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RECREATIONAL AVIATION AUSTRALIA / MAY 2016 VOL 57 [5]

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The new Starfox has arrived from Brazil. Photo: Starfox Australia

ON THE COVER

"When I had a look at their products I thought 'wow, I like this!' "

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Playing our part

BY MICHAEL MONCK

AT the time of writing, I am not aware of the outcome of the special resolutions to be presented at the general meeting this month. Indeed, as you read this, you may also not be aware and there may still be time to vote. That said, some of you will be reading this after the voting has taken place and the dust has settled.

I sincerely hope that we, as a collective of likeminded individuals, will have taken some definitive steps toward making RAAus an even stronger organisation than it has been up to now. Regardless of the outcome, there are things we all should be doing to help shore up our future.

I have spoken about the need to take safety into account when we fly and frequently written about the same. But there is another, equally important, aspect of our past time – maintenance.

I like to wander around airfields and chat to RAAus members and pilots from other parts of the aviation spectrum to try and understand what they're thinking. Maybe I can learn something new about flying and just generally talk about planes and all things that yearn to be in the sky. On occasion I am confronted with things which really open my eyes.

On one such day, shortly after I moved to Canberra around 2006, I went for a fly to a nearby airfield to explore. As I wandered around, I saw an aircraft owner putting a propeller back onto his aircraft. We got to chatting as he went about his business and I noticed he was using an open ended spanner and a ring spanner to reattach what is one of the most important parts of the aeroplane back onto the engine. At first, I didn't think much of it, but as I watched and chatted a little longer, I felt compelled to say something.

It was kind of awkward at first. I was this relatively young upstart questioning the methods of someone many years my senior and yet, as the conversation continued, it didn't feel as uncomfortable. We discussed the need to use a torque wrench and why. Why we shouldn't just hang off a spanner until it felt right. How the incorrect use of a torque wrench could result in incorrect tightening. And even other things like torqueing spark plugs and sump plugs.

The conversation was actually welcomed by this person I had never met before. He went and borrowed a torque wrench from a fellow aviator in a nearby hangar and did the job correctly. It ended up being a great chat.

Over time when I think about this incident, there seems to be a few lessons in it I may have overlooked at the time. There may be some lessons which have occurred to me recently simply because of my position within our organisation.

The first is this. Sometimes we feel a little uneasy pointing out obvious things to others. When I brought up the subject of torque wrenches to this person, I thought I would be told off by someone who knew better. Yet my judgement turned out to be completely off base. The conversation was pleasant and easy with no confrontation whatsoever.

The second is that I think we are all very keen to learn. Delivered in the right way, a lesson can come from anyone and still be welcomed. Whether it is from someone we think is a wise old soul or someone from whom we least expect it, the right knowledge can be passed on and accepted if delivered the right way.

> "I think we are all very keen to learn"

And the last lesson, or at least the last one I want to point out here, is that we all have a role to play.

I consider myself fortunate I have a trade background. Moreover, I was one of the lucky ones who received training referred to as multiskilling. I learned not only my electronics trade but also fitting and turning, small engine mechanics, welding and a host of other things. But I am also unusual. I went on to study at university and learned that not many people exposed to the metal trades also have book smarts. It doesn't mean they can't do it. It just means they haven't been taught. So we can learn from each other and all play a part in making us a more capable organisation by sharing our collective knowledge. Which brings me to my next point, the part RAAus can play.

At the time I was wandering through an airfield and questioning why someone was taking a 'near enough' approach to putting their propeller back on, RAAus didn't care about teaching us stuff. If you could fly a plane, surely you knew enough to maintain it. Right?

We need to be clever about this. There are a bunch of people out there who already know things and there are a bunch of others who want to know things. And all of us can always learn a little more.

The Tech Manager tells me time and time again about how record keeping needs to be improved for maintenance. Many would argue it's not a safety issue and, on the surface, it isn't. After all, your plane doesn't know what you wrote in the book. Scratch the surface though and it can be an issue.

If a problem arises and there's an incident, lack of a written record makes it awfully hard to determine what happened. It's even harder to make safety recommendations to others when we don't know what has gone on. And even if there are no incidents to report, isn't it a good idea to keep track of what you've done anyway? We've always been required to do that anyway, so a few minutes filling out your logbook correctly can go a long way.

But it does beg the question – what does filling out your logbook correctly really mean? It's a topic for another day, but suffice to say RAAus should be telling you. The organisation has done very little, if anything, to equip pilots with the tools necessary to maintain their aircraft properly and be compliant in terms of record keeping. So we'll be changing that.

We have appointed Hayley Wilson to the staff. She will be working closely with others to identify problem areas, including maintenance issues, and developing plans to give you the knowledge you've been asking for. We won't ignoring you or leaving you to figure it out the hard way any more. We'll start helping you do the right thing and playing our part in making RAAus a more responsible, safer and, ultimately, more fun organisation.

And even if we don't get a more improved formal structure for RAAus, this will help us grow and evolve into something bigger and better over the coming years.

B. 14 MAY
RAAUS GENERAL MEETING

TO be held at RAAus HQ - 3/1 Pirie St, Fyshwick. ACT.

Details of special resolutions will be circulated to all members through Sport Pilot, electronic newsletter and be posted on the RAAus website.

C. 14-15 MAY
BAROSSA BIRDMEN

FLY-IN at Truro Flats Airpark. Check ERSA. Limited accommodation. Dinner Saturday night. Avgas and Mogas by prior arrangement. Pilots should be aware of restrictions regarding overflying neighbouring properties, particularly to the SW of the airfield. For more information, Dennis Martin (08) 8263 0553, Roy 0408 802 667 or royp1948@gmail.com.

Picture: Damien Freiberg

D. 27-29 MAY
OLD STATION FLY-IN AND HERITAGE SHOW

AVIATORS and campers are welcome from Friday afternoon. Truck show, joy flights, vintage tractor pulls, heritage machinery, children's entertainment, fashion parade, air display including Matt Hall and fireworks. Licenced bar, food, drinks and lots more. Weekend camping no bookings needed. Proceeds to the Capricorn Helicopter Rescue Service. For more information, leonie@creedgrazing.com.au, (07) 4934 6562 or aviation inquiries Ron 0408 346 536.

A. 8 MAY
GATTON AIRPARK BREAKFAST FLY-IN

ENJOY a hot breakfast and cappuccino with friends and a stroll around Australia's most popular residential airpark. See classic and modern aeroplanes and classic cars. From 0730. Details in ERSA or Martin 0419 368 696.

E. 29 MAY
CASINO BEEF WEEK MUSTER

A HIGHLIGHT of the Casino Beef Week Festival. All aviation businesses welcome. A fun weekend for everyone, on and off the aerodrome. Saturday Beef Week activities include street festival and markets, main street parade, whip cracking demonstrations, car show, wood chopping competition and rodeo.

Sunday is a family fun day next to the aerodrome. Amusement rides, market & food stalls, adventure flights and aviation chat all weekend. All amenities at the aerodrome. For more information, www.casinobeefweek.com.au, Russell 0427 627 477 or Debbie 0438 627 607.

CALENDAR OF EVENTS

F. 11-12 JUNE
QUEEN'S BIRTHDAY FLY-IN

SUNRAYSIA Sport Aircraft Club welcomes all aviators to its popular annual event at the Wentworth airport. Club room dinner and social evening will again be held on Sat with a three course meal. Book accommodation early. For more information, Brian Middleton (03) 5022 7783 or brianmiddleton12@ceinternet.com.au.

G. 6-9 OCTOBER
AUSFLY

AUSTRALIA'S recreational and sport aviators return to Narromine for another big weekend. Workshops, seminars, air displays, entertainment and more. For more information www.saaa.com.

H. 15 OCTOBER
RAAF TOWNSVILLE AIR SHOW SPECTACULAR

THE event will celebrate Townsville's 150th birthday and its long relationship with the RAAF. Fireworks and live music along the town's foreshore. RAAF Base will hold an open day the next day. The last time the city and the air force put on a show like this, 70,000 people turned up. For more information, www.airforce.gov.au/Interact/Displays/Air-Shows.

EUREKA

I received an email from AOPA the other day, outlining their Eureka project. In brief, it is a suggestion to government about policies and proposals which need to be addressed by CASA to keep GA and recreational aviation alive and revitalised in Australia.

I thought the proposal was well put together and worthy of our support as individual aviators and as an official body and I wondered what others thought of it?

JULIE HANDS

***FROM THE CEO** / AOPA has asked RAAus officially for support for the Eureka project. The board is now considering the proposal and will report back as soon as possible.*

TRIBALISED

I read Dave Edmonds' article with frustration ('Tribal Jabiru Allegiances' *Sport Pilot*, March 2016). While Dave's assertions reflect reality, we know the aviation industry is still waiting for any acceptable evidence from CASA in support of the actions it took in imposing the operational limitations on Jabiru the year before last – yes, that long and still time drags on.

Perhaps someone can tell me why we had a Minister for Agriculture roaming the world drumming up business opportunities for Australian primary products, a Minister for Science roaming the world promoting Australian scientific expertise, etc. (I can continue down this line for some time – apparently government ministers like travelling around the world), but the minister responsible for aviation manufacturing industry appears to not want to promote the local one. In fact, the ministry appears happy to see the local industry dismantled. The FAA in the US however, is required to promote their local industry. Although purely perfunctory, the FAA collects detailed statistics on aircraft safety. CASA doesn't, certainly not to the FAA standard. Unfortunately for CASA, at the time it imposed the Jabiru limitations, FAA statistics indicated the imported, foreign (to them) Australian Jabiru was the safest aircraft on their register. The US was Jabiru's largest overseas market.

In fairness, it should be stated that the Jabiru Aircraft company could have assisted itself better. Apart from the usual adverts in magazines like this one, I have seen next to no publicity from the Jabiru factory promoting their products. Only recently has there been any reference to advanced Jabiru engine technology. This is just my opinion, but glossy adverts provide insufficient facts for the discerning potential buyer. Without giving away commercial secrets, some test bed results could be published. For example, you would be amazed at how long a Jabiru engine can run with the sump plug removed, no oil and at full throttle. Although I hasten to point out DO NOT DO THIS AT HOME, they should promote these results! It is widely known that many of Jabiru's airframe competitors stipulate Jabiru engines in their own aircraft, a clear statement of confidence from the industry worldwide. But these are knowledgeable people already.

While not the subject of current CASA action (yet?), for me it's about the total package. A sound engine, which it is, is not enough. Here is another example of a lack of promotion from the factory, this time on the airframe. No mention of the integrated roll cage, sacrificial nose gear, and other safety features. There are even fanatical Rotax devotees (you will never convert them) who have specified Jabiru airframes for their own pride and joy. Jabiru's past success has relied mostly on word-of-mouth through a network of informed, intelligent owner/pilots. Of course, this is not the same process used by CASA to arrive at its own determinations.

Don't get me wrong. I want to know of any problem which puts my life at an increased risk. I fly and I accept those associated risks based on published facts. If my government has in its possession data it would normally expect people like me not to know, but should know, then I expect my government to protect me by placing its data on the table so I can review it and again perform my own risk analysis on it. Unfortunately, I have not seen anything of the sort from CASA in relation to the current limitations. Therefore, I must assume that CASA has nothing worthwhile to provide to me. In fact, as time goes on and more information appears, it only serves to place Jabiru aircraft in a better light. My original risk analysis has proved to be accurate. At this point I should say I have owned two Jabirus over a period of more than 16 years and never experienced an IFSD. However, I have experienced them in foreign built GA aircraft powered with other engines. I think I might just continue the way I am.

MARK PEARCE

STRETCHING THINGS

First up - you know my business is selling Foxbat and Vixxen aircraft in Australia, so my credentials are clear. I believe it is not my place to comment on the rights and wrongs of the CASA-Jabiru circumstances.

However, the article 'Jabiru's Tribal Allegiances' (*Sport Pilot*, March 2016) beggars belief and, competitor or not, someone has to put this misleading piece into perspective. It is an unfortunate fact of life that people cherry pick figures to justify their case, but this article has stretched things too far.

Claim one: 'Jabiru aircraft are statistically much safer than the rest of the RAAus fleet'. The writer is, presumably, trying to convince the reader that Jabiru aircraft are safer than any other recreational or light sport aircraft. This claim is extremely misleading.

For example, at the present time there are almost 160 Foxbats and Vixxens of various versions on the Australian CASA and RAAus registers. So far (fingers crossed) there has not been a single fatal accident with this fleet. This is also true of several other recreational and light sport aircraft marques. To say that Jabirus are safer than the rest of the fleet is clearly and demonstrably wrong. It would be much more accurate to say that statistically they may be safer than some, but are more dangerous than others. But that wouldn't support the Jabiru safety argument would it?

Claim two: Jabiru has a fatality rate of less than 10% that of Cessna 172 aircraft - or at least, that's what the writer would have you believe. In fact the figure quoted is 'per 100 currently registered aircraft'. In reality, you are actually quite a bit less likely to have a fatal accident in a Cessna than a Jabiru, based on the number of hours flown per type.

I can understand the commercial and emotional reasons people want to believe that their particular aircraft type is not especially dangerous. But to attempt to blacken the reputations of other products in the process is just not acceptable.

Anyway (elephant in the room) if not on the basis of incident and accident figures, why do Jabiru et al believe CASA has taken the steps it has? Anyone tell me?

PETER HARLOW

AWARDS

I noticed in April's *Sport Pilot*, there were two people who seemed to be putting up their own case for a Maintainer's award. I thought that they were to be nominated by a current member, not themselves. Am I correct? The nominator's name and membership number should also be published.

KEITH G. BAKER

***FROM THE ED** / The two LAME's listed in the April edition haven't been nominated yet. Andrew Ralston and Chad Summers were asked by the Tech Manager to tell us about themselves as a way of promoting the Maintainer of the Year award and encourage others to take part...as was Dan Compton who appears in this edition. If you know a L2 LAME who is worth recognition, let us know.*

DIGITAL BLUES

Since the change to digital form of the magazine, I have noted to the Editor and through internet forums an apparent lack of awareness of page and file layout that is best suited to digital e-readers such as the Kindle or a table computers.

My issue is that in both the .pdf files on the RAAus site and the dowloadable files from Issuu, the page layout of the magazine is single page front/back cover and double page spread for all other pages.

This is a terrible layout for e-readers and tablets as the double page format forces you

to manually zoom in to any page other the front and rear covers to be able to read anything and the double whammy for many tablets is that, because the files are delivered in portrait view, the double pages automatically zoom down to miniscule size to stay portrait unless you change the setting on the device to have it set up as landscape.

This issue alone makes the digital version near impossible to readily read on portable - even those designed specifically as e-readers.

I would like the .pdf files to be saved as single page portrait layout as an option to allow e-readers to download a workable file. And while I realise that over the past five issues of the magazine over a third of every magazine has double page spread layouts which would be impacted by this, I have noted to the Editor that double page spreads work very well for printed magazines but are not well suited to portable devices and in particular e-readers. As the primary distribution is intended to be electronic optimisation towards print at the expense of electronic readers it is not appropriate in my opinion.

Can you please advise if it is possible to have at the very least, a form of single page portrait view of each magazine available for download from the RAAus website? And on a more general point of direction and suitability for portable electronic viewing why, since the change to the magazine distribution to electronic format, the number of double page spreads has increased so greatly?

KIRK SUTTON

***FROM THE ED** / Kirk, the change you asked for has now been made. Let me know if you still have trouble. On the subject of double page spreads, there has been no change in the policy towards them. In a magazine format, pictures are just as important as the words. And double page spreads look great for the subscribers to the printed edition.*

CLASS CLOWN

While holidaying on Bribie Island over the Easter break, there was a regular stream of aircraft overhead enjoying the great flying weather, which was pleasing to see.

What wasn't pleasing to the eye were those few who decided to fly at low level.

Especially, the class clown who buzzed the beach packed with holiday makers including myself. He/ she executed a steep turn over the water and continued over the township of Woorim flying at a height that made a guy standing on the 7th floor balcony of the beachside apartment block shake his hand in the air. And he wasn't waving 'hello'. The guy was only holding up one finger!

I don't know if it was a RAAus or GA registered aircraft but a hazard report has been submitted.

SEAN ODRISCOLL

***FROM THE OPS DEPT** / Reporting and collecting occurrence information is vital to improving safety. Complaints of this type of behaviour should be submitted through the Occurrence Management System at https://oms.raa.asn.au/lodge/. RAAus is committed to investigation of all complaints if related to RAAus aircraft or its members.*

LOW FLYING

I have been involved in aviation for many years. I purchased an early Jabiru aircraft which I owned for 15 years before reluctantly selling it due to ill health.

I am concerned pilots out there think the rules and regulations, put in place for safety, are not for them. I constantly notice very low flying aircraft at Point Lonsdale in Victoria.

I am talking about 150ft AMSL over a built-up area. What happens on a powered hang glider if there is a wind shear, engine failure or pilot error?

This behaviour and arrogance gives the aviation industry a bad name in my opinion.

GRANT

***FROM OPS** / Low flying of any kind in any location is not what RAAus is about. Members are required to complete low level training and obtain permission of the land owner before conducting these types of high risk flights. Members are reminded the Occurrence Management System is now available to report these examples of poor airmanship. Complaints are managed confidentially and an outcome is provided once the investigation is completed.*

MAGAZINE CHANGES

I pay for a printed copy of *Sport Pilot* which is the way members receive information from the office. I used to look forward to reading three sections - Pilot Notes, Tech Talk and Members' Market.

We no longer get the wisdom to learn off other people's experiences. And with the latest magazine, we are lucky to see a handful of aircraft for sale. Have the bean counters chased away all the members trying to sell their aircraft? I purchased the subscription because these items were included. We seem to be getting less for our money. When we question anything we seem to be told by the powers-that-be they know best and this is how it is. With the proposed changes to the constitution, we seem to be going down the path of less representation. I doubt I will bother renewing my subscription.

GRAEME BELL

***FROM THE CEO** / Since Sport Pilot went digital ten months ago, members have increasingly subscribed to the paid version and logged onto the digital version. In fact the combined readership now matches the pre-digital days and is growing steadily. In a few more months, more people will be reading Sport Pilot than ever before. On the advertising note, we now partner with Aviation Advertiser, the number one market place for all things aviation. Member's ads are these days exposed to an audience of more than 80,000 people. An RAAus aircraft changes hands every 36 hours.*

JABBA THE PART

Hi there fellow aviators – my name is Jabba. My creator, Dave formed me out of tried and tested engine parts made by some blokes in Bundaberg.

Dave went to a service course up there because some other blokes in Canberra said some of the parts were defective and he should learn how to replace them.

That's why I have good strong 7/16" through-bolt legs, long wearing valve spring pants, a solid gudgeon pin body and ex/valve arms. Valve caps and nuts form my head.

I want to express firstly, to the Jabiru people at Bundaberg, my thanks for creating a wonderful world-renowned and safe aircraft. Thank you for not giving up when you faced enormous pressure. Secondly, thanks to Dave and other L2s who have remained loyal and are working through the issues.

Thirdly, to you Jabiru owners who have sustained losses in value to your investment. Hang in there, it's a mighty good aircraft. As for me, I'm staying firmly seated on my Jabiru inlet valve seat.

JABBA

WRITE IN: EDITOR@SPORTPILOT.NET.AU

The state of the organisation is reflected in the Letters to the Editor columns. The more letters – the healthier the organisation. So don't just sit there – get involved. Your contributions are always welcome, even if no one else agrees with your opinion. The Editor makes every effort to run all letters, even if the queue gets long at certain times of the year. (By the way – the Editor reserves the right to edit Letters to the Editor to shorten them to fit the space available, to improve the clarity of the letter or to prevent libel. The opinions and views expressed in the Letters to the Editor are those of the individual writer and neither RA-Aus or *Sport Pilot* magazine endorses or supports the views expressed within them).

NEW ROTAX TAKES FLIGHT

BRP has announced that its newest aviation engine, the Rotax 915iS, has flown for the first time.

The company says the 915iS, a 4-stroke, 4-cylinder turbocharged engine with intercooler and redundant fuel injection system, is scheduled for production in the second half of 2017.

Rotax sales manager, Marc Becker, said "The development process has advanced to the extent that the maiden flight of the engine was performed on March 12 at the airfield in Wels, Austria.

