



Example of Prop before and after SodaBasting

Having been involved in aviation for more than a couple of haircuts I was surprised that I had not heard of the cleaning method before and thought others who are similarly afflicted could benefit from enlightenment.

Baking Soda (Sodium Bicarbonate) is commonly used as a leavening agent in cooking and those who have dealt with battery corrosion will know it as an excellent alkali to kill acid and clean up the corrosion.

I could not determine how long Sodablasting has been around but it seems to have been brought to prominence when used as a cleaning method on the Statue of Liberty in the late 1980's where a non-toxic cleaner was required.

Google-ing "sodablasting" brought up many articles and I suggest using that forum for those of you who want more info than I am providing. According to Wikipedia

"Sodablasting is a non-destructive method for many applications in cleaning, paint stripping automotive restoration, industrial equipment maintenance, rust removal, graffiti removal, molecular steel passivation against rust, oil removal by saponification and translocation, masonry cleaning and restoration, soot remediation, boat hull cleaning and for food processing facilities and equipment."

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SodaBlast Cleaning & Paint Stripping Continues

*(**Saponification** is the term given to the chemical reaction that occurs when a vegetable oil or animal fat is mixed with a strong alkali. The products of the reaction are two: soap and glycerine. Water is also present, but it does not enter into the chemical reaction. The water is only a vehicle for the alkali, which is otherwise a dry powder.*

*(**Passivation** is the process of making a material "passive", usually by the deposition of a layer of oxide that adheres to the metal surface. In air, passivation affects the properties of almost all metals—notable examples being aluminium, zinc, titanium, and silicon (a metalloid). In the context of corrosion, **passivation** is the spontaneous formation of a hard non-reactive surface film that inhibits further corrosion. This layer is usually an oxide or nitride that is a few nanometres thick.)*

I note in one of the online videos the operator is demonstrating the safety of Sodium Bicarbonate by not using a mask. The product maybe 'safe' but the layer blasted off may well be toxic and normal safety precautions are always prudent.

Whilst further research may indicate otherwise, soda-blasting does not seem to erode fiberglass, 'bog' infill or glass.

Re-painting.

In my research I noted some criticism of the lack of paint adhesion to the substrate after the previous removal of paint by soda-blasting.

The answer appears to be, like most problems, in the lack of understanding or lack of attention to detail. Using pure sodium bicarbonate and making sure that surface preparation prior to painting is as per the paint manufacturers recommendations, seems to be the answer.

Would I use this process?? I don't know yet but it seems like a winner. Should I ever need to do so, I'll undertake further research. Maybe we have those with this knowledge amongst our members.

I well recall my days as a young aircraft apprentice lying under a Sunderland flying boat being suitably clothed, according to the OSH protocols of the mid '50's, and applying coatings of a caustic based paint stripper to acres of aluminium underbelly and then rubbing it all off – hopefully along with the paint- with steel wool. A dangerous, laborious, process on apprentice pay. Well on any pay when you think about it.

Anything would be better than that.

Nev Hay
Aug '11

Below are photos from Greame Teagle of a Rotax 582 head he is half way through SodaBlasting.



An image from the web.

Tunes Exhaust Silencers From Bob Keith

An item of general news for the newsletter. I suspect this came to me by way of Wim Mijnen, the guy in France I asked to provide an article on his project for the newsletter. Rob Keith

[Note: This is a commercial site advertising products for a company but the information is interesting– Ed]

<http://www.love4aviation.com>

Tuned Exhaust Silencers: We have published 2 new pages about the manufacturer of our tuned exhaust silencers.

History: Presents the history of this manufacturer and how he went from motorbike competition to the aviation industry.

Documentation: Download documentation about tuned exhaust silencers, flight tests,

More Power & noise reduction.

A more comfortable flight with our silencers that reduce fuel consumption and noise while increasing engine performance and lifetime. Improve pilot comfort and safety by reducing the noise level inside your cabin. Our silencers include a tuned exhaust which improves engine lifetime by decreasing cylinder operating temperature. The silencer/tuned-exhaust system does not reduce engine power ...in fact performance is actually improved. The system also reduces fuel consumption, up to 5 liters per hour on a 180hp.

This month's member profile is of Phil Richards who is currently the Chapters' composite's mentor.



Phil Richards

I had the opportunity to speak with Phil for about an hour this past week and during the interview it quickly became apparent just how enthusiastic Phil is about aviation, composites and basically life in general.

As many Chapter members already know, Phil has had significant health issues for the last eight years, including cancer for the last 4 years. However as with most things, Phil has just got on with his life without complaint and looks upon his health concerns as "just problems looking for solutions". Phil's life philosophy is one of just taking each challenge as it presents itself and getting on with it.

The two abiding interests in Phil's life, apart from his family, are motorbikes and aviation.

These dual interests have shaped what he has done and led him into his current role as a LAME working at Air NZ.

