

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

Sport Aviator

July 2016



Committee 2016

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Metal Skin Kevin Paulsen 296 5125
Avionics Liviu Filimon 268 1199

FRONT PAGE

An interesting view of Pete Walton in his T51 Mustang "Miss B'HAVIN' ". Peter tells me the image is courtesy of Mr John King.

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Next Meeting

WHEN: Thursday 28th July 2016

WHERE: Auckland Society of Model

Engineers Club Rooms
Peterson Road, Panmure Basin
Mt Wellington

SUBJECTS: Hopefully DCM will be able to give us a run down on his trip to UK.

3 President's Report



Well winter is here.... Good weather to be stuck in a heated workshop with a pot of epoxy and some coffee...

I am unable to make this month's meeting as the AGM of the North Shore Aero Club is on I will be attending this.

Either Gavin Magill or Gary Briggs will look after the meeting.

I'm still plugging away with the DR107 and received an email this week that showed an Extra 300 in Germany with an electric motor producing 350hp... The engine weighs 50kg. I'm not sure about battery weight and endurance but I have emailed the company who has developed this and asked for more information as I would love to put something like this in the DR107. It would save lots of weight and produce more than enough horse power. 350 HP would be far too much but 300HP would be nice!!!!

The Corby Starlet 50th Birthday is coming up as advertised in last month's newsletter and Steve Stride who has an immaculate Corby in the UK will be visiting NZ for a few weeks after the birthday celebrations. He will be here late October so will hopefully get him along to our meeting to speak on sport flying and building in the UK. I will look at arranging a lunch flyaway function for him at either Whitianga or Raglan while he is here.

In the meantime, keep warm and keep those projects progressing.

Cheers

David



Hi Everyone

Thanks to everyone who sent in updates for the Newsletter this month. It went from famine to feast in just two days. Lots and lots of news and photos from everyone. Thank you everyone. Much appreciated.

The cover photo this month is provided by Peter Walton and is a John King image of Peter's T51 Mustang. Peter has had a bit of a mishap with his cruising launch in the US which he has sent in photos of. Peter's launch Kiwi II was hit by a lightning strike and the list of repairs could see the boat written off by the insurance company.

Gary Briggs has also had to deal with the results of a lightning strike on one of the Boeing 737-800's which arrived at Auckland International during the month. The photos he provided give an indication of the damage lightning can do to an aircraft.

On the home front my Zenair 601 XL, ZK-ZXZ has been in for its annual check this month. Colin Alexander and his team at Solo Wings once again did a great job of getting ZXZ turned around in good time and managed to get everything I wanted done. Although I have the knowledge to do much of the work myself, for pragmatic reasons it makes more sense for me to get the guys at Solo Wings to do the work at the moment. It also means I get another set of independent and skilled eyes looking at the aircraft at least once every twelve months.

Our house build is now complete and the builders are just working through the final tidy up of the painting after we completed the pre-handover inspection a couple of weeks ago. All things being equal Delys and I will take possession on the 2nd of August which is a little later than we originally anticipated but given the weather over the last couple of months, entirely understandable. Delys and I now have the daunting task of getting our house in Papakura ready to sell. We have been working through things steadily over the last couple of months and it should be ready for its first open home in mid to late August.

On the SAANZ Administrator front Delys and I are still chasing along annual Subscription renewals and slowly getting there. If you are a member of the National SAA organisation and have yet to pay your subscription, can I please request that you do this before the end of August otherwise I will need to print reminder letters and go through the time consuming process of inserting these into people's magazine envelopes. Matching letters to magazine mailing addresses is frankly a pain in the proverbial and we would appreciate having to do it for the least number of folks possible for the upcoming Winter edition of Sport Flying.

On to the Mystery aircraft. Last month's aircraft was again identified by Steve Stride in the UK. He correctly identified it as a Piper PA-8 Skycycle. The aircraft rego was visible so I was expecting someone local to have worked it out but got no responses. Wikipedia says the **Piper PA-8 Skycycle** was a 1940s single-seat light aircraft designed and built by Piper Aircraft. The Skycycle was a fabric-covered, mid-wing, single-engined, single-seat, monoplane with conventional landing gear. The fuselage was produced using a belly fuel tank as used on the F4U Corsair. The Skycycle first flew on 29 January 1945 using a Continental engine. The aircraft was further modified in 1945 with a 55 hp (41 kW) Lycoming O-145-A2 engine and designated the **PA-8 Skycycle**. Only two were ever built.