"Since then our category 1 test pilot (highest level of education a test pilot can achieve) has been testing the engine in real flight mode as often as the weather allows.

"In addition, the engine has been running more than 3,000 operating hours on the test bench."

A group of 40 manufacturers will begin receiving the first prototype engines in August to be installed into their respective airplanes for design testing.

The more powerful 135-hp engine will offer a lot of benefits for the pilot. From the best power-to-weight ratio in its class, full take-off power up to 15,000ft (4,570m), a service ceiling of 23,000ft (7,010m), better fuel efficiency due to the electronic fuel injection concept and lower operating costs.

For more information, www.rotax.com.

WIN!

WIN A GOPRO

THERE is still time for an RAAus member to win a fantastic GoPro camera.

In February it was announced RAAus had forged a deal with the Australian GoPro distributor to allow financial members of RAAus to purchase its equipment at wholesale prices.

The cameras are small, easy to install and provide a great new way of recording your flights (don't forget to get someone qualified to install it if you plan to fit it outside your aircraft).

The cameras can be useful tools in the event of an accident or dispute. You can also install them in your car or bike helmet.

The ordering process and prices are available on request from RAAus Headquarters.

As well, during May and June, anyone who subscribes to *Sport Pilot* will go into the draw to win a camera. There will be one person drawn each month and the winners will be notified by email and listed in *Sport Pilot* magazine in August.

For more information on the product range, www.gopro.com.

To subscribe to *Sport Pilot*, Australia's best aviation publication, go to www.raa.asn.au and follow the prompts.

NEW DRONE RULES

CASA has eased the regulatory requirements for pilots of small drone aircraft.

Commercial operators of very small remotely piloted aircraft will no longer need to obtain a number of regulatory approvals, including an operator's certificate and remote pilot licence.

CASA says the move will cut regulatory costs for operators by thousands of dollars, save time and reduce paperwork.

The changes, which take effect in late September, apply to remotely piloted aircraft used in commercial operations weighing less than two kilograms MTOW.

Operators will simply need to notify CASA they intend to use their drones for commercial flights according to a set of standard operating conditions. These conditions include flying only in day visual line-of-sight, below 120m, keeping more than 30m away from other people, flying more than 5.5kms from controlled aerodromes and not operating near emergency situations.

The package of changes also permits private landholders to carry out a range of activities on their own land without the need for approvals. This includes remotely piloted aircraft up to 25kgs where no money is paid for flights.

Penalties can apply if these conditions are not met.

For more information, www.legislation.gov.au/Details/F2016L00400/Explanatory%20Statement/Text.

GA ONLINE MEDICALS

RAAUS pilots who also hold a GA licence can now apply for their medical certificates online.

CASA's new medical records system, MRS, is up and running.

Before the renewal of their medical certificate is due, pilots will receive a reminder email which will ask them to login to the medical records system to start an application. First time users will need to answer questions about their medical history. This information will be retained in the system and be accessed by their designated aviation medical examiner.

Pilots will also use the system to pay the processing fee, find designated aviation medical examiners and track the progress of their application. CASA says the new system was introduced to streamline the aviation medical process and took into account feedback from the aviation community and medical professionals.

For more information, http://services.casa.gov.au/avmed/mrs/default.asp.

TENNIS ANYONE?

A TENNIS ball stuck on the end of a control in a Cessna has sparked a new warning about unapproved aircraft modifications.

During a CASA audit of the aircraft, which was involved in parachute operations, the inspector found the co-pilot's roll and pitch control had been modified by removing the control yoke and covering the open end of the tube with the tennis ball. The forward and aft motion of the control column had been disabled by disconnecting one end of the pitch control push-pull tube from the elevator control system, with the rod-end loosely secured to an electrical loom under the instrument panel.

In an airworthiness bulletin CASA warned all GA aircraft operators and owners of their obligation to ensure their aircraft conformed to the type design and was maintained in a serviceable and airworthy condition.

CFI LOST IN CRASH

RAAUS has lost another or its more senior members.

Terry Otway, CFI of Penfield Aviation in Lancefield, Victoria died on April 9 when the Brumby he was flying crashed.

Also killed was another pilot Owain Roberts, a GA pilot making the transition to RAAus.

RAAus dispatched an accident consultant to the scene who assisted Victoria police with the preliminary investigation. That assistance will continue as long as necessary.

In a statement, RAAus said the thoughts of all members went out to the friends and families of the two men.

RAAus CEO, Michael Linke said "At this early stage in the investigation, we cannot speculate as to the cause of the accident. However, if any areas of immediate safety concern are determined, we will advise pilots and operators as soon as practicable. We will continue to work with police and provide a formal report to the police in due course.

"While this incident is a devastating reminder of how unforgiving our sport can be, RAAus remains committed to keeping our sport safe and fun. We ask that members maintain strong levels of diligence and continue to adhere to our core safety messages."

BENALLA TO HOST GLIDERS AGAIN

THE 34th FAI World Gliding Championships will be held in Benalla, Victoria, in January 2017. The town previously hosted the 1987 world championships.

More than 100 competitors from 30 nations are expected to compete for medals in the Open, 18m and 15m classes.

Championship Director, Terry Cubley says, "Australia has some of the best gliding conditions in the world and with a home team advantage, we have a real chance of seeing an Australian pilot finish in Gold Medal position."

The championships will also give a boost to Benalla and Northern Victoria with competitors and their teams flying in from around the world and aviation lovers from across Australia coming to watch the drama of the contest and soak up the atmosphere.

Championship gliders are sophisticated, highly aerodynamic aircraft, designed to travel at speeds approaching 300kph and capable of heights in excess of 10,000ft.

For more information, www.wgc2017.com.

MAY 13, 2.00PM - PROXY DUE DATE
MAY 14, 2.00PM - RAAUS SPECIAL GENERAL MEETING
RAAUS HQ - 3/1 PIRIE ST, FYSHWICK. ACT

GENERAL MEETING

AGENDA

1. Opening of the meeting - Chair

2. Remembering those who have lost their lives flying - Chair

3. Receipt of apologies and proxies - Chair

4. Confirmation of quorum - Chair

5. Minutes of last General Meeting - Chair

6. Business arising out of the minutes of the last General Meeting - Chair

7. Special Resolution: It is moved by Mike Smith and seconded by Trevor Bange, that;

- To conclude the registration of Recreational Aviation Australia Incorporated pursuant to the Associations Incorporation Act 1991 of the Australian Capital Territory (the 'Inc Act'), and in particular, to apply under section 82 of the Inc Act for the consent of the Registrar-General to apply for registration of Recreational Aviation Australia Incorporated as a company limited by guarantee under the Corporations Act 2001 (Commonwealth); and
- To apply to the Australian Securities and Investments Commission (ASIC) to register Recreational Aviation Australia Incorporated under the Commonwealth of Australia Corporations Act 2001 as a company limited by guarantee; and
- That Recreational Aviation Australia Incorporated adopt a new form of Constitution in the form circulated with the notice of meeting and placed before the Meeting and signed by the Chairman for identification; until altered or varied in accordance with the replacement constitution, the by-laws of the organisation shall mutatis mutandis apply. The new Constitution shall come into force on registration as a company; and
- That upon the status of Recreational Aviation Australia Incorporated changing from an incorporated association under the Inc Act to a company limited by guarantee under the Corporations Act 2001 of the Commonwealth of Australia, the organisation be known as Recreational Aviation Australia Limited; and
- That the President, Secretary and Treasurer of Recreational Aviation Australia Incorporated shall be the initial directors of that organisation on registration as a company from the date of effective registration of Recreational Aviation Australia Limited by the ASIC. Those directors shall cause an election to be called as soon as is practical, and in any case no longer than six months after the end of the 2015/16 financial year, to bring the board size to no less than five members; and
- That the persons who are members of Recreational Aviation Australia Incorporated shall be the initial members of the company on registration with ASIC.

8. Close of General Meeting.

Please note: The lodgement of proxy forms closes 24 hours prior to the meeting in accordance with clause 30(i) of the Recreational Aviation Australia Constitution. Please see the proxy form available on the Recreational Aviation Australia website for instructions on casting your vote for the above special resolution.

SPECIAL RESOLUTIONS

THIS document outlines the technical wording of the special resolutions together with a plain English interpretation of the meaning of those resolutions. For legal reasons the resolutions must be complete in the sense that they have to comply with the requirements of the law. However, this makes for a complicated document which may be difficult to understand. With this in mind, this document is intended to assist members to correctly interpret the resolutions.

The special resolutions are co-dependent on each other and thus will be voted on as one block motion. That is, the vote will be to accept or reject all resolutions. For this reason the order of motions is not important.

SPECIAL RESOLUTION 1

1. Special Resolution: Conclusion of status as incorporated association: To conclude the registration of Recreational Aviation Australia Incorporated pursuant to the Associations Incorporation Act 1991 of the Australian Capital Territory (the 'Inc Act'), and in particular, to apply under section 82 of the Inc Act for the consent of the Registrar-General to apply for registration of Recreational Aviation Australia Incorporated as a company limited by guarantee under the Corporations Act 2001 (Commonwealth).

This clause simply states that Recreational Aviation Australia Inc (RAAus Inc) will cease to exist with a view to the activities being taken on by Recreational Aviation Australia Ltd (RAAus Ltd).

"The vote will be to accept or reject all resolutions"

SPECIAL RESOLUTION 2

2. Special Resolution: Commencement of status as company limited by guarantee: To apply to the Australian Securities and Investments Commission (ASIC) to register Recreational Aviation Australia Incorporated under the Commonwealth of Australia Corporations Act 2001 as a company limited by guarantee.

Consistent with Special resolution 1, RAAus Ltd will be formed as a company limited by guarantee. This structure affords the same, or more, protections to members under a Commonwealth Act.

SPECIAL RESOLUTION 3

3. Special Resolution: New Constitution: That Recreational Aviation Australia Incorporated adopt a new form of Constitution in the form circulated with the notice of meeting and placed before the Meeting and signed by the Chairman for identification; until altered or varied in accordance with the replacement constitution, the by-laws of the organisation shall mutatis mutandis apply. The new Constitution shall come into force on registration as a company.

The third resolution states that once the new company, RAAus Ltd, is formed it shall adopt the constitution that has been circulated to members as the constitution that applies when the company is registered. In order to remove confusion and increase clarity, the constitution to be voted on has been signed by the current President, Michael Monck. Any document not bearing this signature is not to be considered for voting purposes.

SPECIAL RESOLUTION 4

4. Special Resolution: Change of Name: That upon the status of Recreational Aviation Australia Incorporated changing from an incorporated association under the Inc Act to a company limited by guarantee under the Corporations Act 2001 of the Commonwealth of Australia, the organisation be known as Recreational Aviation Australia Limited.

This is an administrative resolution to remove ambiguity around naming of the new company. It assists with the transfer of contracts, leases and so forth and is included to ensure a smooth transition to the new structure.

SPECIAL RESOLUTION 5

5. Ordinary Resolution: Appointment of New Directors: That the President, Secretary and Treasurer of Recreational Aviation Australia Incorporated shall be the initial directors of that organisation on registration as a company from the date of effective registration of Recreational Aviation Australia Limited by the ASIC. Those directors shall cause an election to be called as soon as is practical, and in any case no longer than six months after the end of the 2015/16 financial year, to bring the board size to no less than five members.

The current constitution places the responsibility for the affairs of RAAus Inc on the executive of the board. This clause maintains that responsibility for the transition period prior to a full board being appointed. Furthermore, this resolution compels the new directors to call an election within six months of the end of the financial year to bring the new board to a minimum of five members.

SPECIAL RESOLUTION 6

6. Ordinary Resolution: Appointment of Members: That the persons who are members of Recreational Aviation Australia Incorporated shall be the initial members of the company on registration with ASIC.

The final resolution ensures the current membership will be transferred to the new company without any interruption of the current rights or privileges of any member.

YES. NO. WHO CARES?

BY MICHAEL LINKE, CEO

ON May 14, the future of RAAus will be decided. Members have three choices, the organisation has two directions.

You can vote in favour of a new constitution, you can vote against the new constitution, or you can throw the dice, let others decide and participate in an exercise of ambivalence.

Stemming from this triad of options, 10,000 of us will be effected one way or the other. RAAus stands on the apron of our most important flight in a wonderfully intriguing thirty year journey.

Members are asking, what does a Yes vote mean for me? What does a No vote mean? Should I even bother, when all I want to do is fly?

From my perspective, I simply want the best for an organisation which in recent times has grappled with itself, its growth and its identity. All I want is a pathway which will open up our next chapter of success.

> "RAAus stands on the apron of our most important flight"

Just like a stuck throttle, RAAus has grappled to maintain control and I see the new constitution as the lubricant which will free us and propel us to the next glorious phase of our future.

I urge you all to vote Yes to constitutional reform. RAAus is at the crossroads and this reform is overdue, is very much needed and will set us up for success.

Specifically, a new constitution will do three key things:

Firstly, a new constitution will create a modern legal entity with accountability and agility to meet our future needs. The reduction in the board size, the conversion to a company limited by guarantee and the increased scrutiny this will place on the board, will create greater accountability. Additionally, a smaller board will afford us greater agility in decision making and deliver better outcomes to members quickly.

Secondly, a new constitution will do away with the concept of a board based on a postcode model. In my almost two years at the helm, I have handled hundreds of member enquiries, both directly and referred from a board member. Never has the issue of where the member, or the relevant board member, resided added or diminished the level of service or commitment to achieving the best possible outcome. We all share the same issues. We all share the same aviation rules. We all love flying equally. Why elect board members based on their postcode? We want the best people governing RAAus, wherever they live.

Thirdly, the new constitution will modernise our governance, management and administration. Last year we modernised our business practices. This year we modernise governance and create the vessel for RAAus to grow, prosper and evolve. The new constitution has been crafted to deal with the things constitutions are designed for. Members joining, election of a board, legal status, reporting and scrutiny. It allows us to be flexible in our dealings with those who operate outside of the rules. It allows the board to govern. It allows the managers to manage. It strengthens the rights of members. I also want to address the one theme I've heard repeated during the debate we've been having about the new constitution. Whether in person, on the phone or by email, some members have raised with me their fear the new rules will cost them their local representative.

Recent research we undertook showed only 4% of our members have ever contacted their local board member and, of those that have contacted the organisation, 84% did it via the office. This tells me a couple of things.

Firstly, we have outgrown the club we were thirty years ago. We are now 10,000 strong and the role of a board member has evolved and matured. It also shows me that the best path to solving your issues sits four metres from my office in the expert team we have built up.

The second thing the research suggests is that we need to let the board govern and the staff manage. The modern role of the board is to govern, set strategy, monitor performance and ensure corporate compliance. Staff are there to solve day-to-day issues and, when that's not possible, a path of escalation is offered.

And finally, nothing in the new constitution ignores our heritage. The heart and soul of RAAus, you the members, remain central to everything we do. The new constitution is much like the new fabric on a wonderfully reliable rag and tube. Ready for the next flight, and the flight after that.

Together let's breathe more life into this wonderful thing we call RAAus.

Vote Yes to constitutional reform.

BOARD ELECTION

RAAus advises that Frank Marriott has been appointed to the board to represent North Queensland.

93 eligible votes were received, with 5 informal votes.

Frank Marriott **48**, Luke Bayly **24**, Alan Middleton **21**

A NEW SUIT

BY BRIAN BIGG

RAAUS needs you vote on a new constitution.

Historically none of us has bothered much about voting on anything to do with RAAus. Whenever we are asked to elect new board members, fewer than 100 of us actually get off our bums and do it. The thousands of the rest of us just want to fly with the minimum of bother and the minimum of cost. And, of course like all pilots, most of us prefer to stand back and criticise everyone else without actually offering any solutions.

But this time it's important.

For many years RAAus has operated using a constitution which was set up when there weren't so many of us and the organisation a lot less complex than today. The founders could never have imagined a time when we'd be the most powerful aviation fraternity in Australia, that we'd need a large full time office staff just to look after us or even that we'd ever be a fair chance to be allowed to fly in controlled airspace with the big boys.

Like what happened with the first suit we ever owned, we've grown in the past few years, but our constitution hasn't grown with us and it's starting to pinch around the armpits and crotch.

The current board, to its credit, recognised the problem and can see it's going to get worse in the years ahead. It knows we have to set things right now while it is relatively cheaper and easier to do it.

The constitution has been given a complete rewrite from the ground up, not by a local committee of blow-ins, but by members of RAAus with legal and business experience and other lawyers. It's taken more than a year to put together and a draft version has been out there for you to complain about for some time. If you haven't commented on it by now, you probably shouldn't complain now.

The proposed structure of RAAus under the new constitution would be a company limited by guarantee with all existing assets of RAAus transferred to the new entity. Importantly, the constitution is careful to ensure our current interests are maintained so, despite what some are saying, your membership will not be personally affected if the new constitution is passed.

There are clauses to protect your rights and others which provide flexibility for the future – for example to add and remove classes of membership if the organisation changes more (if, say, CASA decides to ask RAAus to administer all of GA – now there's an idea).

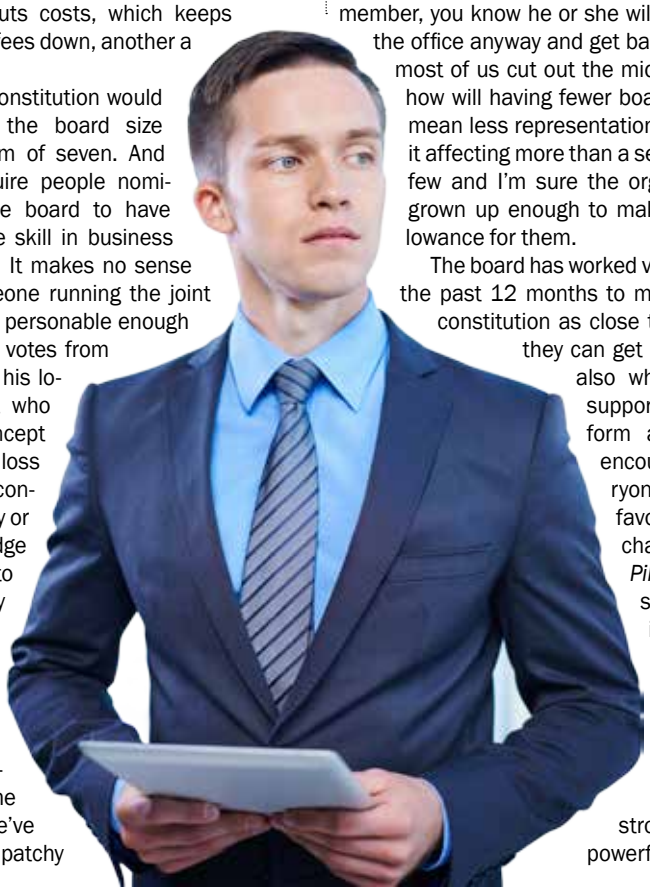
One of the biggest changes would be the reduction in the number of board members.

The current constitution has a structure which is old fashioned and expensive to maintain. RAAus, these days, has just as many board members as full time staff. It's not necessary. The board members don't run things directly as they did a few years ago when they knew everyone by their nicknames. We're a multi-million dollar organisation now, not a local club. BHP board members don't go down the mine. BHP is too big. We aren't BHP but, just like that company, our board is there to set the course for the future and keep an eye on the staff, who are rightly expected to do all the work (whip cracking sounds). A smaller board also cuts costs, which keeps membership fees down, another a good thing.

The new constitution would also reduce the board size to a maximum of seven. And it would require people nominating for the board to have at least some skill in business management. It makes no sense to have someone running the joint who might be personable enough to muster 40 votes from his friends in his local area, but who has no concept of profit and loss statements, contingent liability or the knowledge and acumen to successfully negotiate with the regulator who expects RAAus to operate as businesslike as the big boys. We've had some patchy performances from boards in the past. We're too big and too much money is involved now to keep going that way.

Over the past few months I've heard whispers from some that the new constitution would mean less representation for members in far flung places. Some of these whispers have come to me in emails from far flung places, which made me smile. The ease of emailing, Skype and Facebook means we are never more than a click away from the office staff or a board member, wherever we live. For most of us, local and national telephone calls are now free (or so cheap as to be effectively free), so even if you aren't computer literate, communication isn't as problematic as it used to be in the black and white TV days.