Phil has been round planes and aviation as long as he can remember. His Dad served with the RNZAF before World War 2 until he was transferred to the RAF when war broke out. Phil recalls his Dad being what he termed a "natural engineer" but was especially skilled in radio and radar engineering. He served in the Middle East during the war and spent considerable time not only flying but maintaining and enhancing the early radar equipment they had to work with.

As Phil says they were effectively inventing airborne radar technology as they flew and fought.

After the war Phil's dad left the service and became a Registered Supervising Technician for CAA and spent considerable time working in Mechanics Bay on the Solent and Sunderland Flying Boats in service at that time.



Shorts S.45 Solent Mechanics Bay

One of Phil's most vivid memories of this period was being able to go out on the CAA tender with his Dad to clear yachts from around Mechanics Bay so the Solents and Sunderlands could land into wind.

His earliest flight experience he recalls was of a commercial flight in a Lockheed Electra either to or from Ashburton (he couldn't recall which), while his second flight was with Fred Ladd in one of Fred's Widgeon aircraft.



Tourist Air Travel Grumman Widgeon

After leaving school Phil served an apprenticeship as a motor mechanic which allowed him to engage in his passion for racing motorbikes. Phil had a very clear goal of becoming a world champion motorcycle rider and from the age of 15 till his early to mid 20's this was his primary focus in life. He did in fact eventually ride for Kawasaki International as a works rider.

During this period a friend of Phil's by the name of Jeff Perry, a well known NZ Road Racer, suggested Phil should join Air NZ to enable him to realise his goal of travelling to overseas racing events. This Phil subsequently did and it was during this period that Phil spent time working in the Air NZ Component Bay overhauling aircraft fuel systems, hydraulic systems, pneumatics systems and then eventually composite components when the DC10's came on line.

Once Phil began working on composites he quickly realised that this was where the future of aircraft construction lay. And he was certainly not alone in this opinion. Phil's apprentice at the time was Colin Palmer and Colin, Chris Timms and Arny Duckworth later went on to form WEST Systems Epoxies here in NZ. Phil asked me if I knew what the WEST in WEST Systems actually stood for. I thought it was someone's name but Phil explained that it actually stands for Wood Epoxy Saturation Technique. Phil recalls spending time during these early days experimenting with laminated NZ Pine to produce structures with incredible strength.

After eventually giving away the dream of riding motorbikes professionally, Phil continued on working with composites and also continued working as a LAME eventually moving overseas to work with Cathay Pacific and HAECO (Hong Kong Aircraft Engineering Company). It was while spending time in Asia that Phil met his wife Jo and it was also while overseas that he was diagnosed with his first touch of cancer.

Deciding in 2000 it was time to move back to NZ, Phil headed back home via Australia and it was while travelling through Australia that he opened a magazine and saw an article on the Carbon Sting.

He said to Jo that he would like to build one and Jo suggested to Phil he should perhaps buy one instead.

Being aware that their finances would not stretch to buying an aircraft, Phil instead approached the Australasian distributor, Mike Coates, with a view to setting up a business to import, assemble, market and sell the Sting here in NZ. Mike agreed and Phil and Jo started SkyTech in 2000.



Phil and Mike Coates

With the Sting being a type certified aircraft, Phil's skills as a LAME permitted him to import and assemble the aircraft for customers who purchased them. Phil worked closely with Rex Kenny during this period to get the Sting registered and flying in NZ. Phil says that the NZ Sport Aircraft fraternity is incredibly fortunate to have a person of Rex's skills and knowledge working in the position he is. Without his deft hand, life could be considerably

more difficult for us all.

By 2002 Phil was finally in a position to buy his own Sting and he had it assembled and ready to fly by the end of that year. Phil said one of the hardest things he has ever had to do was to hand over the keys of his own aircraft to someone else to test fly. Fortunately that person was Bill Henwood and Bill looked after PLR very well during its initial testing period.

Phil recalls also that about this time he and Jo purchased a place in Matarangi and for two glorious years he and Jo happily commuted back and forth between Matarangi and Pikes Point in the Sting. Phil describes Pikes Point as a veritable paradise for the sport aviator and the loss of this facility has been a severe blow to the community.

Currently Phil's Sting is laid up awaiting some TLC. With Phil having been very unwell for the past four years, the aircraft has not been flown in this time and in fact is now in need of a replacement engine instrument package after a mishap with a battery being installed incorrectly. Phil, ever philosophical about such things, says that this will now allow him to put in a Dynon Engine

Management system to match the existing Flight Information system.

He is also currently helping Peter Willet with modifications to his retractable Sting, changing the cable activated nose wheel steering to being pushrod driven.

When I asked Phil for some final thoughts on life and the curve balls it has thrown him he gave me these few gems.

Firstly, don't always take statistical evidence from experts as gospel particularly when it comes to things like cancer. Oncologists by their nature tend to always work with worst case scenarios.

Secondly, a person needs to believe that they can do whatever they want in their life. He says if he had had the belief in himself earlier on he could have been flying for life.