Barry has sent in another mystery aircraft picture for this month. See if you can have a go at identifying this one. It may be a bit easier this month.

Enjoy the newsletter. See you all on Thursday night.

Cheers
Gavin

PROJECT UPDATE

Alan Butler – Vans RV-7

By Alan Butler

New addition to the family. Me and my dad bought an RV7 project!!



PROJECT UPDATE

Paul Blackmore – Sonex ZK-PDB

By Paul Blackmore

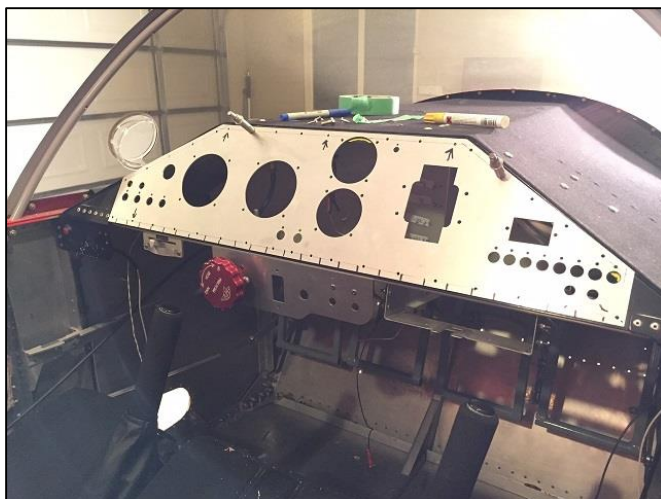
Time I posted an update on my project. Sonex 898 or ZK-PDB is undergoing an engine upgrade from Aerovee to Rotax 912S. Pictures show the engine mount which was designed in solid works CAD and from that a paper pattern was made for each tube to produce the required fishmouths. This process was remarkably accurate, and allowed all the fit up to be achieved in just one day.



Being designed in 3D cad we have also designed integral fixtures for the oil tank, radiators and data acquisition module.



Also underway is a panel upgrade to MGL extreme EFIS.



PROJECT UPDATE

Gary Briggs – Sonex #1531

By Gary Briggs

I am almost finished fitting the cowl and starting to think about where to fit the radiator and oil cooler. I would like the cowl to look pretty standard so I am going to duct the radiator from one of the inlet holes. As for the oil cooler I am considering using a NACA vent on the side.



PROJECT UPDATE

David Wilkinson – DR107

By David Wilkinson

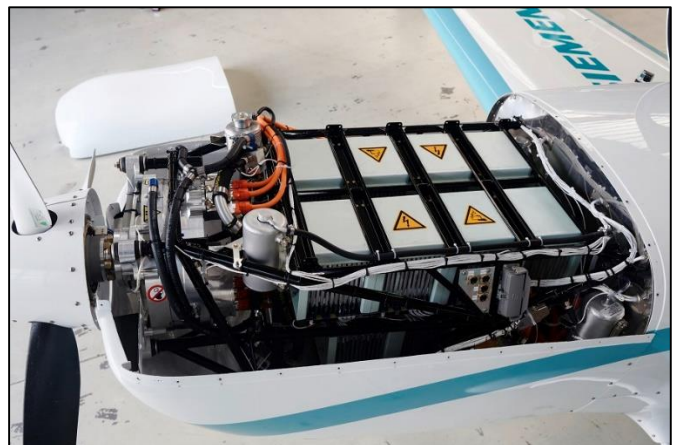
Wing inserts for wing attachment made from 2" diameter 2024 aluminium. It gets glued in the wing spar and the main wing pin goes through it... That hole hasn't been drilled yet. All those holes you see end up filled with glue.



Progressing on fitting ailerons.



I should put one of these in the DR 107. This is the 350hp electric motor that Siemens fitted to an Extra 300LE.



PROJECT UPDATE

Huib Volker – F1 Rocket

By Huib Volker

The Rocket project has unfortunately only recently begun to progress again, having sat idle for quite a few months while I was snowed under with urgent work commitments and renovating a number of houses.

The fuselage has now been disassembled so that the various frames and skins can be deburred, dimpled etc. and primed for final reassembly & riveting.

A homebuilder elsewhere in the country requested help with some Rocket parts for a fuselage conversion, so I'm also working on this before my fuselage goes back together.

I've been collecting up all the parts required for the overhaul of my engine core, including 10:1 pistons. The crankshaft has been balanced and work will commence shortly on completing the rest of the overhaul.