Most of us call the office to ask a question or get a problem solved – as it should be. That's what the office staff are there for (more whip cracking sounds). If you ring a board member, you know he or she will have to call the office anyway and get back to you. So most of us cut out the middle man. So how will having fewer board members mean less representation? I can't see it affecting more than a select isolated few and I'm sure the organisation is grown up enough to make proper allowance for them.



The board has worked very hard over the past 12 months to make the new constitution as close to perfect as they can get it. The board also wholeheartedly supports the reform and strongly encourages everyone to vote in favour of the change. *Sport Pilot* does the same. RAAus is not a small club any more. We need a new suit to show off our new stronger, more powerful body.

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Howie in his electric car prototype


Fuzzy picture of the very first LightWing with Howie at the wheel. Picture: Australian LightWing


The LightWing Speed


The first ultralight which looked like a proper aeroplane

VALE HOWIE HUGHES

BY BRIAN BIGG AND ARTHUR MARCEL

AUSTRALIAN recreational aviation lost another of its pioneers in April with the death of ultralight legend, Howie Hughes, to cancer.

Howie was the founder and CEO of Australian LightWing, an aircraft works situated at Ballina in northern NSW.

Howie was part of the ultralight/recreational aviation scene from its inception. He was a larger than life character, not just into aircraft, but also keenly interested in environmentally friendly engineering such as electric cars.

He always had three or four projects on the go at the one time, including an electric car, an SP-6000 six-passenger aircraft (powered by a 450hp Supermarine/Chevy V8), and a flying car similar to the American Terrafugia.

In addition to this research and development, his company produced the LightWing Speed two-seat light sports aircraft, which has sold in respectable numbers around the world.

Howie grew up in Kew, an inner suburb of Melbourne. His dad worked as an engineer at the Walter and Eliza Hall Institute for Medical Research. Howie studied architecture at Melbourne University, graduating in 1970 with the likes of comedian turned green activist, Rod Quantok. He worked as an architect, but preferred industrial design and engineering. He also had an early interest in boat building and left Melbourne in the late 70s to start a company in Ballina. Boats gave way to aircraft around 1982, and sometime later he started the Australian LightWing company. After an initial prototype, he engaged Bill Whitney to assist with the design work for the GR series LightWing, more than 150 of which were eventually produced. He also built and sold the higher performance, single strut, narrower chord wing, GR912.

Howie is widely credited with having developed the first ultralight that actually looked like an aeroplane, rather than a hang glider.

He was critical of the way CASA handled the certification of the GR912. Even though the exact same aircraft was flying under CAO 25-25, it took so long (process started 1988, with eventual approval 1998) to gain approval for the GR912 that by the time it was granted, the design was past its use-by-date.

Son, Nick, co-managed the business for many years. Elder daughter, Leena, was also involved. His younger daughter, Shelly, is also employed part-time looking after IT. Howie was married to Jenny (also a pilot) for more than 40 years.

Howie Hughes was as much a pilot as he was an aircraft manufacturer. He boasted of having survived 17 crashes, most of them in the days when ultralights were barely aircraft.

Vale Howie.

Fuel us once - shame on you

BY BRIAN BIGG

EVERY year since aviation became a thing, pilots have been forced to land prematurely because they ran out of fuel.

Because of our training, most of these incidents are injury and damage free. Because of our pride, most of these incidents, rightly or wrongly, are not reported to the authorities. But sometimes the incidents result in fatalities and reflect poorly on the pilot's training and Airmanship. We are trained to carry sufficient fuel for our flights and we are trained to monitor the fuel burn to ensure we get to where we are going safely. It is not only widely accepted practice in aviation, it is actually common sense.

It's not just something which happens to us little guys either. Fuel starvation even happens from time to time with the heavy metal crowd - with much more spectacular results.

But even though its own research indicates fuel starvation is not a growing problem, CASA has decided to turn what is usually an embarrassment for some of us, into an actual punishable crime for all of us.

It has put forward a proposal to be allowed to dictate how much fuel pilots must carry on board or face a penalty. Sure, it is obvious CASA's proposal is aimed at the airlines and charter aviation sectors, who generally have systems in place to do this sort of planning anyway. But us little guys are lumped in there too, and it has a potential impact on most of our aeroplanes.

CD 1508OS

If the proposal, called CD 1508OS, is passed, it will immediately ground

> “ If the proposal is passed, it will immediately ground all our heritage aircraft”

Photo for illustration purposes only. Aircraft was not involved in fuel starvation event.

all of our heritage aircraft and make the legal flight times for many other aircraft, so short as to make them impractical.

How far can you travel if your aircraft has to land with a minimum of a 45 minute reserve on board every time? For nearly half of the RAAus fleet, such a regulation would mean double the number of fuel stops on any long journey.

To its credit, RAAus has reacted strongly to the proposal and submitted a lengthy argument that our aircraft should be exempted from such a regulation.

The CASA proposal appears to fly in the face of its own research. In a paper released in 2003, the ATSB reported that ‘while fuel starvation accident rates have remained relatively stable over the past 20 years, fuel exhaustion accident rates have shown a significant decrease of 29.6 per cent.’ (Fuel exhaustion is where the aircraft has become devoid of useable fuel. Fuel starvation refers to those occurrences where the fuel supply to the engine is interrupted, although there is adequate fuel on board).

According to the ATSB ‘The private/business and agricultural categories were found to have the highest rates of fuel exhaustion accidents. Experience on aircraft type has been found to influence the occurrence of fuel-related incidents in that pilots with fewer hours on type are more likely to be involved in fuel related occurrences. Fatigue and high operator workload may contribute to fuel-related accidents in the agricultural category.’

The ATSB reported there had been an average of just over six fuel starvation accidents a year between 1991 and 2000. It does not include those involving recreational aircraft.

THE REGULATIONS

Regulation 234 of the Civil Aviation Regulations 1988 (CAR) requires a pilot-in-command of an aircraft to take reasonable steps to ensure the aircraft carries sufficient quantities of fuel and oil for the proposed flight to be undertaken safely. The regulation also requires the operator of an aircraft to take reasonable steps to ensure an aircraft does not begin a flight unless it is carrying sufficient fuel and oil to allow the flight to be conducted safely. (Note the use of the word ‘reasonable’ here).

CASA points out some of the requirements under the current regulations are advisory only, not enforceable, so it wants to take away a pilot’s judgement of what is reasonable and set mandatory limits for how much fuel and oil must be carried.

In its own words ‘to address this safety issue’ by amending regulation

234 of CAR to provide updated fuel and oil requirements. Note that for the first time, it would also set the minimum amount of oil pilots must carry. Good luck two stroke engine operators.

FUEL THROTTLE

The proposed new regulations would set out mandatory fixed fuel reserve and variable fuel reserve quantities for all aircraft. It would also set out minimum standards it would expect for pilots to monitor their fuel during a flight and what we would have to do if the fuel quantity dropped below those minimums for any reason.

It would also make it mandatory that, in the event of an engine failure, an aircraft must be able to fly to an aerodrome and make an approach and landing with the variable fuel reserve intact, plus a fixed reserve of 10 minutes. Or declare an emergency. Its obvious CASA is thinking about the big boys with this stuff, but its proposal doesn't say anything about exempting light aircraft. And you have to realise that, if we are not specifically mentioned or exempted, we will have to abide by the same laws as those guys.

CASA says the proposed amendments will have only a minor impact on industry. It says the amendment to the variable fuel reserve calculation is expected to only impact specific types of operations on short duration flights.

"If we are not specifically exempted, we will have to abide"

RAAUS REACTS

During the consultation period for the new regulation, which expired in March, RAAus fired off a strongly worded protest letter to the department, outlining the many questions and worries recreational pilots have about it.

CEO, Michael Linke, stated "It is our view the imposition of new prescriptive regulation relating to the carriage of minimum amounts of fuel is contrary to the guiding principles of the Director of Aviation Safety as published in January 2015. It has not been demonstrated by CASA that there is a "known or likely safety risk which cannot be addressed effectively by non-regulatory means alone."

"The introduction of this regulation may result in additional safety risks, coupled with an increase in the level of non-compliance within the industry. RAAus is of the view that the proposed regulation will have no positive safety outcomes and result in increased compliance costs within the industry."

What Michael was referring to was a directive by the Director of Aviation Safety last year to be applied by CASA when it considered all new regulation. In the directive, the regulator promised to only impose new rules on industry when they addressed known or likely safety risks which could not be addressed effectively by non-regulatory means alone.

"With a total of 61 fuel exhaustion events contained in the ATSB report period (1991 – 2000) and only nine in the post report period (2000 – present) it is clear fuel exhaustion is not, as implied by CASA, a safety issue needing to be addressed by regulatory means," said Michael.

"Including the addition of RAAus fuel exhaustion events (not considered in the original ATSB report) still results in fewer incidents being recorded than the report period. Furthermore, analysis of these reports shows the proposed regulations would deliver no positive impact on the events in any case."

TOO MUCH GAS

The biggest impact of the proposed new regulations, according to RAAus, would not be on the charter and airline fleet, but on recreational aviation.

"Close to half of the RAAus aircraft fleet (1,700 of the 3,500 registered aircraft) have quite limited fuel tank capacity. In many cases, to keep a 45 minute reserve would require over 30% of the capacity of the tank. This would severely limit the range of these aircraft.

"A Skyfox Gazelle has a total fuel capacity of 48 litres and a fuel use rate of 15 litres per hour. A 45 minute reserve would therefore require 23% of the aircraft's total fuel capacity.

An Airborne trike with Rotax 582 two stroke engine has a total fuel capacity of 44 litres and a fuel use rate of 20 litres per hour. A 45 minute reserve would therefore require 33% of the aircraft's total fuel capacity.

"To impose the requirement on these aircraft would pose safety risks to operators. By reducing the endurance of these aircraft, CASA would expose their pilots to more landing and take-off cycles, phases of flight associated with increased pilot workload and higher incidence of safety related occurrences. It is difficult to see how placing this requirement (especially relevant on longer flights) on pilots could reduce fatigue and workload and deliver positive safety outcomes."

It's obvious the person who put the idea together did not consider the effect such a blunt instrument would have on recreational or sport aviation.

In its letter, RAAus pointed out that a 45 minute reserve should not be required if a flight was intended to be conducted in the vicinity of an aerodrome under Day VFR.

And then there was the issue of forcing pilots to issue a Mayday call if their fuel level dropped below the 45 minute reserve.

"A Mayday is associated with grave and imminent danger. Reserves, by their very nature, are intended to be used when a situation presents itself that was not foreseen at the commencement of the flight. Reserves are designed to prevent a Mayday.

"In the event a pilot encounters winds in excess of the forecast, for example, he or she may choose to continue the flight, knowing there is no threat to safety as a result of the carriage of additional fuel in the form of reserves. While no threat of grave or imminent danger exists, this pilot will now be forced to declare a false emergency and potentially divert important resources away from true emergencies."

"Under these regulations, should a pilot make the rational determination that a true emergency situation does not exist and elect not to trigger a series of events associated with a Mayday, they will be non-compliant and subject to the overzealous imposition of a strict liability offence, despite posing absolutely no risk to safety to any person or property."

A BETTER APPROACH

RAAus had some advice for the regulator.

"By taking an educational approach consistent with the ATSB report, RAAus continues to successfully communicate good practices to pilots across the country, without the need for prescriptive and restrictive regulatory reform. RAAus is strongly committed to education and pilot involvement, believing this is a far more effective means of improving safety than simply adding an additional layers of legislation."

AND THIS FINAL WORD.

"If CASA deems fit to introduce this requirement, we will immediately seek relief from its imposition. We will seek an exemption for all RAAus members as follows.

Remove the offence of strict liability applying to landing with less than a 45 minute fuel reserve for all RAAus aircraft.

Remove the requirement for a 45 minute fuel reserve for all day VFR flights conducted by RAAus registered aircraft.

Remove the offence of strict liability for a pilot failing to record fuel logs at 'regular intervals'. This phrase is not clearly defined and, while pilots are expected to monitor and record fuel use for navigation flights, clearer definitions must be contained in the requirement."

The time for discussion on CD 15080S closed in March. CASA wants the regulation up and running by the end of the year. RAAus says it will keep fighting. Stay tuned.

Dear John

BY ANTHONY SIBARY

I NORMALLY fill this column with news of my own events, but this time I wanted to introduce everyone to my fantastic instructor, John Taru.

John was born and raised in Jakarta, Indonesia. He married his lovely wife, Amy, there at the age of 20.

He is a printer by trade and spent five years in Germany in the early 1970's, working for a world renowned Heidelberg printing company. I have since discovered John worked on some famous machinery there and he acknowledges to this day, that the best printing equipment and machinery in the world comes from Heidelberg.

From the mid 1970's until the late 1980's, John and Amy lived and worked in the US, initially on the east coast, until they settled in California.

They relocated to Australia in 1988 and I was surprised to learn that John's interest in flying only began when he was living and working in Sydney. Both he and Amy are accomplished scuba divers and they have spent many hours exploring the waters in and around Wollongong.

It was during one of his many diving trips John noticed the skies above were full of trikes. In his words "they looked like fun", so he decided to have a lesson or two. After building time on trikes, John headed to The Oaks and began lessons with Dave Rolfe (CFI of Dave's Flying School). The fixed wing bug bit him and, in 2000, he purchased his own Jabiru.

Unfortunately, Dave himself was later seriously injured in a car crash. He sustained trauma to his feet which meant he was unable to fly, so John made the decision to quit his printing job and become a flying instructor at The Oaks.

He was awarded his Instructor rating by Carl Holden and has been with Dave's Flying School ever since. John tells me there are no negatives being an instructor, only positives, and that he really enjoys teaching others how to fly. Sitting across from him in the school's briefing room, and seeing his face as he recounted for me how he became an instructor, I could see how much it means to him.

As his student I have been fortunate to share his enthusiasm. John is a quiet, unassuming and caring man who understands that a calm and measured voice in the cockpit is what is needed. Yes, it is his job and he is getting paid to instruct and teach, but something tells me his motivation comes instead from his love of flying and seeing others earning their wings.

John recognises that we learn by doing, not by being told how to do something. I have mentioned this in previous articles and it is worth another telling here, because not everyone in a teaching and/or instructing role can do this. I can remember during one flight, I carried a little too much height into the circuit and John simply said "fix it". He got me to do it, rather than just telling me how.

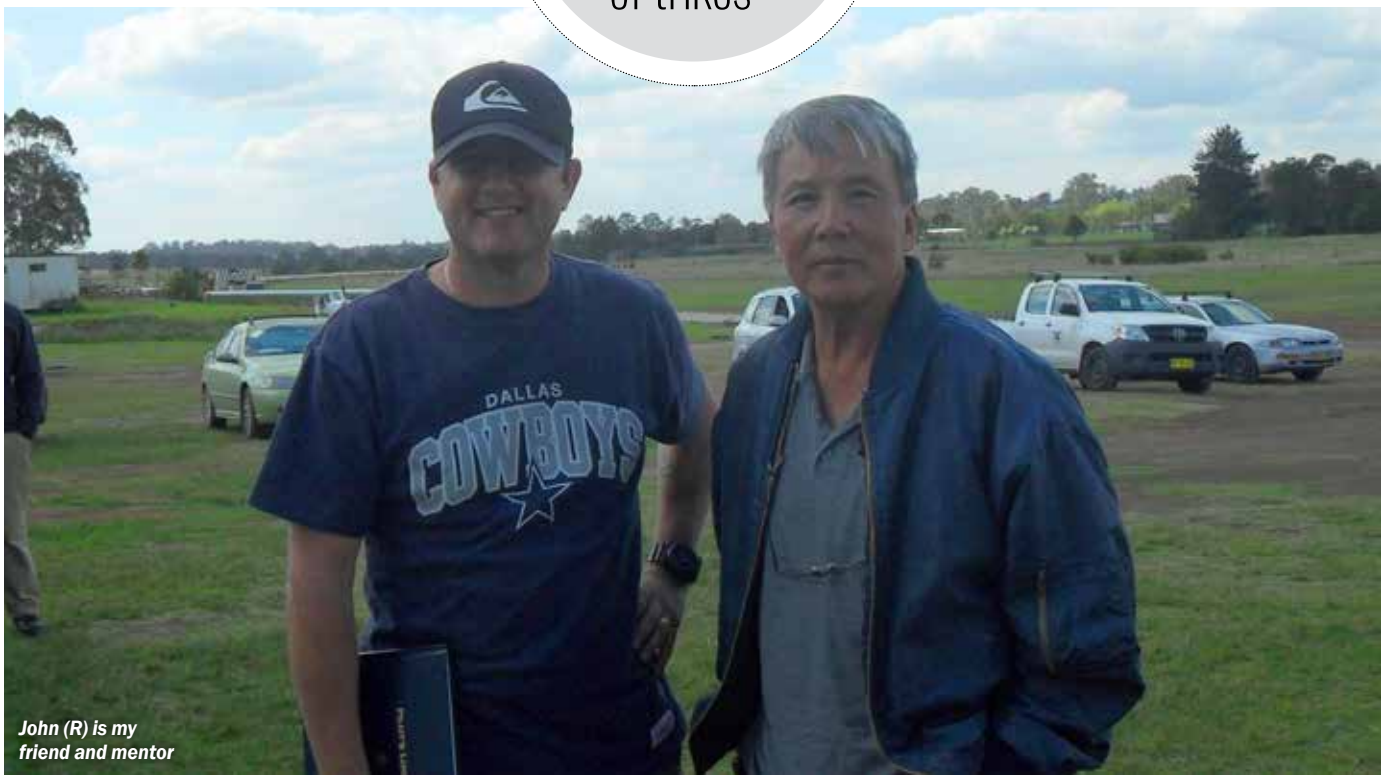
As you progress with your flying lessons, you will face many challenges and you will also enjoy many highlights. Getting a landing right, nailing that radio transmission and, of course, your first solo. The one thing we all have in common is that we will have an instructor there with us every step of the way (even if he is on the ground praying during your solo). Engage with your instructor, learn from them and, most importantly, never stop asking them questions.

I have almost completed 50 hours of left seat time now and, to John, I have to say I really cannot thank you enough.

My instructor is John Taru, a man I am proud to call my friend and mentor.

I will see you and Amy in the pilot's lounge for cocktails and debriefing.

"John noticed the skies above were full of trikes"



John (R) is my friend and mentor

Mitchell's dream

BY ALAN BETTERIDGE

Mitchell Watson

MITCHELL Watson has always had a passion for everything aeronautical.

It was this passion which led the teenager to the opening of Queensland's newest major aerodrome at Wellcamp just outside of Toowoomba in 2014. It was a visit which was to lead him to the exciting world of recreational aviation.

While at Wellcamp, Mitchell met up with the team from the Darling Downs Sport Aircraft Association, operators of the Lone Eagle Flying School based at Clifton.

At their invitation he visited Clifton's Bange Field and had his first flight in a Drifter. From that moment he was hooked.

15 year-old Mitchell said the experience was something he would never forget.

"I had already taken a few lessons in GA aircraft in Toowoomba but flying in the Drifter was totally different," he said.

"You get such a feeling of freedom."

Mitchell's parents had always supported their son in his aviation endeavours and are proud of his ambitions.

"We have an arrangement with Mitchell where his mother and I pay for half of his flying training," Mitchell's father, Wayne said.

"We knew it wouldn't be easy or cheap but we really wanted him to be the best he could be."

After a few lessons, Mitchell's instructor, Trevor Bange suggested the talented youngster apply for the club's annual Junior Flying Scholarship.

Mitchell jumped at the chance and, after assessment, he was selected to be the 2015 recipient. When he found out, he was over the moon.

"Words can't describe how happy I was," he said.

"It was something which would change everything and make getting my Certificate so much cheaper for me and my parents."

But Mitchell wasn't the only happy one – so were his parents.

"When Mitchell received that phone call to tell him he had been selected was something very special," Wayne said.

"I can tell you his mother was in tears, she was so happy for him."

The scholarship enabled Mitchell to start flying in earnest and his efforts were rewarded when he gained his Pilot's Certificate in early January this year.

"I have to do 10 hours before I get my passenger carrying authorisation and after that I will be converting to the Jabiru and doing my cross-country

Picture: Scott Williamson

Mitchell Watson

flying," Mitchell said.

"From there I hope to go on and eventually fly commercially."

The DDSAA offers one junior flying scholarship each year and is open to any aspiring young person.