Lastly, Phil says he would like to see the SAA take on a much greater role in leading young people into aviation as a career, particularly mentoring disadvantaged kids.



Phil Richards TL 2000 Sting - ZK-PLR
(Photo courtesy of Bill Henwood)

For Sale

Pelican GS – ZK FTE



Constructed 1990 as a 'homebuilt' under CAA survey with a HAPI - VW engine.

Re-engined in 1994 with a Rotax 912 80hp and re-registered as a microlight.

Fiberglass fuselage and 9.5m fabric covered wing with flaps. 3 blade, in-flight adjustable, Ivoprop giving short field performance and around 80kts cruise.

TT fuselage approx 400 hrs TT engine approx 300 hrs

This aircraft has not flown for over a year but the engine has been run several times, starting easily and running without problem. It just requires some TLC to once again become the pretty, well mannered aircraft that it was.

For sale on behalf. \$30,000 or near offer.

Contact Jon Farmer.

09 5200641 or jk.farmer@xtra.co.nz

For Hire, Rent or Lease

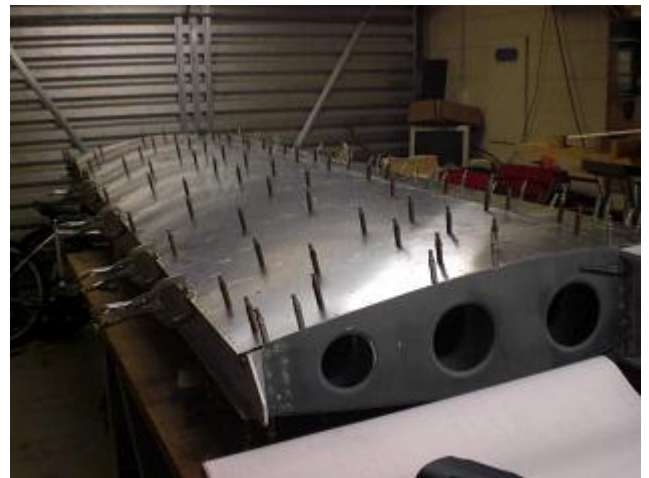
Available For Use

Items Wanted

1/8" CLECO's Required

I am a bit short of 1/8" Clecos which is going to make the task of skinning my wings a little more difficult. If anyone could lend me some it would be a big help.

Thanks Chris Wade (021 177 8781)



If members have anything they would like to advertise in the Classifieds section, please send an email with details to gavin.magill@gmail.com.

Chapter Events

2011

Aug 25 Chapter Monthly Meeting

Guest speaker is Peter Armstrong who will talk on his DynAero MCR 4S from France which will, by this date, hopefully be well into its flight testing phase.

**Sept 29 Chapter Monthly Meeting**

Guest speaker is Alan Moselen, CAA Accident Investigator and ex RNZAF and Air NZ Investigator of Air Accidents. Should be a good talk. Thanks to Evan Wheeler.



If Chapter members are aware of any other events that could be of interest to others please pass the details on to Gordon Sanders at his email address - gordon@sanders.gen.nz

Aviation Calendar

2011

Every Sat Dargaville Aero Club

The place is buzzing every Sat, wet or fine, windy or calm, and the \$10 lunch at 12.30 is good value. Club is on the web at www.goflying.co.nz/index.html. If going as a group please have the courtesy to ring in advance so the cook expects you. Contact Murray on 027-478 4308 or the club house on 09-439 8024.

Sep 18 Warbirds Open Day
Ardmore Airfield, Auckland

10am – 4pm. Adults \$10, kids under 14 free. There will be two display practices on the day so the airport will be closed 12:45 – 1:30 and 2:45 to 3:30. Norm Bartlett will be available for CT4 flights.

Nov 11 Walshe Centennial Dinner
MOTAT, Auckland.

Details to follow when arrangements are firmed up.

Nov 11 13th Black Sands Fly-In
Raglan Airfield, Raglan

More details nearer the date. Contact is Bruce Cooke on 021-112 2364.

2012

Jan 26–30 SportAvex 2012 & Tauranga City Airshow
Tauranga Airport, Tauranga**Tentative Schedule:**

Thu 26 th	Arrivals
Fri 27 th	Seminars & Flying
Sat 28 th	Seminars & Flying
Sun 29 th	Airshow
Mon 30 th	Fly Home

A fly-out to Whitianga is being planned for Saturday. More info nearer the date.

Apr 06–08 Warbirds Over Wanaka International Airshow
Wanaka Airfield, Wanaka

This airshow goes from strength to strength. A special event this year will be a low-level flypast by 40 privately owned jets following the end of the Hong Kong to Christchurch Silver Fern Air Race. Also open in time for WOW will be the new Warbirds and Wheels visitor attraction, which will include an ex RNZAF Skyhawk. Much more info at www.warbirdsoverwanaka.com