In the meantime, I will continue selling my body on the streets so that I can eventually buy the AFS fuel injection system and various other goodies required to make it purr...



Sorting out the 0.040 fwd side skins - doing them in one piece rather than the usual two (with a join at the main spar) meant a bit more work and the use of a shrinker, but the end result should be worth it.

PROJECT UPDATE

Ken Watters – RV-7

By Ken Watters

My engine arrived at the beginning of July and it took a mammoth effort on behalf of my work colleagues to drag it up the stairs to my hangar on the first floor. Goodness knows how we are going to get it all out at the end of the day.



Unfortunately, since it arrived I have been despatched to Waiheke Island 24/7 to complete a project in difficulty. So as much as I would have liked to hang the engine, I have not been able to get back to the hangar since then. Hopefully August will be a more productive month.

PROJECT UPDATE

Keith Weale – RV-12

By Keith Weale

I have completed both flaperons and the left wing. The right wing plus landing and navigation lights are next on the list. I expect that those will take about a month to complete.



Continued on next page.

Then it's on to the fuselage kit, which arrived last week and is strewn across the lounge carpet as I complete the inventory and try to get 400 parts into some semblance of order. Whoever invented cheap stackable plastic bins deserves an aviation constructor's medal. A medal also goes to the people at Van's Aircraft who work out how to pack the parts so that they don't get damaged.



Unpacking each cling wrapped parcel is like undoing a Rubic's Cube, or Tetris in reverse.



MEMBER NEWS

Gary Briggs – B737 Lightning Strike

By Gary Briggs

Last week we had a lightning strike on one of the other operators B737-800 at 11000 feet. It was hit on the nose and came in through the forward left hand door, went down the cabin and out at the right hand wing. You can see from the pictures the damage to the winglet which is quite superficial. The door had less damage which was hard to see and will have to be fixed in 350 cycles, as for the winglet there is no time limit on the repair, just to seal it up with some tape.

The crew knew they had been hit as they saw it come from under the door and make a loud pop.



MEMBER NEWS

Peter Walton – Kiwi II Lightning Strike

By Peter Walton

As most you know, Lyn and I spend our winters in the US either traveling on our Motorhome or cruising the eastern waterways in our 45 ft power boat, "motor yacht" in America Speak".



We had arranged with our storage yard, which is just north of Wilmington, North Carolina, to carry out an anti-fouling paint job in preparation for relaunching our boat on the 14 June 2016. We had also engaged a boat detailer to carry out a full wash, polish and wax job prior to launch.

After arriving in LA, picking up our motor home and having a really enjoyable trip driving across the US, we arrived at the yard on Friday 10th June to confirm everything was ready, and over the next few days did the usual prep work like refitting the Bimini Canvas and Isinglass, and checking over everything ready for launching, which did occur on the 14th.

Once in the water we ran the engines, genset etc. and checked over all the systems. We found the AC water pump seal faulty which we had repaired by a local contractor and that both alternators needed servicing. I removed the alternators and took them into Wilmington for service. After picking up the alternators, a very heavy storm came through with lightning strikes everywhere. When I arrived back to the boat I found a number of circuit breakers off.

Upon inspection I found that the VHF antenna looked like it had "exploded" with the top part missing and bits all over the boat and dock.



I immediately checked for water ingress, none found. I started checking systems and found quite a few things not working or not working properly.

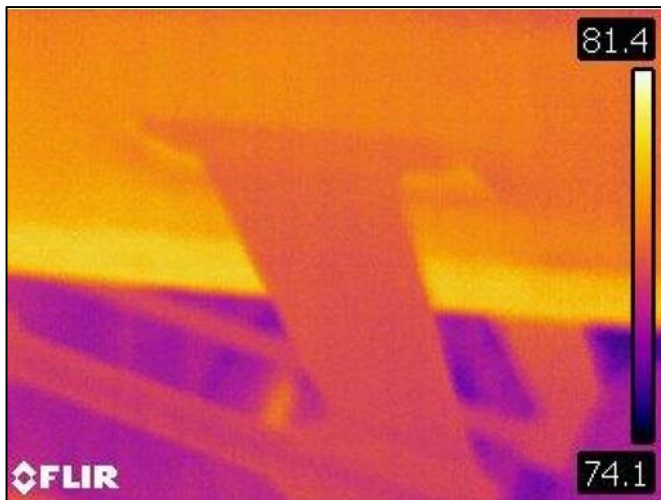
These include the Genset (starts and runs but diagnostic light stays lit), AC system, no panels light up, a number of LED lamps on the power board no longer illuminate when switched on, none of the 120v receptacles work etc.