"This is a scholarship program for young people with a genuine interest in aviation - it is not a prize," CFI Trevor Bange says.

"A foremost requirement is that, during the assessment phase of the process, applicants must be able to demonstrate an aptitude for flying.

"We also consider an applicant's commitment and interest to recreational aviation as well as the level of co-operation and support they get from family members.

"Mitchell met and exceeded in those areas. He was an extremely worthy choice."

The value of the scholarship is over $6,000 and is available to people aged from 14 to 21.

Association President, Clive Nielsen, says the Junior Flying Scholarship is important to introduce young people to recreational aviation.

"It offers a basis of aviation knowledge for advancement and careers in both military and general commercial aviation, helps them to complete their flying training at minimal cost and encourages them to be active long-term members of the recreational aviation community," Clive says.

Clive says applicants must live within practical distance of Clifton airfield with transport means to the airfield.

"It's also very important they have good physical health, weight between 45 and 100 kilograms and are emotionally fit to fly.

"The applicant must be willing and able to spend time on study and various ongoing club activities.

"The Scholarship covers membership fees, books and flying training in certified Drifter aircraft."

For more information on the scholarship and the Lone Eagle Flying School visit its website (which coincidently was set up with Mitchell's help) at loneeagleflyingschool.org.au.

A NEW STAR

BY BRIAN BIGG

ONE of the most popular ultralight aircraft in South America is finally on sale in Australia.

The Starfox has been a big hit in the skies above South America for the past 30 years. More than 2,300 of them have been sold in Brazil and almost every other country in the region, but until now the aircraft has not been available to Australian pilots.

The company offers five models in the Fox range, however only two of them are to be offered for sale here in the short term.

Bert Moonen, who most of us know as the Australian distributor for Quicksilver, has taken on the role as distributor for the new Starfox as well.

"I was approached by the manufacturer in Brazil to represent their range" says Bert. "The company has done so well over the past 30 years and decided the time was right to spread its wings to other countries.

"When I had a look at their products I thought "wow, I like this".

"I have represented Quicksilver (the pioneers of the ultralight industry) for the past 11 years (which I will continue to represent) so my first concern was build quality and safety. I exchanged dozens of emails with the factory with questions about the aircraft's safety record, ASTM standards, and questions like, did they use AN bolts and 6061 aluminium, engine options, LSA options, kit and ready-to-fly options, frame strength etc. The more I found out, the more I liked."

"At the end of the process, I decided to take on the dealership.

"The range of aircraft is quite diverse, ranging from the top end Fox V8 LSA (no, it does not have V8 in the front. It has the trusty Rotax 912S), to the bottom end Fox V5 Super which has a take-off distance of only 50m.

'The Fox V8 and V6 Super will be available as LSA for the Australian market, but the entire range will be available as ready-to-fly, or 90% built cells without engine and instruments, ready to drop in a Rotax 912 or 582.

"A safe and easy to fly side-by-side ultralight"

Light and compact

Best ROC 1,200fpm

Built with alloy 6061-T6 aluminium tubes

VNE 87kts


Side by side


Max pilot height 195cms


80hp or 65hp options


Payload with half fuel 241kgs


Load factor – plus 4 minus 2


Max range 463kms


Sure to draw looks

"The V5 Super takes off in only 50m"

FOX V6 Super

SPECIFICATIONS

Wing span	9.66m
Length	6.5m
Height	2.15m
Wing area	14.9m²
Engine Rotax	912 UL
Stall with 45° flaps	33kts
Stall with no flaps	35kts
Cruising speed	74kts
Best rate of climb	57kts
Glide ratio	13 to 1
Takeoff distance MTOW	100m
Service ceiling	10,000ft
Maximum range	796km
Empty weight	270kg
MTOW	500kg
Payload with full fuel	174kg
Fuel capacity	80 litres
Cabin width	140cm
Pilot maximum height	195cm

"The first Starfox V6 Super LSA will arrive in Australia around the end of May after being built in Brazil, test flown, dis-assembled and packed into a shipping container. There are already around 150 V6 aircraft flying.

"The Starfox V6 Super will be the first of the Starfox range to grace the Australian skies, with more models to follow. We feel the V6 Super will fill a void in the market here as a safe and easy to fly side-by-side ultralight."

The Fox V6 Super Light has wings made of Dacron polyester. It's reportedly docile, comfortable in which to fly and sturdy.

Bert says a final pricing for the V6 Super won't be known until the shipping costs are finalised, but prospective buyers should look in the region of $80-$90,000.

Bert has promised *Sport Pilot* access to the new aircraft when it is available in Australia so we can do a full flight review for you. Look for that in a future edition.

For more information, www. starfoxaircraft.com.au.

Keeping your aircraft in the air...

MAINTAINER OF THE YEAR

THE time is rapidly approaching for you to put your hand up and call out your choice for 2016 Maintainer of the Year. This is a long overdue recognition of the people who keep our aircraft in the air. Nominations open on May 15 and close on September 30. The award will be the first time RAAus showcases the knowledge, experience and integrity of our L2s. Look around your airfield. If you think your L2 has the special traits and qualities to become the organisation's first Maintainer of the Year award recipient, get ready to nominate him or her. The awards will be judged by an independent panel of members from the recreational and GA community. For more information, www.raa.asn.au.

...requires care and attention

OUR MAINTAINERS

The RAAus Maintainer of the Year of award will put the spotlight on those people who are the most important when it comes to keeping our aircraft flying. Maintainers like Dan Compton.

DAN COMPTON L2, CFI WINGS OUT WEST, DUBBO

MY piloting and aircraft maintaining interests started in unison. I grew up with a keen interest in aviation and building/fixing things. My dad was very inventive and our farm was under the flight path of RAAF low jet routes.

For school work experience I did a week at the aero club with pilots and another week with a local aerial agriculture company, learning about maintaining. Both had me hooked and even though I was keen to be a RAAF pilot, I left school and was soon working at the airport. I gained my CPL and, along the way, spent a lot of time learning with the engineers as various maintenance was completed. My favourite flights were to Tamworth and other places for 100hrly maintenance.

I worked for a short time as an AME on Ag planes and then moved to Gatton, loading for an Ag pilot and helping rebuild a Pawnee. The fabric work was a new experience and one which stayed with me.

Somewhere in all this, I went back to school and applied to join the Army to fly helicopters.

During the recruiting process a RAAFie got in my ear and for old time's sake, I applied for the RAAF too. The RAAF was quicker to take me, so I am still wondering what choppers are like. While in the RAAF, I spent many hours around the various hangars making friends with our ground crew and learning. It was frowned on to some degree, a rank thing, but I preferred that environment and made great friendships which have lasted. The knowledge about the aircraft I flew was invaluable too. Another pilot on the base, Steve 'Boris' Bekker, was similar and, when we both bought planes, we had just as much fun discussing the nuts and bolts as the flying. Steve is now a test pilot.


Dan at work

My first aircraft was a Super Cub. Bought primarily for the love of fabric and physical appearance and, after buying it, I came to appreciate its flying qualities. Brilliant. I wanted speed eventually and let my Cub go so I could build an RV78. Yes, that's right, it started as a 7 and finished as an 8. If you ever see VH-DAN out there, you'll notice it has the big 7 rudder.

Building was a great experience and I can see how people get hooked. That said, it took time and most people would appreciate how it may be something you'd do once in a life. Maintaining my own aircraft was the best part. I enjoyed the responsibility, the ability to make my own decisions and the ability to be able to spend big on parts to ensure things stayed good, because they were fitted for free.

When I sold the 78 the buyer took it to a reputable LAME whose feedback left me proud of my efforts (I had previously doubted).

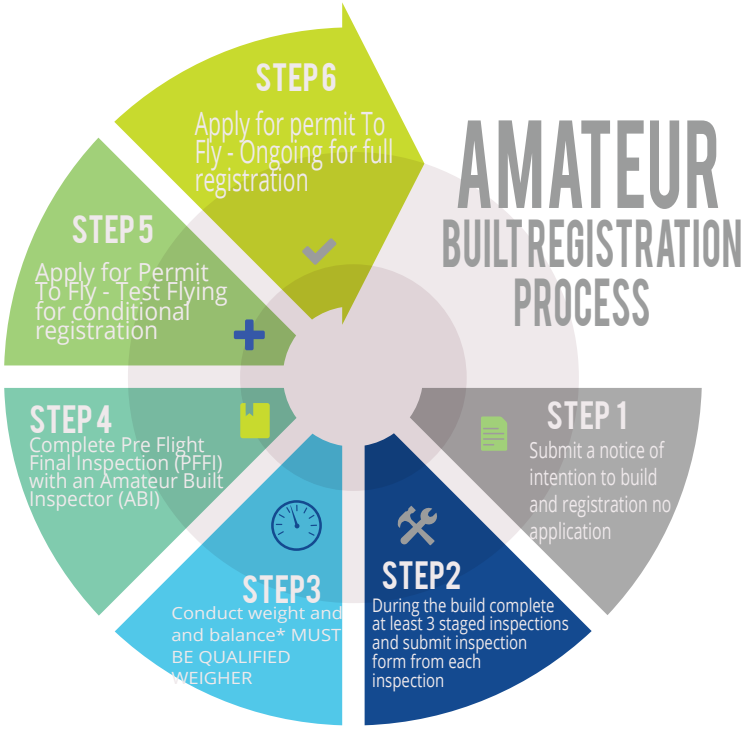
We now operate Cubs from American Legend Aircraft. They're new build Cubs with all the goodness of the old ones, plus some nice additions. Maintaining new aircraft from the factory is generally a pleasure. It does come with little surprises, the usual teething problems after shipping or the heartache of being the first to scratch the paint. Recently I travelled to the factory and this is something I strongly recommend. For the price of an airfare and a forced holiday, a factory tour will answer questions about your aircraft's structure and why engineers do the things they do. As it was, I spent three weeks and had a fabric refresher, built a wing, worked on wiring/avionics, checked out their welding and did general maintenance on their prototypes and so on. The CEO also introduced me to the various types, including their amphibians. I now have an open line of communication with the factory and can call on them when I get technically embarrassed. This is especially good if the next person I need to call is the RAAus Technical Manager.

So I hope this gives you an insight into my journey and encourages anyone of you to pursue your interests further. The more you learn about your aircraft the more fun you'll have and the safer you will be. If you're not sure about something, one thing is for sure. Call for help and find the right answer. Only a stupid person will tell you you've asked a stupid question.

TECHNICAL MANUAL ISSUE 4 DRAFT

THE BOARD WILL DISCUSS THE DRAFT VERSION AT ITS MAY MEETING

Version 4 is not an update from Version 3. The new manual has been completely restructured to allow readers to easily locate information, procedures and forms required etc. Version 4 brings new aspects not outlined in Version 3 such as staged inspections for amateur built aircraft, weighing qualifications for completing weight and balance reports, minor and major modifications and compulsory L1 maintenance assessments. A special E-News will be sent out when Version 4 is available for viewing at www.raa.asn.au



L1 MAINTENANCE

An individual that has completed the compulsory RAAus L1 online training package and has the appropriate qualifications and experience to carry out maintenance on an aircraft or aeronautical product may carry out maintenance on his/her aircraft used for private operations in accordance with the manufacturer's schedule to ensure the continuing airworthiness of the aircraft. All L1s will need to complete the assessment by the end of the 6 month transition period.

In order to provide assurance of appropriate processes and construction techniques during the build process, a minimum of three stage inspections are required to be carried out by an RAAus L2 or L4. Inspect at key points -closing of structures, engine installation, painting etc

Builders of amateur built and E-LSA aircraft may themselves weigh their aircraft and prepare the required weight and balance reports, after becoming a "Qualified Weigher" from successful completion of the RAAus Weight & Balance online education package.

Version 4 of theTechnical Manual brings in the Permit to Fly scheme for Amateur Built aircraft.
The builder must complete and submit APPLICATIONS FOR A PERMIT TO FLY – TEST FLYING / ONGOING (full registration)

TRANSITION TIMEFRAME

All RAAus members/ aircraft operating prior to Version 4 of this Technical Manual may continue operating under Version 3 of the Technical Manual for a period of six months after the issue of Version 4. This allows for amateur built aircraft during various stages of construction to filter through the registration process.

FEEDBACK

We would love to hear constructive feedback regarding issue 4 of the Technical Manual. Please let us know what you like and what you dislike about the manual. Please forward your feedback to tech@raa.asn.au Thank You

LMS

Look out in the coming weeks for the release of the new L1 training assessment and the qualified weigher course. These are to be delivered through our learning management system (LMS) CANVAS

Technical Manual Issue 4

Frequently Asked Questions

REGO Have the registration prefixes changed?

Yes, but only for newly registered aircraft under version 4 of the Technical Manual. For example LSA registered aircraft will now be 23-XXXX. Look for other number additions in section 5.1-7

Can I conduct my own Weight and Balance? W&B

Yes, once you have completed the RAAus online weight and balance education program. Once complete you will become a "qualified weigher" for your own amateur built or E-LSA aircraft. Section 10 contains all weight and balance information

MODs Can I modify my amateur built aircraft?

Yes, however further flight is not permitted until an RAAus level 2 has inspected the aircraft and provided their recommendation to the Technical Manager who will issue written approval for further flight. The Technical Manager may request a W&B and require further flight testing be conducted. Section 6 covers aircraft modification.

*only applies to subsequent owners of amateur built aircraft. Owner builders do not require L2 inspection.

Is there a section on logbooks? LOGS

Yes, section 12.5 is dedicated to what is required to be recorded in an aircraft maintenance logbook. Examples of the correct method for layout etc is also included. As RAAus conduct random audits of aircraft maintenance logbooks this area will be a valuable resource for members to improve their maintenance recording practices.

AB Has the Amateur Built Registration Process Changed?

Yes. Version 4 brings with it staged inspections and the permit to fly. The amateur built registration process is outlined in section 3.1. Three staged inspections are required as a minimum. The inspections must be conducted by an L2 and/or L4. A further benefit of submitting staged inspection reports is that it aids 262AP applications for flight over built up areas. On completion of the pre flight final inspection the builder will request a permit to fly. Once the builder has received his/her permit, flight testing may commence in accordance with the conditions listed on the permit.

L1 Can I continue to maintain my aircraft without doing the L1 assessment?

Members can continue to maintain their own aircraft used for private operations until the end of the six month transition period. After this period all members who wish to maintain their own aircraft must have completed the assessment.

W&B Can my L2 weigh my aircraft if he is not a "qualified weigher"?

No. Your L2 can continue to complete weight and balance reports up until the end of the transition period. After this period ends all members must have completed the weight and balance education package should they be required to weigh RAAus registered aircraft.

AB Im going to apply for 19-XXXX registration next month - Do I need to apply for a PERMIT TO FLY?

No, However all builders who apply for a registration number from now on will follow the new amateur built registration process.

REGO Have registration procedures changed for factory built aircraft?

No, the same procedures apply however there are changes to registration prefixes. Check them out in Section 5.

The poisson distribution

THE BEST BITS ABOUT BUILDING YOUR OWN BY DAVE EDMUNDS

I HAVE written in this column about the misadventures suffered by my family due to horses, so it should come as no surprise that I have taken an interest in the statistics accumulated by the Prussian army on the incidence of fatalities due to horse kicks. Without wishing to be culturally insensitive, it may come as no surprise to learn the Prussians recorded such incidents in 14 cavalry corps over a twenty-year period.

It is a pity the ATSB has not taken a similar interest. If only it was familiar with the work of Ladislaus Bortkiewicz, who determined in 1898 that the probability of horse kicks could be predicted by the poisson distribution, a useful statistical technique for dealing with low frequency events.

The ATSB, in a document released in March this year, stated it did not have enough data to determine whether the latest version of the Jabiru engine, with revised through-bolts, was safe. The definition of safe, used by CASA to restrict Jabiru operations, is less than one In-Flight Shutdown (IFSD) per 10,000 hours. Of course, as shown in my previous article (*Sport Pilot* April 2016), this measure seems to apply uniquely to Jabiru. Jabiru submitted evidence to the ATSB showing there had been no shutdowns of this version of the engine in all 55,800 hours of operation. Applying a poisson distribution to the data shows that the ATSB could be 99.6% confident the failure rate is less than one in 10,000 hours. ATSB does not say what would satisfy it.

This is one of the inexplicable anomalies in the Jabiru story.

The article by Rick Frith, elsewhere in this edition, describes the work done by Jabiru to fix the through-bolt problem. You may not care about Jabiru, but the detective work makes interesting reading.

CASA is due to review the operational restrictions on Jabiru-engined aircraft in the near future, so the issue is current and an important pointer to the relationship between the flying community, RAAus and the regulators.

Over recent issues of the magazine, there have been a number of articles on the saga of the restrictions placed on Jabiru. CASA extended those limitations at the end of last year on the grounds that Jabiru had not completed a root-cause analysis, although Jabiru had supplied the data on which Rick's article depends which, to me, does constitute a root-cause analysis.

Accumulated data on the operational performance of Jabiru engines, no matter where it is sourced, may not be complete. For example, someone may have had a problem, landed safely and simply replaced parts without informing anyone. So, the following observations are qualified.

- Through-bolt failures in the original solid lifter engines have been very rare.
- Through-bolt failures have occurred almost exclusively in aircraft involved in flight training close to sea level.
- Through-bolt failures have been very rare in other countries.
- There have been no through-bolt failures or valve train failures in the latest roller-cam engines fitted with 7/16" through-bolts.
- Jabiru has released service bulletins to address mechanical issues in its engines.
- The dampened through-bolt design, mentioned in Rick's article, has too few hours in service to be meaningful, but addresses the particular problems described in Rick's article.

Neither CASA nor the ATSB has published this information, nor apparently factored it into their decision making so far. Hopefully in considering what to do when the current restrictions expire, CASA will take into account this information and, of course, consider that Jabiru aircraft are the safest in the fleet by a considerable margin, yet the only aircraft to have such operational restrictions placed upon them.

The Jabiru story has broader ramifications for those of us who operate aircraft and the Technical Manager will no doubt be dealing with this issue in the near future. It seems many of us have difficulty determining what is critical for the safe operation of our aircraft and documenting it appropriately. This is a difficult area, as I discussed last edition, where I mentioned making changes to improve airflow and cooling. While we should not be stopped from making such changes to suit our local conditions, it is idiotic to use the wrong oil or fuel in our aircraft, to operate in conditions which exceed published limitations, or not to service our aircraft carefully in accordance with the manufacturer's recommendations. Perhaps it is part of the human condition to fiddle, but a basic rule in the aviation environment should be not to fix things that aren't broken. Or perhaps to be a pilot requires a certain amount of self-confidence in our judgement which is not always justified and needs to be controlled.

"Perhaps to be a pilot requires self-confidence"

PROJECT EUREKA

A nearly final word on this issue. AOPA has written to the Minister for Major Projects, Territories and Local Government, Paul Fletcher, to find solutions to the decline of the aviation industry in Australia. In the letter the President of AOPA stated he had written to Mr. Fletcher instead of the responsible minister, Mr. Truss, because it was AOPA's belief any representation to Mr. Truss would be referred back to CASA and effectively die there. Perhaps not coincidentally Director of Aviation Safety at CASA, Mark Skidmore, resigned his membership of AOPA in a terse email. The AOPA letter was supported by a 130-page report commissioned by AOPA called Project Eureka. At the time of writing the report does not seem to be available on the net, but the letter is. The tenor of the letter is entirely consistent with the sentiment of the article I wrote a couple of months ago on the Jabiru saga.

And a final, final word. It may be that this is covered in the Project Eureka report, but I can see no way forward unless the CASA legislation is changed to require CASA to support general aviation. I can see no other measure which would change the culture within the regulator CASA. This culture can be easily measured through such metrics as annual fleet hours, aircraft registrations, pilots in training and so on. The equivalent US legislation has such a provision.

Meanwhile, the swipe fuel bowser at my home airport at Goulburn is broken, never to be repaired. Instead, in the not too distant future, it will be replaced with a credit card bowser. It will have been out of action for about two months. You can still get fuel if you can find the airport operator. Amazingly enough, the problem is that the dot-matrix printer which records transactions has died, and they don't make them anymore. The airport operator tried to raise a NOTAM explaining the situation, but Airservices explained it was not possible.

Imagine that.

Reporting made easy

BY KATIE JENKINS **NATIONAL SAFETY MANAGER**

A SIGNIFICANT part of the RAAus modernisation project last year was developing an online Occurrence Management System to making reporting simpler.

The OMS allows for all sorts of reporting such as accidents, incidents, defects, complaints and hazards.

RAAus receives a large number of reports each year because of our size and the fact we are the biggest recreational aviation organisation in Australia.

IN 2015 WE RECEIVED THE FOLLOWING NUMBER OF REPORTS:

ACCIDENTS	INCIDENTS	DEFECTS	COMPLAINTS	HAZARDS
94	79	39	33	13

Considering RAAus members flew approximately 300,000 hours and made 350,000 landings in 2015, it is reasonable to expect that, from time to time, some result in an occurrence of some type. But having to fill out two forms to report such occurrences can be cumbersome, frustrating (especially when the same information is being asked for) and create more emotional anguish for members who have often just been through a serious accident.

The paper report also meant a lot of data entry and administration time for RAAus employees. It also meant less time for analysing the information gained from the data and less opportunity for proactively working with members to improve safety.

RAAus realised both the difficulty members were having meeting their obligations and also how much time the cumbersome system was taking. So in line with the vision of creating a Safe, Accessible, Fun and Enjoyable organisation, along came the OMS.

WHAT IS THE OMS?

The OMS is an online reporting system which aligns the ATSB TSI Act 2003 and the RAAus Operations Manual (Section 4.08) reporting requirements. It has several advantages.

ONLY ONE REPORT

The system was put together after numerous discussions with the ATSB. It asks for all the necessary information about the occurrence to fulfil ATSB requirements. You will notice there are mandatory fields. These are required by the ATSB and the form won't be able to be submitted until all the mandatory details are supplied. Once you hit the SUBMIT button, it uploads the report into the OMS database and generates an Occurrence number (i.e. OCC01234) which you have keep handy for future reference. You would also use it if you need to provide additional information or seek advice from RAAus on the outcome of your occurrence. You can also track your occurrence through the member's portal on the website.

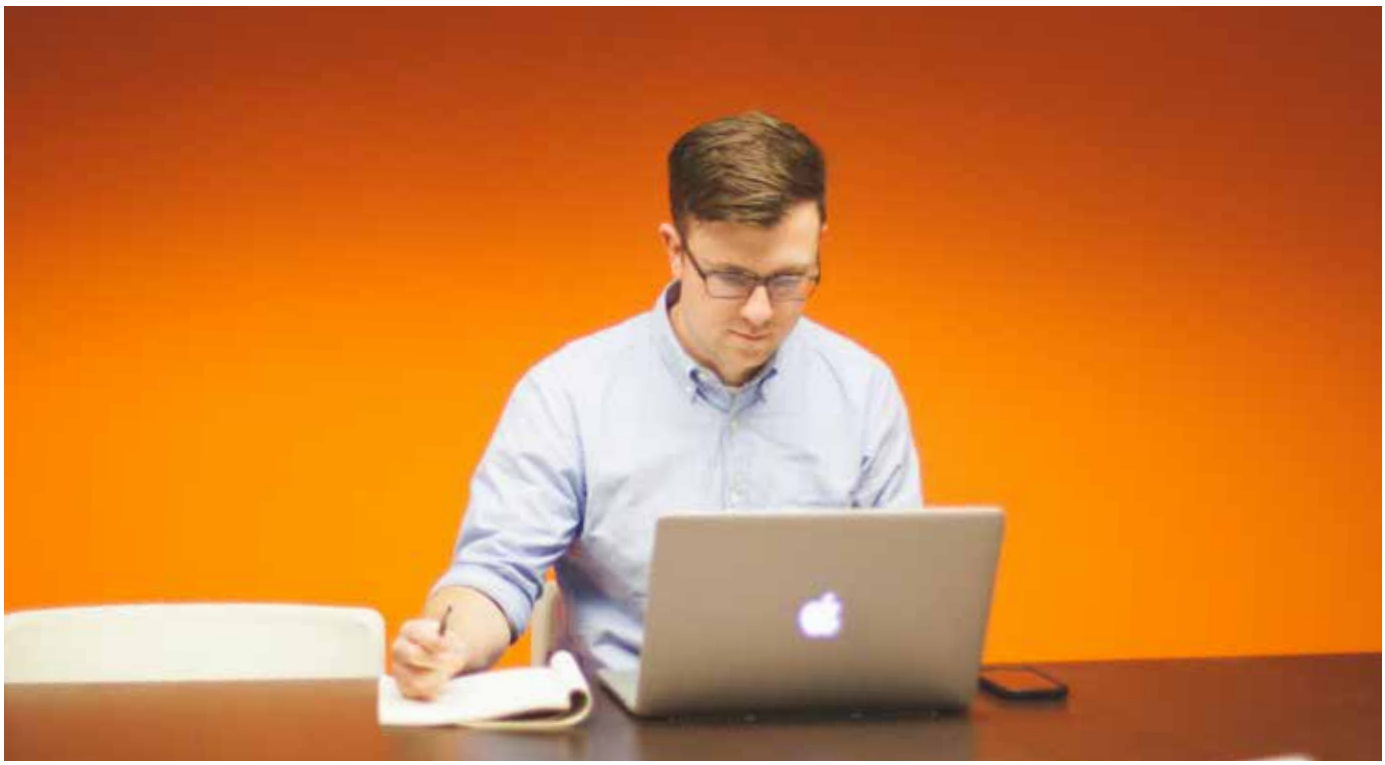
The OMS database also automatically generates an ATSB report. RAAus is working with the ATSB to ensure the information is automatically uploaded into the ATSB national database. Your privacy is protected at all times.

PERSONALISE YOUR INFORMATION

If you log into the member's portal to log an occurrence, the system will automatically take the information from the data on your profile to fill in your personal and aircraft details. So it is critical your profile is always up to date.

If you have more than one aircraft, you can select the details of which aircraft upon which you need to report.

Also, if you need to go look for more information before submitting your



Reporting made easy *con't*

BY KATIE JENKINS **NATIONAL SAFETY MANAGER**

report, the system will save the information for you in draft form. When you return, the system will still have the information saved for you to continue with.

Note, though, that if you don't log into through the member's portal, and submit a form through the public side of the RAAus website, your personal and aircraft information will need to be manually typed into all the fields. Best to log in first.

TRACKING THE REPORT

When you lodge an accident or defect report, you can receive immediate feedback on the status of the report through the member's portal. The portal will tell you if your report is currently under investigation or has been closed off with the information saved for future analysis.

LOAD DOCUMENTS, PHOTOS OR VIDEO FOOTAGE

The OMS will also allow you to attach photos or video footage to your report. There is a maximum upload limit of 32MB. If you have problems uploading information, email RAAus Safety Manager at safety@raa.asn.au who will help you upload the attachments.

IT'S AUTOMATIC

No more printing, scanning, emailing or faxing into the RAAus office. Once you hit the SUBMIT button, the information automatically goes into the system and you do not need access to email to forward it. To confirm it has been received, check your member's portal to ensure it is listed or check the Accident and Defect list under the Safety Tab on the website. Information automatically uploads to this site but the outcome is not displayed until it is reviewed by the Safety Manager.

The system also lets you tell everyone about your incident (if you want to). Click the button and your report will be uploaded to the RAAus website under the Safety Tab (See: www.raa.asn.au/safety/accident-and-defect-summaries).

There is also a search filter to help you find advice for reports focusing on location, aircraft type and engine type.

Accidents and defects are the only reports displayed online for education purposes.

RAAus complaint reports are confidential and are managed internally within the OMS. Hazard reports will soon be made available to CFIs through the new CFI portal and we hope to build on these reports to identify and mitigate against hazards before they become accidents.

The OMS has immediately improved efficiency for members and the RAAus employees required to do risk assessments, reviews, investigations and finalise reports.

SINCE ITS LAUNCH IN LATE OCTOBER 2015 THE FOLLOWING REPORTS ARE IN THE OMS:

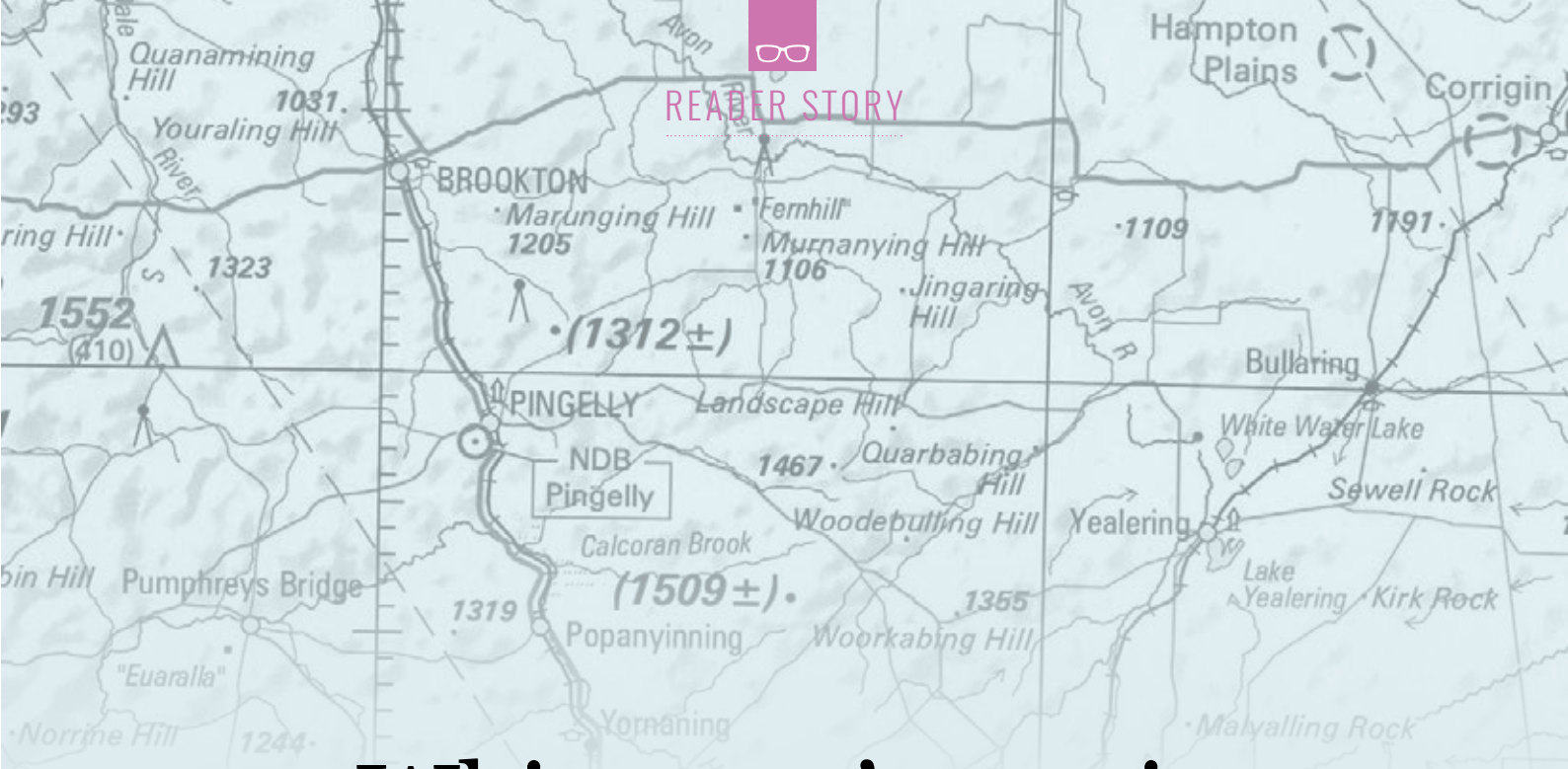
ACCIDENTS	INCIDENTS	DEFECTS	COMPLAINTS	HAZARDS
22	37	25	27	10

We hope these numbers increase as members become comfortable with the online reporting system and see how easy it is to report this way.

Like all things new, there is always room for improvement and we continue to work with the IT developers to include more features. These systems will also improve with your feedback, so if there is something you would like to see included, forward your suggestions to websupport@raa.asn.au.

TOP 5 TIPS WHEN USING THE OMS

1. Log into the member's portal first – it allows the system to prepopulate your personal information and aircraft information;
2. Upload photos and supporting documents;
3. Save your report and come back to it later if you want;
4. Submit your report once – It is automatically sent to the ATSB;
5. Check the member's portal for a status update at any time.



White man's magic

BY ANDREW BRUNO

THERE are perils in relying too much on the 'white man's magic' for getting where you want to go.

I have now been caught out three times using modern technology, and it isn't because I am a luddite. I don't want it to happen a fourth time.

And even though the temptation will be for you to say "You shouldn't have done that" or "Ha! I wouldn't do that!" believe me, it can happen to you.

I am not going to give away specifics either, but rather provide general details, because the brand of GPS and exact places are academic in the telling of how these events happened.

THE FIRST TIME

Flying out of Hoxton Park, I was going on a trip to Bathurst, then onto Mudgee, Scone and back to Hoxton Park. I had my flight plan and GPS.

The aircraft didn't have a power socket, but that didn't bother me, because the GPS had full batteries. Mistake.

I took off and only got as far as Medlow Bath, near Katoomba, when the GPS turned itself off because the batteries had run flat. Luckily I had a paper flight plan and the flight continued without a problem.

THE SECOND TIME

A few years later I used to go to an annual fly-in held over the weekend. I'd done the trip several times before so the flight plan was put in my faithful GPS and saved.

To help me get around some restricted airspace, I needed a custom waypoint. I did the calculations, manually entered the waypoint and included it on the route. Mistake.

Although I knew the route from having flown it before and had my trusty GPS with me, I knew the importance of making a flight plan.

I used my own flight plan program, entered the waypoints and printed it out.

After I took off, I looked at the GPS and started to acquire the heading. But something didn't add up! Although the new waypoint was supposed to help me avoid restricted airspace, this was way off where I knew I should go. The leg I was on was south-west, to avoid the airspace – the diversion should have been to the west-south-west, but the GPS was saying west-north-west.

For the moment, I was more concerned with climbing to get over nearby hills, so it wasn't a big concern for me until I was above them. But once established in cruise, I checked the numbers. They didn't make sense. I quickly flipped back to my paper flight plan, read the heading from there and took up that heading. All was good.

I later realised that when I had entered the latitude/longitude of the new waypoint, one digit was wrong which moved the waypoint north. So, instead of (say) S32.40.47, I had entered S22.40.47 minutes (or something like that).

Again it wasn't an issue because I had the paper plan keeping me on track.

> "Have a mental picture of where you want to go"

THE THIRD TIME

This was a doozy, and showed how GPS could also be problematic before you get to the airport.

I live in Sydney, and there are tricks with traffic which the GPS doesn't always get right. There have been many times when it wanted me to take toll roads, or other ways which I knew were of no real benefit to me, and so I overrode its instructions.

On this day I was going to a suburb called Cherrybrook from the city. I turned on the GPS, clicked on the map to get a rough idea about where it was. Yeah, looked good. I pressed the GO button. And was off. I thought the suburb was to the north but the GPS insisted I head west. I followed the instructions for far too long, and was out in the west of Sydney before I suspected something was wrong. When I worked out I had entered the wrong name, I spent nearly an hour back tracking before I got to where I was going.

The lesson for me was that you should always first have a reasonable mental picture of where you want to go then double check what you have entered into the GPS. Sometimes it is the GPS' fault - sometimes it is yours.

Either way, when going somewhere you are not familiar with, look at the map.

In the car I could just pull over and work out where the mistake was. When I was flying, I didn't have that luxury.

The water diviner

VIEWPOINT

PEGASUS was a mythical flying horse and whenever his hooves touched the ground, water sprang forth. I call my aircraft Pegasus for similar reasons, so I don't fly all that often.

Anyway it was a nice day with lots of uneven surface heating and, for some unfathomable reason, not raining. Out came Pegasus and off we went to see if we had confidence in our competence - armed with an extract of Part 61 Manual of Standards.

Taxying wasn't too hard because, at my airfield, if we are off the centre line by more than 1.5m, we're on the grass. That's bumpy and a definite clue. Take-off was also no problem but there was a fair crosswind and putting the nose into the wind took me more than 10 degrees off my heading.

At least I think it did because but I was sort of busy and the compass was bouncing around.

Climb airspeed? 10kts fast but I congratulated myself on engine cooling even if the IAS was above the allowed 5kts. Levelling off was easy because Pegasus doesn't climb all that fast. I might pass my BFR yet. Cruise airspeed at straight and level was a bit of a problem too because I don't fly IAS. I set 5,000 RPM and hope I get away with an explanation.

Then came a surprise. The biggest updraft I've experienced for a very long time conspired against my competence. I was flying at 1,350ft under a 1,500ft step when, all of a sudden, I was flying in CTA. Worse! I had exceeded my own 150ft allowance altitude standard. I put the nose down to get out of there while expecting retribution from CASA almighty. But the voice from the heavens (Brisbane Central) didn't eventuate and there was no subsequent thunderbolt (via e-mail) so I reckoned my excess went unnoticed. The 150 ft excess, however made me think.

Pegasus doesn't weigh much more than a horse and bounces around like a belly dancer's navel. It might be okay for the big multiengine aircraft, flying in nice still air, with roll dampers, yaw dampers, trim on every control surface and an autopilot that angels would be proud of. But not Pegasus. Or maybe (curse the thought) it was me at fault.

Ok I thought. I'll do better on the descent. That's when I had an epiphany. The more time I spent looking in the cockpit, the more accurate my flying became. That doesn't sound right, eh? Most LSA aircraft fly at about 180km an hour, so if someone was flying towards me, there would be a closing speed of 360km/hr. That's a kilometer every 10 seconds. Not a good idea, then, to leave my eyes inside for too long.

Then I had a second epiphany. It had something to do with everyone telling me what to do but not how to do it. Perhaps I should do something like this...

Scan the horizon, check the altitude. Scan the horizon, check the airspeed. Scan the horizon, check the trim. Scan the horizon, don't hold the control column too tight, remember situational awareness (lots of other things), scan the horizon. Oops, IAS crept 11kts high.

Epiphany number three loomed. What is situational awareness anyway and how do you recognise when you don't have it? We're told to concentrate on what we're doing, but that can't be right. Perhaps we should not concentrate on what we're doing. How about avoiding fixation error? How about I stop telling myself what to do and think about how to do it.

Just then I noticed I was fixated on the Part 61 MOS and had missed my 10 mile inbound call. I'll do better on the approach, I thought.

The crosswind was still there and so was the turbulence - and gusting had also developed. Which meant the white windsock was bouncing up and down. During my glide approach and final I was supposed to add 5kts to my speed. Not likely. Powered approach, extra speed and I flew Pegasus onto the ground. Then the magic happened.

It rained.

CASA Part 61 MOS can't blame me for that.

I can do better than that

BY BRIAN BIGG

MY mum could do a take-off. I mean, getting an airplane off the ground is not that hard, once you have done it once or twice.

You line it up along the runway, you give it full power, keep it straight and sooner or later the airplane reaches a speed where it will fly, even if you've passed out at the wheel in the meantime.

Sure, there are accidents when people don't pay attention or when something goes wrong at a critical moment. But take-offs are not technically difficult. And all pilots know it.

On a lazy Sunday afternoon, when you are sitting at your local airfield chatting with the pals about how your airplane is undoubtedly the most perfect machine ever designed, hardly anyone glances up when an airplane runs along the runway and takes off.

But have you ever noticed how every head in the clubhouse turns when an airplane is approaching to land?

No one says anything out loud, but at that moment, everybody is watching the pilot of the landing airplane and judging him or her on how well they do it. And quietly thinking to themselves "I can do better than that".

Landing is that part of flying where the Gods punish us for our hubris and our arrogance.

On a recent beautiful Sunday morning, I took off unnoticed from my local airstrip and flew to another strip about an hour away.

As I approached to land, I noticed a couple of club members sitting in folding chairs under the awning watching me.

I found myself sitting up straighter in the seat and trying to concentrate that little bit more, to make sure I landed correctly.

And it was with some embarrassment I found I was too high on final.

The aircraft floated halfway along the runway, before it finally plopped down with a couple of bounces. Oops!

Rather than pull up in front of the clubhouse with a smile and a friendly wave, I felt it more prudent to park around the corner and slink towards them.