I refitted the alternators and started the engines. Some engine gauges no longer work, rev counters and GPS chart plotter being another.



We had the boat pulled out and checked for stuff like transducers blown loose etc. The insurance company got an accessor down to the boat in a few days for an initial check then Kiwi II was relaunched and we ran her the 55 odd miles down to Wilmington then up the Cape Fear River to a repair yard.

Some 3 weeks later diagnosis is still going on, including an infrared check on the hull. Apparently when lightning exits a boat, if there is any water in the hull laminate where it exits, it can instantly boil the moisture and crystallize the fiberglass in that area.



This checked out fine, but the props were cooked, blistering the paint and discolouring the bronze.



Paint blistered of propeller surfaces.



The repair estimate so far is \$80K and may go over \$100K and could very well right off the boat.

Such is life!

Pete

MEMBER NEWS

DCM's UK Visit

By David Campbell Morrison

We have spent the last six weeks first touring around England where I met Steve Stride with his Corby Starlet. It is so perfect in every way.



He is coming to Australia in September for the 50-year anniversary get together (no not in the Corby) then coming over to NZ to finish his trip no doubt. We would want him to fly one here...

Also met Nic Smith who had built this Foxbat from a kit also a perfect job.



MEMBER NEWS

DCM - UK Visit Continued

By DCM

We then went on a Trafalgar trip through Europe ending in Rome, all I can say toooo many people and very hot 40degs.

This car is electric and I'm sure with a set of wings it would fly, this was found in Rome.



From there we flew to Austria for a wedding near Graz and we all stayed in a castle but boy do they love to drink...

We returned to London with the intention of jumping on our airline to travel home but after two days of no show standby we have given up and were lucky to get tickets on American Airlines so have spent the extra day's sightseeing in London, we will be back in time for the meeting.

We do not realise just how lucky we have it in NZ and when people find out where we come from they all want to immigrate there. They have had enough.

Had a great day at Hendon although it took over 1 1/2 hours to get there on the bus and train and same back.



We have completed online check-in so good to go tomorrow, we are coming home....

Plse tell Wags, will arrive Tuesday morning at 6.35 am

Rgds

DCM.

INTERESTING READING

Oils: Synthetic vs Automotive vs Ashless Dispersant oils

By Jeff Scott via KRnet

[Jeff Scott is a US based KR builder and A&P who contributes to the KRNet email list. - Gavin]

I've taken the liberty of copying snippets from numerous articles that help to understand the differences between the various oils and what you may want to consider when selecting an oil for your engine, whether it is a VW, Corvair, Continental, or Lycoming.

Synthetic Oils:

Shell Oil tested all-synthetic oils in aircraft engines, and what they found wasn't good. At 600 to 900 hours, the engines began to burn more oil and lost compression. "When the engines were disassembled, we found that the piston rings were covered with a gray tacky substance that was primarily made up of the lead by-products of combustion." This is the reason why the full Synthetic Aviation oils disappeared off the market 20+ years ago. Once the lead is gone from Aviation fuel, synthetic oils may become viable for Aviation engines again. This is also why AeroShell uses a Semi-synthetic oil, which is only 30% synthetic. That's as much synthetic as they could use and not have lead sludge left in the rings.

Automotive Oils:

Air cooled aircraft engines were designed before additives were available and have not really changed much over the years. When ashless dispersant oils were introduced for auto engines, they were also suitable for aircraft engines and eventually were adopted for aviation use. However, when zinc antiwear and metallic detergents were formulated into auto oils, an important divergence occurred. Aircraft engines burn a fair amount of oil and, if these metal-containing detergents and antiwear compounds are present, they can form metallic ash deposits in the combustion chambers. These deposits can lead to destructive pre-ignition, which could burn holes in the tops of pistons with obvious catastrophic results. For that reason, it was decided that aviation oils were to remain ashless to avoid the risk of metallic deposits.

The benefit of using ashless dispersant oils is, obviously, a cleaner engine. Aircraft engines would also benefit greatly from the addition of other automotive additives such as anti-wear, detergents, and corrosion inhibitors, but the downside is added cost. Ashless versions of these performance additives can cost up to 10 times more than standard ash-containing additives.