They smiled at me in welcome, undoubtedly thinking to themselves "I can do better than that bloke".

After taking a friend for a joyride and doing an hour's worth of flying for my BFR, I took off unnoticed from the airstrip (the fellows were making sausage sandwiches and didn't look up – typical) and flew to where I knew the big air show was being held.

The skies and the apron were packed with visiting aircraft.

As I approached on short final, I noticed there were a number of photographers clustered near the approach end of the runway, snapping the new arrivals.

Again I sat up in the seat and concentrated on making this landing the best of the day.

But the Gods struck me down again. I was about 10m off the ground when a gust of wind caught me under one wing. I overcompensated when straightening it up and ballooned past the threshold.

Then I hit a patch of sink and was forced to claw the nose up to prevent my aircraft banging down nose first onto the tarmac.

"Why did I have to screw it up in front of such a big crowd?"

First one wheel, then the other thumped down and I had to fight the wobbles until aircraft slowed down enough for me steer off the runway.

And again because of my less than ideal arrival, rather than steer proudly into the centre of the crowd to look for a parking place, I slunk off to one side and parked quietly - in the hope nobody recognised me.

I know it was my imagination, but the noise remained loud in my ears of the motorised cameras recording forever what was undoubtably the worst landing ever seen at that airport.

Why did I have to screw it up in front of such a big crowd?

I could see a couple of air show public watching me park my plane. I just knew they were thinking to themselves "Even though we can't even fly an airplane at all, we know we could do better than that bloke".

I spent several hours enjoying the sights and sounds of the air show (and trying to put my embarrassment out of my mind) until it was time to head home. I took off unnoticed (what a surprise) and flew the short distance to my local airstrip.

And there, in front of a small disinterested flock of seagulls and a solitary Ibis, I did the best landing I have done in years. The approach was perfect. The flare was at a perfect height. The wheels just greased on. Smooth as silk.

And no one was there to see it.

Seriously. The best landing ever. Really.

The through-bolt saga

AN ENGINEERING DETECTIVE STORY

BY RICK FRITH

I RECENTLY visited Jabiru in Bundaberg to have some 500 hourly service work done on my four cylinder engine.

I have now flown over 1,300 hours behind such engines and have followed the through-bolt saga for many years. This saga involves failure of the bolts which hold the cylinders to the engine block and has led to in-flight engine shutdowns, hysterical internet forums and crippling operational restrictions imposed by CASA. Due to my technical interest, and possibly due to my engineering qualifications, Rod Stiff and Sue Woods were generous enough to show me the technical reports on research work which Jabiru has done over many years to solve the problem. In my experience, it is a classic example of engineering detective work.

STRESS AND STRETCH

When a bolt is stretched, it will initially extend in a linear manner – double the force, double the stretch. This is the elastic region. But as the force is increased, the bolt will reach its yield point and deform like plasticine. It will never return to its original length. Eventually it will reach a tensile limit and break. This is shown in Fig. 1 where the force is 'stress' and the stretch is called 'strain'.

If the bolt remains in the elastic range, the bolt should not break.

However there is a second property of materials which also affects the life of a bolt - fatigue. If a metal is repeatedly flexed beyond a certain point it will eventually break. How many bends it takes to break will depend on the size of the force applied. At high stresses, very few cycles are required– breaking a paper clip by bending it is a simple example. Breakage can occur even when the material is in the elastic region and not being deformed like the paperclip. Fortunately, for most materials, there is a lower stress, where the piece will survive an infinite number of cycles. These properties are summarised on an SN diagram (See Fig. 2) which shows the number of cycles before failure for a given stress applied to the material.

Early Jabiru engines had solid valve lifters and suffered no through-bolt failures.

However, when the standard design moved to hydraulic valve lifters, through-bolt failures started to occur. Here was the first clue. Something had changed obviously but what, in particular, was the problem? To further add to the mystery, failures were occurring primarily only in flying school aircraft. At the time of writing, Jabiru data shows every case of through-bolt failure reported to ATSB between 2009 and 2014 was in a flying school aircraft (despite ambiguous phrasing in the March 9, 2016 ATSB report which simply describes the category of use of the aircraft at the time of bolt failure and ignores the fact they were all flying school aircraft).

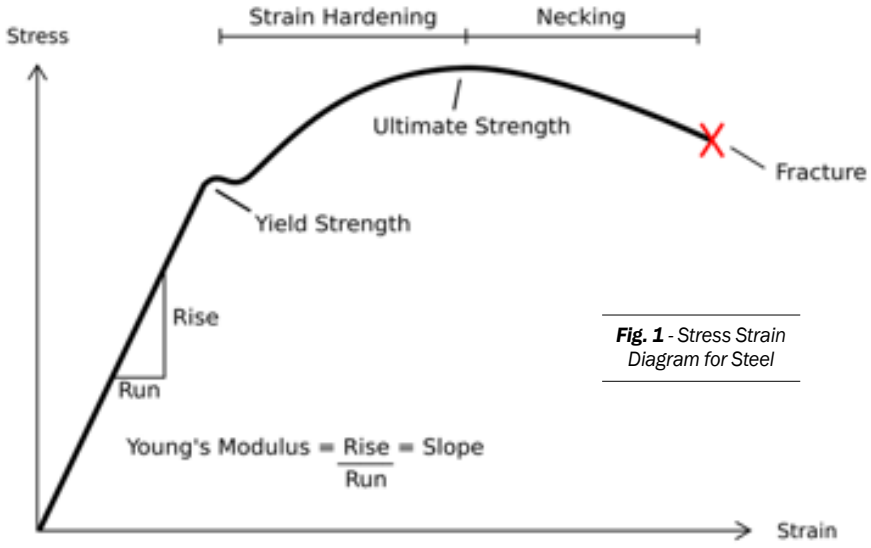


Fig. 1 *- Stress Strain Diagram for Steel*

Furthermore, the failures were mainly in flying schools operating at or near sea level. Those in alpine areas or the tablelands were trouble free.

Inspection of the failed 3/8" through-bolts showed they were failing through fatigue, at the point where theory predicted the maximum stress occurred in the threads. However, the stress-strain curve and the SN curve indicated the bolts should have had infinite life at the calculated maximum stress.

In order to reduce the failure risk, longer nuts were introduced to ensure the tension was spread over more threads than on the original bolts, significantly reducing the peak stress. While this was partially effective, even longer bolts with even more threads were introduced to further reduce the peak stress. These were installed with Loctite, making it critical the nuts were torqued up quickly to ensure uniform clamping forces before the Loctite set and influenced the force applied to the bolt. Needless to say, this did not always occur in the field, further exacerbating the problem.

The strategy behind these modifications was to reduce the peak stress in the bolt and, in accordance with the SN diagram, increase the number of cycles before the component failed. However, even when properly torqued, some through-bolt failures continued to occur, suggesting the problem was not yet completely solved.

In parallel with the program to reduce the peak stress in the through-bolts, a comprehensive research program was undertaken to identify the root cause of the failures. It is this work I studied during my recent visit to Bundaberg.

A fundamental breakthrough came when a strain gauge was installed inside a through-bolt to measure the actual stress in an operating engine. When the engine was started, the stress was found to rise unexpectedly high, before declining to the level predicted from analysis. Due to the different thermal expansion properties between the aluminium engine block and the steel bolts, the block expands more than the bolts, increasing the tension in the bolts at operating temperatures. This was expected and is shown in Fig. 3.

The surprise finding was that on engine start-up, the bolts warmed up much more slowly than the aluminium block, so the block expanded faster than the bolts, further increasing the bolt tension beyond that shown in Fig. 3. As the bolts warmed up and expanded, the tension eventually reduced to the expected level. This observation of thermal stress peak cycling explains why flying school aircraft were experiencing the through-bolt failures. They typically have short flight times (single lessons) and, during each flight, do many touch and goes, imposing higher thermal stresses on each circuit as the engine is throttled back for descent and full power is re-applied for take-off. Furthermore, at sea level, the engine will deliver more power when the throttle is wide open. At higher altitudes, the engine will develop significantly less power. For example at 3,000ft, the loss is almost 10%. At the same rpm, peak cylinder pressure and the stress in the through-bolts are essentially proportional to power, so sea level operations maximise the

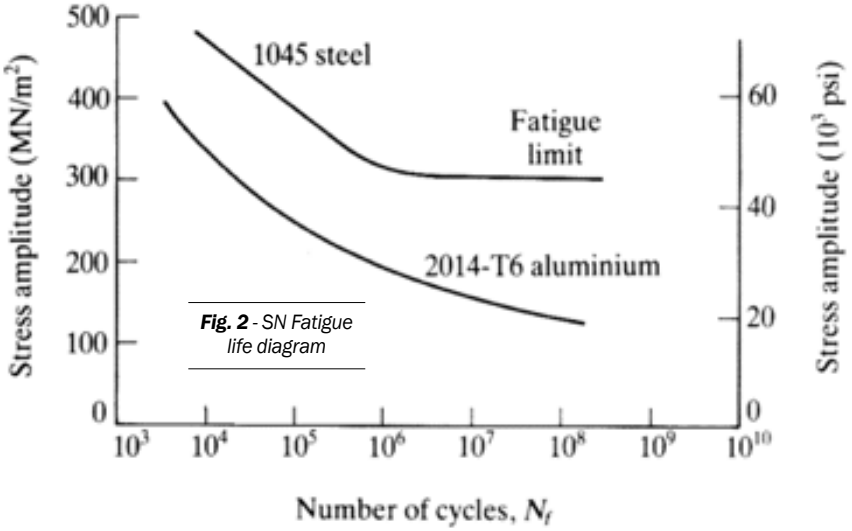


Fig. 2 *- SN Fatigue life diagram*

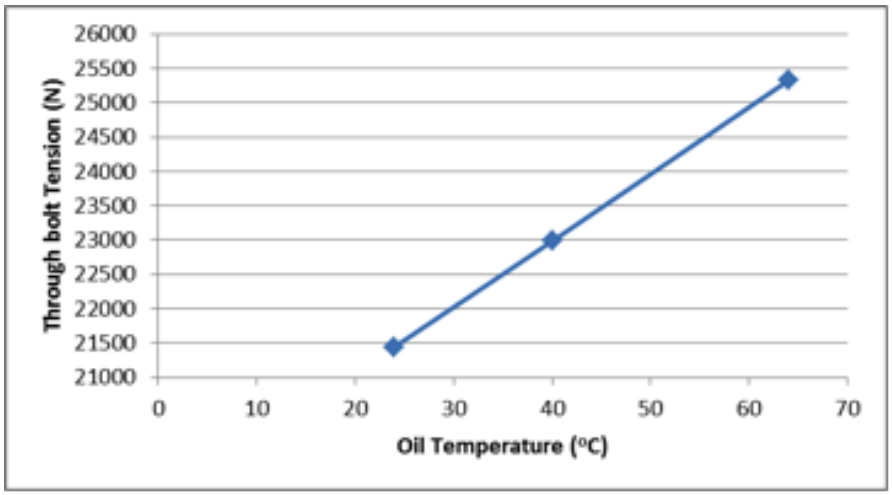


Fig. 3 *- Through bolt tension variation with oil temperature – at thermal equilibrium.*

forces on the bolts and, in accordance with the SN diagram, further reduce the number of load cycles before failure.

The solution for existing engines was simple - modify the 3/8" through-bolt design to make them more elastic and hence reduce the peak stresses generated by differential expansion rates. Flying school aircraft are required to replace through-bolts every 500 hours, ensuring a rapid take-up of the new design.

The latest model engines and those now returned to Jabiru for overhaul, all have 7/16" through-bolts, which also reduce the peak stress in the bolts. None of these have failed in more than 55,000 hours of operation.

The second breakthrough came with vibration analysis of the hydraulic lifter and solid lifter engines. The measurements were so sensitive it was possible to observe the twelve vibrations produced each revolution as individual alternator magnets passed the induction coils. The vibration spectra of both operating engines and major engine components showed a significant difference between the resonant peaks for the two models (See Fig. 4). Anyone who has pushed a child on a swing will understand that small forces, if applied briefly at the right point in a cycle, can dramatically increase the amplitude of the swings. This is resonance – the Tocoma Narrows Bridge is the classic engineering example of it in action. Just search for 'tacoma narrows video' to watch it collapse.

The solution to this resonance peak was to slightly modify the crankcase design to reduce the frequency and bring it closer to the solid lifter engine frequency. As a supplementary measure, for existing unmodified crankcases, the latest 3/8" through-bolt design also incorporates a vibration damper to eliminate any detectable lateral vibration of the bolt.

The resonance vibration was the true root cause of the problem. The differential thermal expansion effects were also present in the solid lifter engine, but did not cause failures because those forces alone did not exceed the SN curve. It appears the additional forces due to resonance further increased the loads sufficiently to cause fatigue failure. The thermal effects were a secondary, but essential contributing factor.

The root cause has been addressed in the latest crankcase design. It is still present in the earlier hydraulic lifter crankcases, such as mine, but operating experience and theoretical calculations indicate the 7/16" and the more elastic 3/8" through-bolts are effective in solving the problem. There have been no through-bolt failures in any aircraft with these modifications (including flying schools) since they were introduced. The latest style, dampened 3/8" bolts, once fully deployed in the field, are expected to totally eliminate any resonance effects in those crankcases.

This is the good news for both existing and prospective Jabiru owners. More disturbing, however, was to learn that of the more than 50 engines returned to Jabiru for overhaul each year, about half have not had all the service bulletins or service letters applied. No matter how thorough the engineering or how comprehensive the solution, it is useless if not applied in the field. As a professional engineer with almost 40 years' experience, I find it staggering any owner, or maintainer, could ignore a directive from a manufacturer. The legal liability alone should be enough to discourage the practice.

Disclaimer: Rick Frith is a Jabiru owner. He has tertiary qualifications in engineering and science. He has written this without any prompting or direction from Jabiru. It represents his own views and not necessarily those of Jabiru or RAAus.

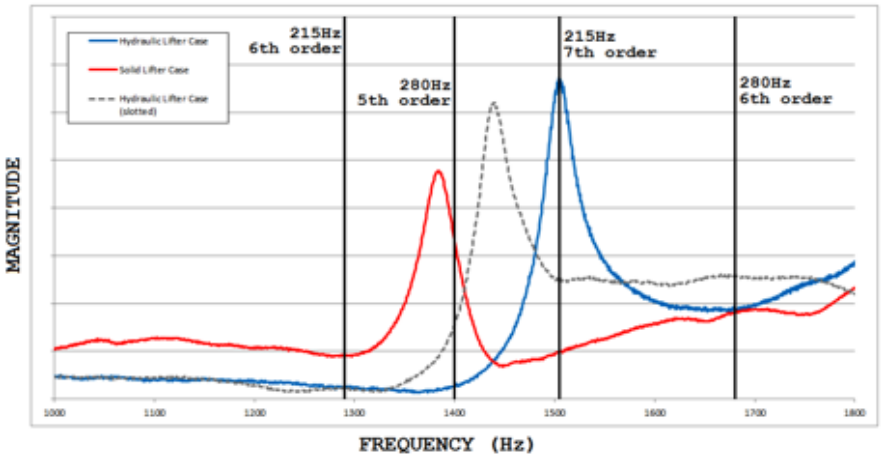


Fig. 4 *- Spectral Diagram of crankcase resonances.*
Red = Solid Lifter, Blue = Original Hydraulic Lifter, Dotted = Current "Slotted" Hydraulic Lifter

A work of art

BY THE OPS TEAM

RAAus provides a safe, accessible platform for the average person to follow their dream of flight, whether it's a budding young aviator still at school, a mature retiree who has patiently waited for their time to fly or the vast array of people in between.

FOR Operations, a regular question relates to deciding when a pilot becomes too old to fly. Let's face it, we all want to keep flying for as long as possible but, at some point, a decision has to be made about when it's time to hang up the boots.

We need to be realistic. None of us is getting any younger and with an average RAAus pilot age of 54, it's important to be vigilant about our medical fitness.

NOW COUGH

For most recreational pilots who are not instructors, the annual medical self-declaration is the only requirement to provide confirmation of their ongoing fitness to fly. Part of everyone's usual processes, however should include a personal assessment of our fitness to fly before every flight.

Basically, unless you have a specified condition as outlined in section 2.07 and 2.16 of the Ops Manual (epilepsy, diabetes, heart condition, mental illness medicated or otherwise) then you are good to go. Once over 75, the requirements change to include annual reporting via a doctor's declaration. Open and transparent communication of any identified medical conditions and associated ongoing treatment is the key to all members of RAAus being able to continue to operate under these relaxed requirements.

For instructors, a CASA Class 2 medical certificate has been the minimum requirement. This is a much reduced requirement from a Class 1 certificate. If pilots do not wish to engage with CASA AVMED, an alternate path has been provided, using an assessment from the members usual GP and the RAAus medical questionnaire and examination form as an alternative. Be aware, though, that the RAAus alternative can't be used as a fall-back if the Class 2 certificate has been refused.

KEEPING UP APPEARANCES

The integrity of any medical assessment system is only as good as the open disclosure and transparency of the information. And this has to be ongoing, not just every year when you sign the renewal. Operations hears about pilots continuing to operate with known medical conditions which have the potential for significant impairment to safe operations, including potential incapacitation which may affect more than just the pilot. Open and honest awareness of possible medical issues, even for simple things like carrying reading glasses in the cockpit, is the only policy.

The IMSAFE check is the first line of defence against getting into the cockpit when you are not up to the task, but how many of us make this a regular check? The Aussie 'she'll be right mate' culture is pitted against us at times when the desire to fly clouds our judgement - but will you really enjoy the flight anyway?

A SPOONFUL OF MEDICINE

Ask any sports athlete about medication and you'll see them break into a cold sweat like they need some. Ask a pilot and the answer can be a little vague. The following link on the CASA website may help, but in doubt ask your GP, or as a last resort give the staff at CASA a call.

https://www.casa.gov.au/standard-page/medication?WCMS%3ASTANDARD%3A%3Apc=PC_102333.

For example, if you plan to get a flu shot this winter, you shouldn't fly for 24 hours afterwards.

AGE SHALL NOT WEARY THEM

Operations assesses a wide range of pilots to issue and renew their certificates and ratings. Based on these assessments, we can safely say our highest rated instructors and approval holders look more like a senior's reunion than a kindergarten crèche. The experience these people bring to our organisation is, of course, valued and respected, but pilots may not recognise the more insidious signs of ageing in themselves. For some of our senior fliers, the issue of being too old may only be realised when they share a flight with someone else or when an emergency occurs.

Mild cognitive degeneration is the buzzword when ageing is being discussed. It means we are not as sharp as we used to be. We all have to adjust to some of the symptoms over time which may include;

- forgetfulness;
- decreased ability to maintain focus;
- decreased problem solving capacity;
- slowed reaction time.

Do any of these sound familiar? The medical community has a number of suggestions to help stave off the effects - improved diet, fitness and exercise, more fish and less alcohol. They are all known to help, but as pilots, the tools we need to employ to remain safe and effective in the air are based on foundation disciplines which hopefully we have developed to a high level over time. Structured checklists, slow deliberate assessments and a healthy dose of conservative behaviour in our operations, are all tools which must be sharp and consciously employed for all aviators and particularly those of senior years.

So short of locating the fabled Fountain of Youth, what can we do? Self-selection is the disciplined answer most pilots bravely make. The pilot who knows when it is time to hang up the logbook must be applauded for the decision. It is the hardest a pilot has to make. They can still make valuable contributions at the field, providing ground instruction if instructors, and sharing their knowledge with the next generation.

For others it is the progressive decline in health, like flying into reducing VMC, which is more insidious. Sometimes it requires caring and careful intervention by a fellow pilot or partner. For some of these aviators, Operations has been able to extend the joy of flight, and the respect deserved for our stalwarts, a little longer by granting them conditional flight approvals. It may limit certain flight operations, or ask them to use a safety pilot, but at least they can still fly.

FLYING THROUGH THE AGES

Any CFI will tell you the art of teaching people to fly very much depends on understanding the person, in terms of their maturity, commitment to learning, life background and ability to absorb new information and skills. So what effect does age have on this ability to learn and aviate safely? And how do we as individuals manage this ourselves when left to our own devices?

As we age and mature, we reach a peak in mental and physical fitness in our 20's. From there the fitness plateaus and slowly declines over time, assuming no serious or prolonged illness.

Taking up flying in your later years is a worthy aspiration, but it can also provide unexpected challenges as the old dog tries to learn new tricks. As an instructor, it can be difficult to see a students' commitment and passion when progress is not made as both expect. This can be very frustrating for both parties, especially for those who have otherwise worked hard and been successful in their personal and professional lives. A theory I have developed is called the +10 rule; for every decade over 40 you are, you can expect the same in extra training hours to get to Certificate standard. In my experience, this rule-of-thumb has proven pretty close. Communicating it to a more senior student removes the pressure on them at the start. Of course, there is no hard and fast rule and many other variables can also come into play.

So as the silver fox on the field, how do you navigate these considerations for yourself? The good news is you have experience which cannot be faked. You've earned it and it will always serve you well. If you can hold off the apathy and remain humble, your decisions have a lifetime of safe flying to support them.

The experienced cautious pilot has seen too much and never strays too close to the edges. They stick to what they know and resist change. Deliberately automatic, they are the reliable foot soldiers of aviation, just don't ask them to add anything more to the overflowing flight bag. In the other corner is the original school of hard knocks pilot, full of stories of skilful escapes and daring adventures. This pilot dodges authority like trees at low level and keeps to his inner circle. Never had a flight bag - kept it all in his head. Follow me, I'll show you how to fly. We have all seen both examples.

So where does all this leave us? I'm reminded of an adage - "Youth is the gift of nature but age is a work of art". Like any good art, it's worth protecting and acknowledging. But ageing pilots, like great art, still need to be looked after.

Short and Sweet

DESIGNING YOUR OWN AIRCRAFT BY DAVE DANIEL

WHEN was the last time you heard a pilot bemoaning his or her aircraft's incredibly short take-off run?

Or lamenting its ability to land in a ploughed field the size of a postage stamp? I'm willing to bet never because, given the chance, everyone would like a STOL capable aeroplane. The drawback with STOL aeroplanes is not their awesome Take-Off and landing performance, it's the sacrifices which have to be made in order to achieve that performance. And I'm not just talking about their looks, even though most of them are decidedly unattractive (STOL owners forward your enraged feedback entitled, 'My Plane Looks Best in IMC', to the editor). Joking aside, there are obviously good reasons why STOL aircraft look the way they do, so let's dig a bit deeper.

MORE POWER

First up, any aeroplane can achieve impressive short field performance if you give it enough power. The military has been aware of this fact for a long time. RATO (Rocket Assisted Take Off) was developed in the 1920s. Unfortunately, strapping rocket boosters to the sides of your ultralight would probably fall foul of the single engine requirement in the regulations, not to mention causing quite a stir in the RAAus Ops department. So a rather more practical alternative is to just install a more powerful engine. It will get you off the ground more quickly and may even shorten your landings by allowing you to sit right on the back of the power curve. However big engines are expensive, heavy and thirsty, so most designers look for other ways of achieving the STOL goal.

MORE LIFT

Clearly if you want to get on and off the ground in the shortest possible distance, a low stall speed is essential which, in turn, means a high stalling angle-of-attack and a wing capable of large lift coefficients. If you are looking for plenty of lift at low airspeeds, a glider style high aspect ratio wing may seem aerodynamically tempting. Unfortunately, a fifteen metre wing span is not a good fit with the rugged go anywhere requirements of your average bush plane, so a more practical solution is required. Given that low drag is not vital for STOL performance, short wing spans and high lift devices are the order of the day. Large flaps or flaperons are pretty much essential but, if you want to achieve a really low stall speed, you need to maximise the stall angle-of-attack as well, and that means slats or slots in the wing leading edge. In keeping with the need for rugged simplicity, fixed slots are a tempting solution, providing the best of both worlds by increasing the stall angle-of-attack without requiring any sort of activating mechanism. A small drag penalty during cruise is the only real drawback. Automatically deployed leading edge slats are also an alternative, and can give slightly better cruise performance, but require a mechanism to ensure they will only deploy symmetrically. So they come with some added weight and complexity.

MORE CONTROL

It's all well and good having an extremely low stall speed, but there's no point being able to fly slowly if the aircraft is uncontrollable. At low airspeeds, plain ailerons tend to become ineffective operating in the sluggish and disturbed airflow at the rear of the wing. A common solution to this problem, as seen on both the Savannah and CH701, is to use junker flaperons. Positioned below the wing trailing edge and separated from the main wing aerofoil, the control surfaces are flying in clean air away from the disturbance of the main wing which improves their effectiveness, especially at low airspeeds. As well,

> "There's a lot more to owning a plane than looks"

CH701 showing inverted tail aerofoil section and main wing leading edge slot and junker flaperon. Photograph by Jerry Gunner CC-BY-2.0.

Savannah control surfaces are in clean air away from the disturbance of the main wing

combining the flaps and ailerons into flaperons allows the control surfaces to extend over the full span, improving control authority while a mixer mechanism allows both ailerons to be drooped together to give the same effect as flaps.

MORE ATTITUDE

Adding wing slats or slots is highly effective at reducing the stall speed, but they also push up the stalling angle-of-attack. This introduces some significant challenges for the rest of the aircraft design. Firstly the horizontal tail must have enough authority to pull the aircraft into an extremely nose high attitude, which can be more than double the usual fifteen degrees or so required to stall a conventional aircraft wing. Simply installing a larger tail will do the job and there's certainly nothing fancy about the tail of a Piper Cub or many of its clones. But Zenith aircraft goes a step further by using a cambered aerofoil mounted upside down. This allows the tail to produce significantly more downforce for its size compared to a conventional symmetrical tail section.

Probably the most visible impact of an extremely high stalling angle-of-attack is the constraint it puts on the overall shape of the plane. In order to fully utilise the available lift, the aircraft must be able to achieve a high angle-of-attack while in contact with the ground. This is not too much of an issue for planes with conventional landing gear, because they naturally adopt a fairly nose-high attitude - with the extra-long landing gear legs seen on the Storch variants taking this to an extreme. However for tricycle gear aircraft, the only solution is to include a strongly upswept rear fuselage to ensure adequate ground clearance to avoid a tailstrike when the plane is rotated for take-off. This tends to give these aircraft the appearance of a flying banana and may explain why I have never seen a Savannah painted yellow!

MORE LANDING GEAR TRAVEL

Strictly speaking, landing gear travel does not affect the STOL performance of an aircraft. However, if you are going to be landing on short, unprepared strips with any degree of regularity, you are going to want landing gear which is both rugged and good at soaking up abuse. Long landing gear travel allows the deceleration of a heavy landing to be spread over a longer period of time, which decreases the load on the rest of the aircraft structure. Plus giant tundra tyres are not only good for soft surfaces, they also add a significant level of extra shock absorption into the system. Of course heavy landings are not obligatory for STOL performance, but a steeper descent will get you into a tighter spot and, given the choice between a heavy stalled landing bang on target or a greased landing 100m into a 150m long strip, the thumper is going to be preferred.

MORE DRAG

My final point may be a little controversial, but I would argue that a draggy airframe is definitely beneficial to STOL performance. If you are a god-like pilot at the peak of his or her game, having a slippery aircraft which refuses to slow down is not going to be a problem. After all, your approaches will be perfect and not require any but the subtlest adjustments to arrive at exactly the intended spot at precisely the intended airspeed. For the rest of us mere mortals, precision landings require a lot of tweaking which is a whole lot easier in a draggy aeroplane. In addition, for the experts a draggy aircraft allows the pilot to get well back on the power curve and then bleed off excess speed quickly at the last possible moment. This allows for a margin of safety on the approach while still arriving at the threshold just above stall speed for the shortest possible landing roll.

IN SHORT

They may lack the sweeping curves and fine lines of a thoroughbred, but there's a lot more to owning a plane than looks. And, while sports cars may be nice to look at, most people would rather own a Toyota Landcruiser. The reality is that STOL aircraft may be quirky looking, but in terms of pure utility they can't be matched. Besides if you really want to make people's jaws drop, just wait for a stiff breeze and take off with no ground roll. That will get their attention.

Flying west

BY VAUN MONCUR

BECAUSE I AM RETIRED, I HAVE NO TIME CONSTRAINTS. I NEVER SUFFER FROM GET-THERE-ITIS.

I CAN fly each day as far as the weather permits. Sometimes I fly west. Flying across the Great Australian Bight east to west along the coast you often strike very strong head winds in the afternoons. There are a number of road houses across the Nullarbor which have a dirt strip close by. These enable you to refuel by taxying up to the bowsers amid the highway traffic. A novelty for those road users seeing an aircraft refuelling for the first time. The last time I flew to the Western Fly-In at White Gum Farm in my Super Petrel it took me five days. I was only able to fly from dawn until around 11 or 12 am each day.

I'm pretty familiar with fuel availability and accommodation on the trip west. Most small towns have an airstrip, but few are situated close to town. Often a small town has no taxi service, so your only chance for a lift is from the hotel or motel owner.

The move up to a seaplane gave me many more options. Inland towns often have a river or lake close by where a boat ramp can land you right in town. Flying coastal there are many more landing opportunities. On the east coast, many river systems enter the ocean. Generally there is a large lake just before these rivers cross a sand bar. They are all beautiful from the air and the water landing opportunities are generally protected and have facilities. If there's not a boat ramp, you will generally find low gradient firm sand to beach and taxi out. Northern NSW and Queensland have many very large rivers offering the seaplane pilot multiple landing options near towns.

Always have a good look out for overhead wires and nets across rivers before you do your final approach. For members of SPAA (Seaplane Pilots Association Australia), many water landing sites are listed on the intranet site. Membership is still free and it's an invaluable source of information and warnings. You can also hear about planned trips if you feel safer flying in company.

Like all pilots, seaplane pilots log our landings with RAAus. I record about 20 water landings each day. I can't explain the joy of softly touching down on water. It's so graceful (mostly), you barely feel the touch down across rippled water. To fast step taxi, take off, then land again, is one of the greatest appeals of seaplanes. I often fly around Western Port Bay. There is always suitable flat water to land on, in the lee of the islands, even on a windy day. If you do put your seaplane in heavily it will bounce. At first I was taught to abort, but now I just power on slightly and regain a level descent, holding off until I touch down again. Once on the surface, I power back on to balance stick and speed for a steady step taxying speed. Depending on the wave size, you can pick a speed that just clips the tops of small waves.

Believe it or not, the most difficult landings are those on still water. Reflections offer the pilot no reference to the height above the surface to round out. You may get some idea by observing the shoreline, but generally you just set the slowest descent rate you can. You never know exactly when you will touch down, so allow yourself plenty of space ahead. I will always choose to land in ripples before reflections. Shallow water is not a great problem. You can spot a sand bar on your approach. I will often choose to land and step taxi across a submerged sand bar with just 150mm of water above it because the waves are smaller in shallow water, es-

> "The most difficult landings are on still water"

pecially on windy days.

In South Australia, beware of Coorong. It's a beautiful and picturesque piece of water to fly but has coral bombers just below the low tide level. They are easily spotted from the air, but not so easily seen when taking off from displacement. And there too, like anywhere else you land on water, keep an eye out for wires over narrow waterways.

Fitness to fly

BY PROFESSOR AVIUS **AVIATION GURU**

FATIGUE. Is it well recognised at the training level, especially for recreational pilots? I suggest not. A challenging statement maybe. But let's delve into the issues.

Fatigue is regularly referenced in road safety accidents with statements like '17-18 hours without sleep is the equivalent to a 0.05 blood alcohol reading'. Industries, such as mining, have rigid rules about hours worked and mandatory breaks, as do the airlines. How many incidents are reported in the Safety Digest (crash comic) where the crew made bad decisions primarily because of fatigue?

Fatigue results in reduced ability to learn or perform new skills. It often results in the inability to solve a task of medium difficulty, even if the person is well versed in such a task when rested.

Adverse conditions, such as poor weather, are not an environment in which to learn, especially not when a pilot is in early stages. Admittedly a student pilot needs exposure to a variety of conditions, but not too early during training. However, there are flight training schools which fly with a student no matter what the conditions. The student doesn't learn and doesn't get bang for their buck – so how can we instructors do better?

There are some flying schools (hopefully not too many) where the pre-flight briefing is conducted on the walk between the office and the aircraft (I've done BFRs with pilots seeking endorsements who were somewhat amazed by the depth of the pre-flight briefing I gave them). All instructors need to be conscious (and committed) to delivering the best possible environment/outcome for the student at each and every session.

Most instructors acknowledge fatigue as a problem. But often we don't acknowledge the resultant limitations in ourselves. So what chance does it give us to identify fatigue, illness or stress in a student? Mostly our introduction to a student is during a TIF. If the student presents tired (maybe a bit slow), what we see is what we get and what we accept.

"Alarm bells started ringing for the instructor"

I recall a situation some years back where a senior instructor had a student who was struggling, despite the student's enthusiasm to earn a Pilot Certificate. The instructor found the student's progress extremely frustrating – it was always one step forward then two steps back. The situation was discussed with the CFI (who had conducted the TIF) who assured the instructor it wasn't a training delivery problem – but a learning problem.

The student turned up regularly for lessons every Saturday but the trend continued. The blame game began after many hours when there was still no prospect of the student going solo. The student accused the senior instructor of holding him back. The instructor told the student "when you can complete all in-circuit emergencies to the standards and do a 'good' landing you can go solo. Only then and not before".

So the pre-flight briefing was completed: Pre-Take Off safety brief; EFATO; EFIC; Flapless landing. Both student and instructor were satisfied and they headed for the aircraft.

The aircraft pre-flight – OK; IMSAFE – OK; Start-up and taxi – OK; Radio calls – OK; Take-Off – OK; After Take-Off checks – OK; Cleared cross wind turn – OK; Cleared downwind – OK; Turned downwind and levelled off at 1,000ft AGL and trimmed aircraft.

Then, on downwind – no checks! Alarm bells started ringing for the instructor. Abeam the touchdown point, the instructor pulled power (simulating an engine failure) and waited for the student to react. The instructor waited and waited but the student did nothing towards setting the best glide speed. At 800ft the student did nothing. At 600ft still nothing. The instructor began working out where in the paddock to his right they could set down, because they could no longer make the runway. At 400ft with still no response from the student, the instructor declared "my aircraft" and applied power. The aircraft responded and began to climb. The student then made a radio call "turning base – touch and go". To which the instructor interrupted with "turning base – full stop".

After landing, there was some lively debate on the intercom and more as the two walked back to the office.

In the briefing room the instructor's comments were along the lines of - what the hell was that all about? The student responded "I'm very tired".

Bingo, the penny dropped. The student was chronically fatigued and had been continuously throughout their lessons. The discussion tone changed as the problem was explored. This student admitted he worked long hours – sometimes double shifts on Wednesday, Thursday and Friday. He would finish at midnight Friday and then present for a lesson first thing on Saturday. The student kept a diary of his work hours. These were compared to his student progress record and the trending was obvious. The poor performance mirrored the long hours at work. As fatigue went up, the performance went down.

As a result the student's flying training program was changed - no flying training on Saturdays – just rest. Training instead on Sunday after a full day of rest. The following week, the student who turned up on Sunday morning was a totally different person. His enthusiasm to become a pilot was matched by alertness and fitness to fly. He went solo after just three sessions.

So how did this situation develop?

The student presented for a TIF on a Saturday morning – what the CFI witnessed was a very tired person; and, every Saturday the school saw the same, very tired person. There was no reason to suspect anything out of the ordinary.

The school has taken steps to make sure the same problem doesn't happen again through the use of IMSAFE.

Both instructors and students are told to be honest with themselves.

ILLNESS: Not just now, but how has it been for the past couple of weeks;
MEDICATION: Especially any changes within the past 10-14 days;
STRESS: What's happening in life, family, money, work;
ALCOHOL: More than eight hours bottle to throttle;
FATIGUE: The only cure for fatigue is sleep;
EATING: Are you fed and watered? Dehydration is a bigger issue and often recognised only when the flight is over, the aircraft hangared and the paperwork completed.

The school also ensures the parting gesture for each student is a reminder to them to drive safely. After all, driving home from the airport can be dangerous.

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WOMEN IN AVIATION

Toowoomba teenagers Mikaela Langdon (left), Tiarna Clark, Sophie Mann and Chloe Leager were excited about their chance to experience flying courtesy of an RAAus/DDSAA Women in Aviation Week initiative at the annual Clifton Fly-In

Alisha Meredith taking Deborah Evans, AWPA QLD President for a flight. Photo by Joanna H Studios Photography

All smiles in the air

All smiles on the ground

Very happy young flyer on her first open cockpit ride (Pietenpol Air Camper). Photo by Andrew Carter

Girls fly too

BY NATHALIE GOCHEL

THE Australian Vintage Aviation Society hosted for the third time its annual event to promote aviation to women in March.

This Women of Aviation get together at Caboolture is designed to introduce women of all ages to all forms of aviation and actually get them airborne in a light aircraft.

Once again Ralph Cusack from the Beaufort Restoration Group made room in his impressive hangar to accommodate us among the Hawker Demon project, WW2 Beaufort Bomber, Winjeel and even a MIG 17 jet fighter.

We had a lot of support from aircraft owners on the field who volunteered their time and planes, but this year there was only one open cockpit aircraft flying – our ever reliable Pietenpol Aircamper, which was easily the favourite of all those who flew in it, despite the very turbulent conditions on the day. A huge thanks to all the pilots because without them the event couldn't occur.

Participants could experience flying in a variety of aircraft, experience gliding, try a DC3 flight simulator, visit the hangar of Complete Aircraft Care and also organise a joy flight in a T-34 Mentor Warbird. All participants had a least three flights in different aircraft on the day.

Our youngest participant, Alisha Meredith, 15, took full advantage of the day and made around seven or eight flights.

With the support of many women on the ground and the Australian Women Pilots Association, the organisation was outstanding and pilots, volunteers and participants all had a great day.

Five guest speakers, ranging from 15 to 80 years old, shared with us their stories and love of flying. I believe they inspired the participants and demonstrated there were many potential aviation occupations for women.

The Queensland Government this year supported Women's Week and we received a grant which meant the day was well funded.

It was another great success with all the women involved. All the women left with huge smiles on their faces and a strong interest in aviation.

Nathalie Gochel (organiser) with a participant in the Pietenpol Air Camper. Photo by Joanna H Studios Photography

Women brighten Clifton skies

STORY AND PICTURES BY ALAN BETTERIDGE

RAAUS made a special offer for any woman who joined the organisation as a flying member in March. As part of its support for Women in Aviation Week and to encourage more women to get involved in aviation, RAAus gave any woman the chance to receive flying lessons to the value of their annual membership fee.

In partnership with RAAus, the Darling Downs Sport Aviation Association offered women and girls the chance to experience what flying was all about during the annual Clifton Fly-In.

A large number of young women took up the offer and were given a flight around the Clifton district in a C182.

"We would have preferred to use our own Jabiru but the current CASA restrictions would have made that almost impossible, given the number of women and girls we had wanting to try out flying for themselves," said CFI of the Lone Eagle Flying School, Trevor Bange.

Many of the participants had never been in an aircraft of any kind before, let alone a small one.

"Although I have always wanted to be able to go flying I've never had the chance and I am super excited about today," Toowoomba resident, Tiarna Clark said.

Most said sport aviation didn't appear to be as daunting as GA.

Many will return to learn to fly

"This has been a fabulous experience"

"The aircraft are smaller and the club members here make you feel so welcome," Mikaela Langdon said.

The C182 was kept busy doing the flights and the returning would-be pilots were full of praise about the RAAus/DDSAA initiative.

"This has been a fabulous experience and I definitely know what I want to do when I leave school," said one teenager.

"It really beats working in an office or shop somewhere. It was something I really thought was only available to men, but now I know that couldn't be further from the truth,' said another.

"It was very interesting to learn there are women in every aspect of aviation, from Air Traffic Control through to the military and in commercial aircraft and airlines," said a third.

It is clear many of the women and girls who took part will return to learn to fly and become a welcome addition to the flying fraternity.

Chloe Leager had the final say:

"I would just like to say thank you to RAAus and the Lone Eagle Flying School for the great opportunity we have been given. I know I will be back," she added.

SCHOLARSHIPS HELP WOMEN GET THEIR WINGS

FOUR women passionate about pursuing a career in aviation are closer to that dream as a result of financial support from Airservices Australia.