Aviation Oil:

The Ashless dispersant rating really is important to any aviation engine. As outlined above, there are no metal based additives in the oil, so it will not leave ash clinkers behind as it burns. Additionally, instead of allowing particles of metal to agglomerate (or burn down to ash), AD oils disperse metals (and other contaminants) and flush them out of the engine at the next oil change. Being mineral based, or at least 70% mineral based oil in the case of AeroShell 15W50, it will keep the lead sludge cleaned out of the rings if you are burning leaded Avgas.

My conclusion here is that if you want to use an automotive oil in your aircraft engine (VW or Corvair included), you would want an automotive oil with an AD rating on it as the Ashless Dispersant will not leave ash as it burns that can create hot spots that can cause pre-ignition/detonation. However, I don't think you can find a modern automotive oil without metal based detergents, so none have an AD rating. The metallic anti-wear compounds are great in a tight toleranced water cooled engine. Not so much in an air cooled engine. However, they will likely work well as long as the engine isn't burning any significant amount of oil which is, of course, what leaves ash in the combustion chambers.

One of the questions someone is sure to ask is, "Doesn't burning leaded fuel leave ash in the combustion chambers that could cause detonation?" The answer, "Absolutely." Leaded fuel leaves a lot of ash. But it is a continuous process where lead salts are left behind as a combustion byproduct, but also sloughs away and goes out the exhaust. The lead deposits in the combustion chambers is one of the reasons why the timing is so conservative on aircraft engines and the octane requirements are so high.

The combustion chambers get significant lead deposits that can cause detonation. However, compounded with other metals the deposits are likely to be much harder and may not slough off the way the lead sloughs from the combustion chambers. I overhauled an engine a couple of years ago that had an aftermarket ignition system on it and the owner wanted to press the timing margins a bit without really understanding the timing curve of the ignition product he was using. The engine went into undetected detonation. The only indication was that his CHTs started climbing above normal. As the CHTs continued climbing the engine went into a runaway pre-ignition with his CHTs over 550° and oil temp above 250° before he could get it on the ground. The only way to get the runaway pre-ignition to stop was to cut off the fuel to the engine, which was not a viable alternative until he could get to a runway. The engine suffered significant damage with severe erosion of the ring grooves. There was no need to clean the heads or valves as any lead residues had been blasted away by the detonation. The rod bearings also suffered some scuffing damage as the detonation beat the rods into the crank enough to penetrate the oil film in the bearings.

My conclusions:

I know many of you are running synthetic and automotive oils in your Automotive based engines. Nothing wrong with that, especially if you are running mostly Mogas and your engine doesn't burn much oil or push the margins for detonation. Just know that if you use synthetic oil and burn leaded Avgas, you may be significantly shortening the life of your pistons, rings, and cylinders. If you are using an automotive detergent oil, you may be leaving some metal based ash compounds in the combustion chambers that could cause detonation if you are pressing the detonation margins. Depending on how much leaded fuel you burn, you may also be transporting some lead salts through the engine with the oil that will continuously polish the bearings and cylinders, which will contribute to excessive wear, although I suspect with regular oil changes, any additional wear would likely be minimal.

Once the lead is gone from aviation fuels, the range of oils available for use in Aviation engines should really open up and the synthetics should be viable for use again. Based on experience with automobiles as well as my own two aircraft that rarely see leaded fuels anymore, I expect aviation engines to last significantly longer once we get the lead out. The final certification of unleaded aviation fuel is supposed to occur in 2018 with 100LL going away some time after as production of the replacement fuel(s) ramps up.

-Jeff Scott

HOW-TO VIDEO

Loctite Application Essentials

By Rotax Minute

This "Rotax Minute" video provides essential information for the correct application of Loctite products on all models of Rotax aircraft engines.

Video Length: 8:52

<http://www.rotax-owner.com/en/videos-topmenu/free-videos/457-loctite-rotax>



14 Mystery Aircraft Quiz by Barry Gillingwater

Barry Gillingwater has sent us another interesting aircraft for you to try and identify. Email your answer to the editor at gavin.magill@gmail.com before the next Chapter meeting and the first person to get the correct answer will earn a chocolate fish prize. Note you will need to turn up to the meeting to collect your prize.



15 In The News & On The Web

ON THE WEB

Bush Plane Hover Landing

From Gavin Magill

Video off Chonday. Impressive skills

<http://www.chonday.com/Videos/bushpilotheloc4>



ON THE WEB

Martin Jetpack

From Gavin Magill

Whatever became of the Martin Jetpack. Apparently it's a Golf Cart. Yeah Right!