The four pilots won Australian Women Pilots' Association flight training scholarships valued at $8,000. The winners were announced at the AWPA National Conference in South Australia in April.

The scholarships help the women with the costs of gaining proficiency at any level of flying, from the early stages of training through to a Commercial Pilot's Licence.

Airservices' Executive General Manager, Air Traffic Control, Greg Hood presented the scholarships.

"Previous winners have gone on to accept flying positions in the industry after successfully achieving a Commercial Pilot Licence and one winner is now an air traffic control trainee at our Learning Academy," Greg said.

"We're proud to support the work of the AWPA as they help women learn to fly and we look forward to watching these women make their flying dreams a reality. Promoting opportunities for women in aviation is just one way in which we are committed to supporting diversity within the industry."

Three of the recipients of the 2016 AWPA and Airservices Flight Training Scholarships with Airservices Executive General Manager, Air Traffic Control, Greg Hood.


Fun for all ages

Growing the family

BY PETA DENHAM HARVEY **AWPA VICTORIA**

LOOKING across the room full of women of all ages, expectant looks on their faces and one eye out the window at the beckoning sky, you could see this was a special day. It was the start of the third Women's Day hosted by Coldstream Airport in Victoria's Yarra Valley as part of Women of Aviation Worldwide Week on March 12.

WOAWW is an international initiative which takes place each year during the week of March 8, the anniversary date of the world's first female pilot licence, earned by Raymonde de Laroch in 1910. It is also the week International Women's Day is celebrated. WOAWW events are designed to raise awareness of aviation opportunities available to girls of all ages while celebrating the accomplishments of past and present women of aviation.

This was the 6th year activities such as flying events, factory and school open door events, museum special programs and much more have been organised to showcase today's women of aviation as well as encourage women to experience flying in a light aircraft for the first time and possibly engender an ongoing interest in aviation.

At Coldstream, 57 girls and women, ranging in age from seven to 79, gathered this year, all to participate in a free introductory flight in 12 aircraft, ranging from warbirds to RAAus aircraft. Female pilots from major airlines and flight training organisations spoke about their own flying experiences and RAAF recruiting representatives discussed the drive by the air force to increase their numbers of women pilots.

Organiser and Coldstream instructor, Theresa Macdonald said the 79 year old aviation hopeful was proposing to come back for lessons.

"This was return visit for her. She flew with us in 2014 and has spent the time since getting fit so she can start flying lessons."

It was a strongly supported community event with 13 volunteer pilots and 15 ground crew, as well as refreshments provided by the local Yarra Valley Men's Shed.

Theresa reflected on the success of the event and the enormous organisational effort which went into pulling it all together.

"Will we repeat it? It's like child birth. Immediately following the event, you think never again, but usually you end up with a large family. So I guess we will be back in the running next year."


A new pilot is born


Big smiles from a Chippy

As high as she'd go

Take-off (or landing – it was all the same)

All the mod cons

Flying a Scout

BY PATRICK BARFIELD

THE year was 1978 when young Air Force cadets, Bill Henman and I, enlisted in the RAAF Academy at Point Cook near Melbourne and dreamed about flying. We were impatient having to wait four years until our academic studies were complete before we could start our military pilot training. We'd heard about an amazing new cheap flying machine called a Skycraft Scout, built by Ron Wheeler, so we had to buy one to pursue our dream of getting into the air as soon as possible.

We bought the flying machine in Sydney and transported it to Melbourne on the roof of Pat's VW beetle, which was a great conversation starter at highway rest stops. But we needed to find a place to fly because the minimum aircraft rules at the time didn't permit flight across sealed roads or within 5kms of a government or licenced aerodrome. However with the permission from RAAF authorities, we were allowed to fly from RAAF Base Point Cook when there were no CT4 Plastic Parrots flying. The best time to fly was usually late afternoons when the wind died down, given the maximum speed of the Scout was about 40kts (downhill on a good day). It was similar to the performance of the first Bristol Box Kite biplane, which had flown from Point Cook 65 years earlier. We also had a maximum altitude of 300ft, which never posed a problem because our Scout couldn't fly out of ground effect.

> "Our Scout couldn't fly out of ground effect"

Bill came from a property in Barmedman in NSW and, during our leave periods, we would fly on Bill's property early in the mornings when the air was calm. Even with the relatively cool temperature in the morning, the density altitude meant most of our flying was skimming the tops of the grass. We barely had enough performance to climb over barbed wire fences.

I recall one hairy incident. The Scout had 2-axis controls only and the rudder worked via lateral stick. I had flown gliders where you normally hold into-wind aileron and opposite rudder in a crosswind take-off. So I instinctively applied into-wind stick and thought I was commanding aileron, but I was actually applying into-wind rudder which caused the Scout to ground loop and flip on its back, leaving me hanging upside down from the plastic outdoor chair with my seat belt. Fortunately, the only damage was a broken prop and dented pride.

When our four year wait was finally over, we learned to fly the military way and sold our Scout. Bill and I were fortunate enough to enjoy long military flying careers, logging thousands of hours in Macchi, Mirage and F/A-18 jets, which was a long way to come from our Skycraft Scout days. I'm pleased to say that ultralight designs and regulations have also come a long way since then. The wheel has turned full circle and I'm undertaking an RAAus conversion to fly a Super Petrel 100 LSA.

The stylish 70's

RAAus at a glance

KNOW YOUR ORGANISATION

45 MIN
Mandatory fuel reserve proposed by CASA in CD 15080S for all aircraft. RAAus has objected.

54
Average age of RAAus pilots.

20
The minimum number of hours to earn your Pilot Certificate.

30
The number of hours an average student takes to earn their Pilot Certificate.

5
Aircraft groups within RAAus -Three axis, weight shift, combined control, powered parachute and foot launched.

10
Minimum number of navigational training hours to earn your Cross Country endorsement.

10
The minimum number of hours as a Pilot in Command you need to take a passenger.

10,000 FT
The maximum height most RAAus aircraft are limited to in Australia.

5
Theory exams you have to pass to get your Pilot Certificate.

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2007 model. 475 hours TT. Excellent private aircraft or trainer. Cruise 115 knots on < 25L/hr. Lowest cost IFR. Can be flown on a RPL in a certified metal wing aircraft with a continental engine. Airframe in excellent condition. Recent bulk strip of engine. Contact David 0403 925 462.

4138 AUSTFLIGHT SB 582 DRIFTER

2 seater, can be used for training. 865hrs TT. Rotax oil-injected 2-stroke engine. Comps and bearing clearances within tolerances. L2 owned and maintained. Main skins UV treated, in excellent condition. Tailplane/fin covered in Ceconite. MicroAir 760 radio/intercom, 2 comfortable Icaro helmets. Full set of instruments front and rear. Always hangared. $19,900. Contact Steve 0410 301 210.

4146 SYNDICATE SHARE - FOXBAT A22LS

Syndicate share for sale. Long running, well-managed syndicate operates at Caboolture Airfield. Run by members for member's benefit. Current aircraft is Foxbat A22-LS. 100HP Rotax, Dynon instruments, Mode S transponder, Tundra tyres, centre stick, 700hrs TT. New aircraft arriving June 2016 – A32 Vixxen. Contact Ian McDonell 07 3886 5828 or 0448 777 025.

4147 AIRBORNE EDGE X REDBACK 503 WIZARD 3

$10,450 Negotiable – Wife wants it gone! Good condition, always hangared. All maintenance current. Pleasure to fly, short runway requirements. Includes – VSI, EGT indication, compass, battery/wiring for constant charging, intercom, VHF, stone-guard, helmets, headsets, freezer suits, heavy duty binnacle and base cover. Contact Rick 0408 485 629.

4197 EUROPA CLASSIC

Europa Classic, 71 total hrs. GA registered but can be Registered RAA. Full GA panel electric trim, AH, DG, transponder, Icom radio with intercom and strobe. Comes with purpose built trailer, two new ANR headsets (pilot with Bluetooth). 125kt cruise on 13L/hr. $60,000. Fantastic to fly. Contact Tony 0429 132 128.

4221 MORGAN CHEETAH

Cheetah Aircraft - almost completed. 100hp BMW Powered Cheetah. 3-blade warp drive prop, grove undercarriage, wheels and brakes with differential steering thru Cessna Pedals. All metal wings. VFR instrumentation. Empty Weight 326kg MTOW 545kg. $25,000. Contact 0428 241436 or email farhills@bigpond.net.au.

4247 JABIRU LSA

Great little plane, always Level 2 maintained. Fresh engine rebuild with updated through bolts fitted. Mechanically very good 10/10. Body 7/10. All new control rods, Solid lifter engine, Cold start kit fitted, ICOM radio, Transponder mode C. Hangared in Ballarat VIC. $24,800 (inc GST) Call Rudi on 0438 402 254.

4433 JABIRU 170D FACTORY-BUILT

Jabiru 170D factory built mid-2013, as new condition, leather seats, 225 hours, generous warranty work and upgrades by Jabiru make the engine in as new condition, standard dash with fuel flow gauge and inside/outside air temp, cruise 102KNTS, very reliable, always hangered. $57,000. Located Northern NSW. Contact Peter 0418 654 938 or 07 5590 4313.

4434 TECNAM P2002 SIERRA LSA

Beautiful cruising, factory-built LSA aircraft. Nil

accident history. Brand new Rotax engine, only 450hrs TT. Always L2/LAME maintained, complete logbooks. Oil/fuel hose replacement recently completed, fresh 100 hourly completed Feb 2016. Great condition inside and out. $89,500. Contact George 0474 007 371 or tecnam.7086@gmail.com.

4450 X-AIR STANDARD

Aircraft in excellent condition, always hangared. Great local run-about. Operates easily from 300m grass strip. 50 hours TT. Rotax 582 UL DCDI Mod99 engine with oil injection. Type E gearbox 3:1 ratio. Bolly Bos3 60p x 72d prop. Standard instruments. VHF/UHF so good for mustering. Need space for new project. $27,500. Contact Jeff 0400 505 058.

4492 AIRBORNE XT912 TOURER

Microlight with SST wing. 313hrs, only 79hrs on new SST wing – flies beautifully. Hangared at Warnervale, Central Coast NSW. Full history. Engine starts easily and runs smoothly. Extras include – Microair radio, intercom, helmets, headsets, BRS parachute, big windscreen. Trailer available. $40,000. Contact Jason 0403 578 408.

4497 JABIRU UL

Excellent condition inside and out. Always hangared. Performs beautifully. Jabiru 2200 80HP aero engine – 255hrs TT. Standard instruments – vertical speed indicator, turn and bank, VHF radio, emergency locating beacon. $28,000. Contact Tom 0449 210 122.

4502 FLIGHT DESIGN CTLS

2008 model. Excellent condition, 250 hours, 600KG MTOW. Always hangared. Maintained by L2. Recent annual, BRS re-pack and Rotax 5 year rubber replacement. Leather seats, Matco brakes, Garmin 695 GPS, SL40 Radio, GTX 327 Transponder, Dynon D100 and D120, TruTrack Auto Pilot, Punkin Head Covers. $109,800. Contact Bruce 0412 209 953.

4503 FOXBAT A22LS

Aircraft owned by long-running syndicate and has been well-looked after and maintained. Aircraft available mid-2016 when syndicate's new aircraft arrives. Located at Caboolture airfield. 100HP Rotax engine, Dynon instruments, Mode S transponder, Tundra tyres, centre stick, 700hrs TT, as new interior/exterior. $85,000 ONO. Contact Ian McDonell 07 3886 5828 or 0448 777 025.

4515 ROTAX 618 74HP ENGINE PACKAGE $6,500

Complete with type E 2.58:1 gearbox, two radiators and hoses, fuel pump and lines, all mounts, heat shield and muffler system. No propeller. 90 hours since new. Has been hangared, unused on plane for past five years. Will need checking over by qualified mechanic and most hoses replaced. Buyer to arrange pickup and shipping. $6,500. Contact Graeme 07 4129 4212 or 0448 047 382.

4536 FLIGHTSTAR IISC

MUST SELL brand new Flightstar IISC. Has been assembled with excellent attention to detail. Fully enclosed cabin, dual controls, custom carpet interior, Falcon instruments, in-flight trim, brakes and mylar coverings. Plane is not fitted with an engine and will be sold as is. Will consider any reasonable offer. Phone: 0412506242

WHERE IS
CAGIT?

CAGIT REMAINS IN THE NORTH

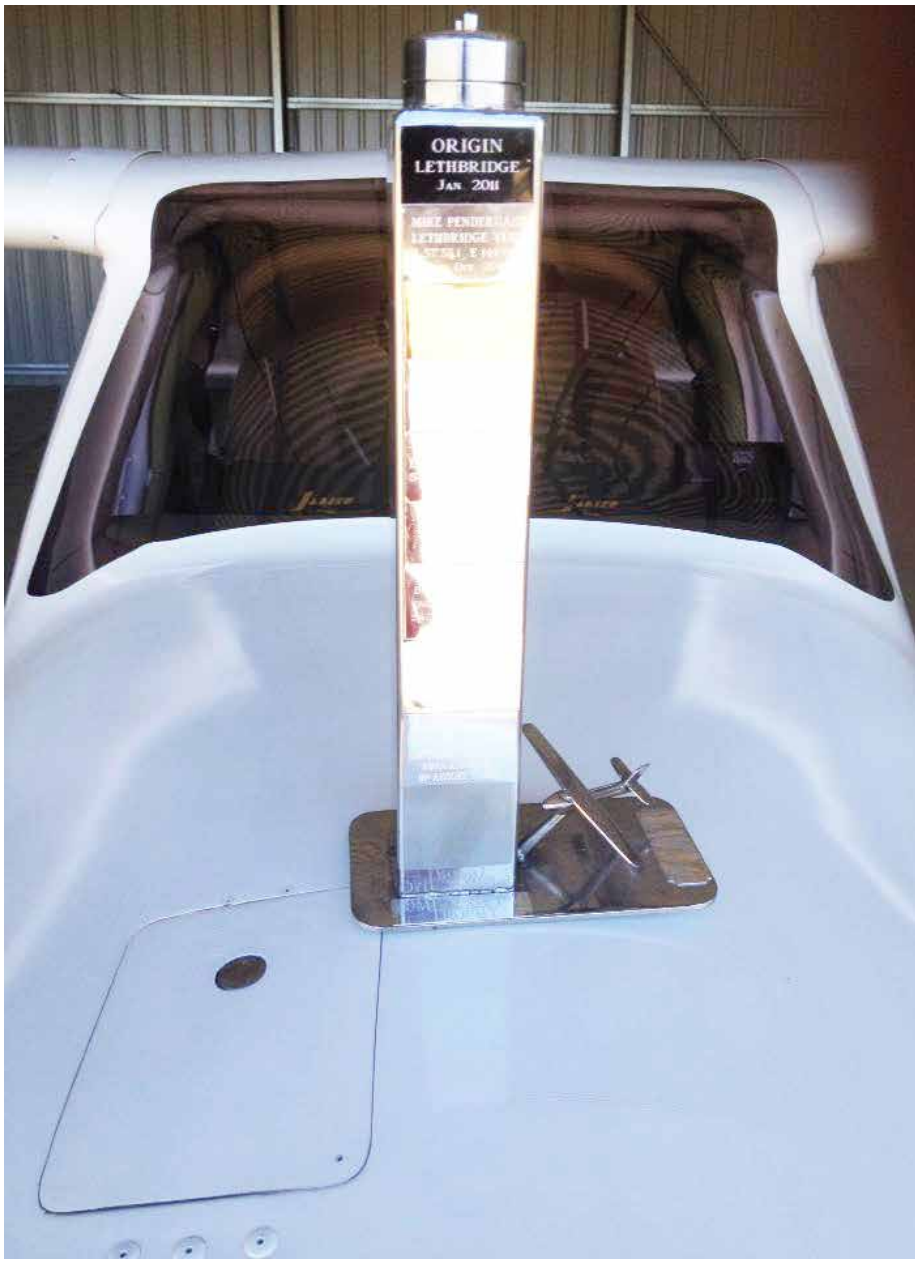
The Come and Get It Trophy remains in the north of the country. John Gotts and Rene Smit took the trophy from David Carroll of Central West flying at Bathurst in September after an epic journey from the Northern Territory in their Jabirus.

The trophy now resides at MKT, Noonamah. By the look at the maps it's a hard slog from anywhere in the south, if you are thinking of making a go for it.

You can talk to them (Rene on 0437 272 645 or John on 0414 486 580 (john@candrconstructions.com.au) if you think you have what it takes to grab the trophy for yourself and take it home.

For a full list of the rules about capturing the CAGIT, visit raa.asn.au/events/cagit-trophy.

Also Dexter Burkill's great Facebook page is a valuable resource. www.facebook.com/cagithunters?ref=hl



ADVERTISERS INDEX

FOLDING ELECTRIC BIKE

GET from the airport into town efficiently and be green about it. The new Pedego Latch folding electric bike is the way to go.

A belt drive provides a seamless, quiet ride with no messy chain grease. Internally geared hub for easy pedaling and smooth shifting – even at a complete stop. Folds to a compact 83cm x 45cm x 81cm. Weighs just 23kgs (19kgs without the battery).

Five levels of pedal assist mode for a more natural riding experience. LCD display with USB charging port for your phone and other devices. Geared motor delivers best-in-class acceleration and hill climbing. Lightweight, long lasting lithium battery with Samsung cells. Disc brakes, twist-and-go throttle for full power on demand and self-sealing tubes help prevent flats.

- **PRICE:** From USD$2,595.00
- **WEB:** www.pedegoelectricbikes.com

PHONE MOUNTING SYSTEM

GPS/PHONE case releases instantly with the push of a button so you can safely take your GPS/phone with you. High quality touch screen. Swivel mounted for easy angle adjustment.

Various sizes. Supplied with a rain cover.

- **PRICE:** $79.95
- **WEB:** www.skyshop.com.au

NEW SPIDERTRACKS FEATURES

SPIDERTRACKS is still setting the pace for real time tracking of your aircraft. The company has announced four new features for its popular system. The new features are centered on delivering more data to the operator and improving communications.

A Spidertracker transmits your position every one or two minutes to the cloud which can be monitored by anyone you nominate in real time. Now the system will also send information about how the aircraft is flying in nines axes (three-axis Gyro, accelerometer and compass) at a 1Hz sampling rate. It is also now possible for two way text communication with the cockpit unit from anywhere in the world.

- **PRICE:** Base unit from USD$995.00 (Plus you'll need to pay for messages)
- **WEB:** www.spidertracks.com

NEW GARMIN PORTABLE

ADVANCED avionics in a portable package. Feature-rich navigation, stunning display and streamlined data updating. The aera 660 has a compact capacitive touchscreen with a bright, sunlight readable display complete with rich, interactive maps and a built-in GPS/GLONASS receiver which can be viewed in portrait or landscape modes.

The aera 660 encompasses many of the features of the aera and GPSMAP aviation portable series, adding new Connext wireless capabilities and more.

Bluetooth supports the display of ADS-B In traffic from a variety of sources, including the GDL® 39/GDL 39 3D, Flight Stream and the GTX 345 ADS-B transponder.

- **PRICE:** AUD$1,299.00
- **WEB:** www.skyshop.com.au

Hybrid electric powers up

THE era of electric powered air travel is closer with the switching on of what its manufacturers call the world's most powerful hybrid electric powertrain for aviation.

The Hypstair engine is a 200 kW propulsor developed by Pipistrel which delivers the power equivalent of a typical general aviation piston engine and can run in three modes: electric-only (using batteries), generator-only or hybrid mode, combining both power sources. It is designed to deliver 200 kW for take-off and 150 kW in cruise.

A single lever, with haptic feedback, is used to apply power and an integrated cockpit display monitors the powertrain status and performance.

The first power-up of the new engine trialed all propulsion modes at low and high powers, driving a specially developed five blade low rpm, low noise propeller.

Pipistrel CEO, Ivo Boscarol, says: "Project Hypstair represents a major step in the direction of a hybrid aircraft and an opportunity for Pipistrel and other general aviation aircraft manufacturers."

For more information, http://www.hypstair.eu.

SEND IN YOUR STORIES

Got an aviation moment you'd love to share? Your kids or maybe your club get together? Send a photo as a jpeg attachment and a short explanation to editor@sportpilot.net.au

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