<http://www.chonday.com/Videos/baujepagolf4>



ON THE WEB

Hoverboard

From David Wilkinson

David reckons he'll build one of these next.

<https://www.youtube.com/watch?v=wObBrd9wB6M&app=desktop>



ON THE WEB

A flypast to honour The Few

From Nev Hay

Eighteen Spitfires and six Hurricanes take to the skies once more on 75th anniversary of the Battle of Britain

<http://www.dailymail.co.uk/news/article-3202341/Remembering-Britain-s-hardest-day-Spitfires-Hurricanes-skies-75-years-battle-scuppered-plans-Nazi-invasion.html>



ON THE WEB

Mapping Canada

From Nev Hay

A great read.

<http://www.vintagewings.ca/VintageNews/Stories/tabid/116/articleType/ArticleView/articleId/570/A-Lake-Called-Victory.aspx>



ON THE WEB

Dreamliner Video

From Gavin Magill

The Beauty of Boeing's 787-9 Dreamliner

<http://www.chonday.com/Videos/boinsevesepg4>



Chapter Events

2016

Jul 28	Chapter Monthly Meeting Normal venue and time. 7.30 p.m. at the Auckland Society of Model Engineers clubrooms, Petersen Dr, Panmure Basin
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Aviation Calendar 2016

2016

Every Sat	Dargaville Aero Club The place is buzzing every Sat, wet or fine, windy or calm, and the catered lunch at 12.30 is good value, just don't be late! Club website is http://dargavilleac.weebly.com/ . If going as a group, please ring in advance so the cook expects you. Ph. Murray 027-478 4308 or club house on 09-439 8024.
3rd Sun Month	Turangi Aero Club Fly-In All welcome for a BBQ lunch. Contact Tony on 027-453 3740
Sept 10-11	Bridge Pa Taildragger Day Bridge Pa, Hastings Fly to Bridge Pa for a great weekend. Contact Hawke's Bay & East Coast Aero Club CFI helenr@hbecac.co.nz or stephanie@stm.net.nz
Sept 30 Oct 2	75 Squadron Assn NZ Biennial Reunion, Tauranga. Celebrating 100 years since 75(HD) Squadron RFC was formed in 1916. Calling all personnel who have worked on the squadron. For information and registration contact secretary Glen Turner. Ph: 021 732 835 E: 75sqn.assnz@windowslive.com
Oct 14-15	Tiger Moth Club Spring Fly-In Taumarunui Annual welcome to decent flying weather and return to the club's roots 47 years ago at magnificent grass aerodrome, some flying competitions. Contact Graeme Wood on 027 2932318 or woodsy@clear.net.nz
Oct 15-16	South Island Akro Fest Omaka, Blenheim Theme: 70 years of the DHC-1 Chipmunk. Recreational and intermediate known, unknown and free programmes plus freestyle routines. All DH types welcome. Contact Andrew Love torque_roll@hotmail.com

Aviation Calendar 2017

2017

Jan 28	Stratford Aero Club Sports Flyers 85th Birthday Celebrations. Stratford Airfield, Stratford Note change of date. Contact Nick Furmage Ph:020 40428854 or bigsky4394@gmail.com
Feb 04-06	Great Plains Fly-In Ashburton Airfield, Ashburton The Ashburton Aviation Museum is again hosting the SAANZ bi-annual Great Plains Fly-In at Ashburton Airfield over Waitangi Weekend 2017. Details will be published on the SAANZ events page when available. Put in your leave application for the dates.
Feb 17-19	Wings over Wairarapa Hood Aerodrome, Masterton Full info at www.wings.org.nz
Feb 24-26	RNZAF Airshow RNZAF Base Ohakea Celebrating 80 years of service. More info at http://www.nzdf.mil.nz/news/media-releases/2015/20151118-afbasttm.htm
Mar 03-05	Tiger Moth Club AGM Fly-In Omarama Annual summer fly-in, competitions, annual dinner, AGM. Contact secretary Graeme Wood on 027-293 2318 or woodsy@clear.net.nz
Apr 14-16	Classic Fighters Airshow - Omaka Omaka Airfield Includes Knights of the Sky Great War Exhibition. More info at: http://www.omaka.org.nz/ when the web site is updated ☺

If members are aware of other events that could be of interest to others, please pass the details to Gordon Sanders - gordon@sanders.gen.nz.