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RECREATIONAL AVIATION AUSTRALIA / JULY 2016 VOL 59 [7]

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Photo: Aeroplanes DAR

ON THE COVER

"DAR's history as a kit supplier shows in its approach to manufacturing"

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COLUMNISTS

NEWS

NEW CONSTITUTION

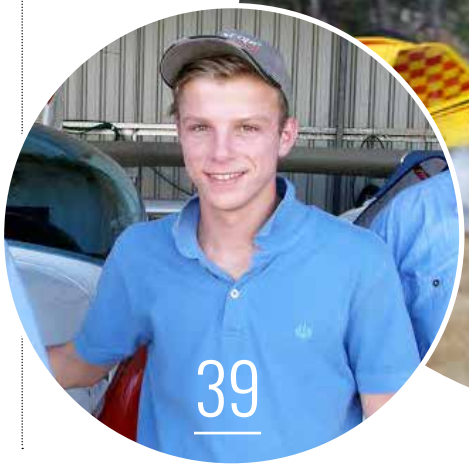
READERS' STORIES

FEATURES

MAINTENANCE

FLY-INS

EXTRAS



Sport Pilot Magazine is an official publication of Recreational Aviation Australia Inc. and is published twelve times a year by Stampils Publishing.

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ADVERTISING SALES
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MAGAZINE SUBSCRIPTIONS
Non-member annual subscription rates – postage included – are $110 (Australia) and $500 (international), being for 12 issues. Payments to be made out to Recreational Aviation Australia Inc. Po Box 1265, Fyshwick, A.C.T, 2609 Australia and related enquires to admin@raa.asn.au.

ONE MAGAZINE TWO FORMATS

RAAus members get *Sport Pilot* free of charge online at www.raa.asn.au. But if you are not a member or would prefer a hardcopy magazine, here is how you subscribe.

MAGAZINE SUBSCRIPTIONS

CATEGORY	6 MONTHS (6 ISSUES)	12 MONTHS (12 ISSUES)	24 MONTHS (24 ISSUES)
Member (flying)	$50	$90	$160
Member (non-flying)	$50	$90	$160
Non-member (Magazine Sub only)	$60	$110	$220

Prices include GST.
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Two way streets

BY MICHAEL MONCK

Pilots often ask RAAus and their fellow pilots to trust them. "Believe me, I know what I'm doing", they say. And we do believe them because this organisation was founded on the co-operation and trust between like-minded aviation lovers.

But as the organisation has grown, there are more and more people involved who we might not know well and might not necessarily trust. Over time we have had to put systems in place to tell if everyone is following the rules, that everyone is maintaining their aircraft properly and that they're telling us truthfully what we need to know to make the organisation run legally and successfully.

But trust is a two way street. And you need to know you can trust us too.

RAAus is going through a transformation process which will embody this principle and place more faith in members. In the past I have spoken at length about about RAAus overseeing CFIs, CFIs overseeing instructors, instructors overseeing members and so forth. There's not much point rehashing that here in detail except to say we are still heading in that direction.

We have manual revisions coming out shortly, these are great stepping stones. We'll be slowly rewriting things from the ground up and creating new learning materials, so members can do what they're meant to do without having us leaning over their shoulders. We'll be placing trust in everyone. But we also need to earn your trust.

As a first step, I'm going to level with you. We haven't done a great job on some things lately.

As a board, we consider a lot of issues from finances to IT, rule changes to safety matters, scholarships and awards. The problem we have is that historically each of these things was done in isolation which created problems and increased everyone's workload. We recognised that, so we are changing how we govern to ensure we have visibility of the overall business. The constitutional reform was the first step in this process.

> "We also need to earn your trust"

But, surprisingly, the way the board operates has not always guaranteed the best results for the organisation. We have a dedicated staff which wants to achieve amazing things for the organisation. As a board, we give them the green light to do things and then expect them to deliver. Modernisation, communication reform, rewriting manuals, balancing the budget, improving safety, delivering a training framework. All big projects and the list goes on.

The issue is that we have been approving one thing, then another, and then another. The list has grown longer and longer. And it has ended up placing unreasonable expectations on the staff. Most of the time they deliver without any problems, but when you stretch something to breaking point 'something's gotta give'. Unfortunately we almost broke our staff.

Recently there were two examples where simple typo mistakes caused potentially big problems. The cause was too much work for the staff member and not enough time to double check the results.

To give you another example. The Technical team is a small group so its workload is high. The office people work primarily with members on routine tasks, like registration renewals and aircraft transfers. The Tech Manager and Assistant Tech Manager deal with the tricky stuff. On top of this, they have been tasked by the board to deliver all of the following projects - finalising the first round of MARAP applications, preparing a case for CASA to consider increased weight for our aircraft, investigating a new category of aircraft to give owners more flexibility, rewriting the Tech Manual, exploring ways to assist people with a low cost way to perform weight and balance checks, investigating an easy way to calibrate ASI and altimeter instruments, working on new training material, conducting another aircraft audit to appease CASA, investigating accidents and running normal business with member's inquiries. Phew.

The workload for Ops team is no different. And the Safety team. As it is with the organisation generally.

We've been ambitious but it's time to rethink some of our strategies to reduce the risk of errors. We need to pace ourselves a little better. It's a bit like flying at VNE all the time. It's fine on a good day, but if you hit turbulence something will probably break.

RAAus has been going flat out for a long time. A few years ago we hit turbulence and bits began falling off. We were lucky and had what might be described as a forced landing. Most of us walked away unscathed. A few scratches and bruises here and there but, in general, we fared pretty well. Like any pilot we have had to learn from that experience.

Our request to CASA for access to controlled airspace and increased all-up weights for RAAus aircraft will be delayed. I know that won't please many people, it doesn't please me. That said, I want two things to come from it.

Firstly, when we do these things, we should do them properly. We don't want to be so rushed and fatigued we make silly errors and jeopardise the entire process. We'll tick the boxes, start a process and deliver what we promised. We'll just deliver it a little later than we first planned and, at the same time, improve our chances of success.

Secondly, I want people to see we're not hiding these things. Despite the rumours floating around some club rooms, and online chat sites, there's nothing sinister going on. We're just a bunch of people, not unlike you, working hard to get things done. But we set some stretch goals for ourselves that were, in hindsight, too ambitious and we don't want these goals to haunt us. So we've made the decision to change the way we do things. Slow down. Take more care. Double check. Improve. Learn. And we will deliver what we promise.

So trust us.

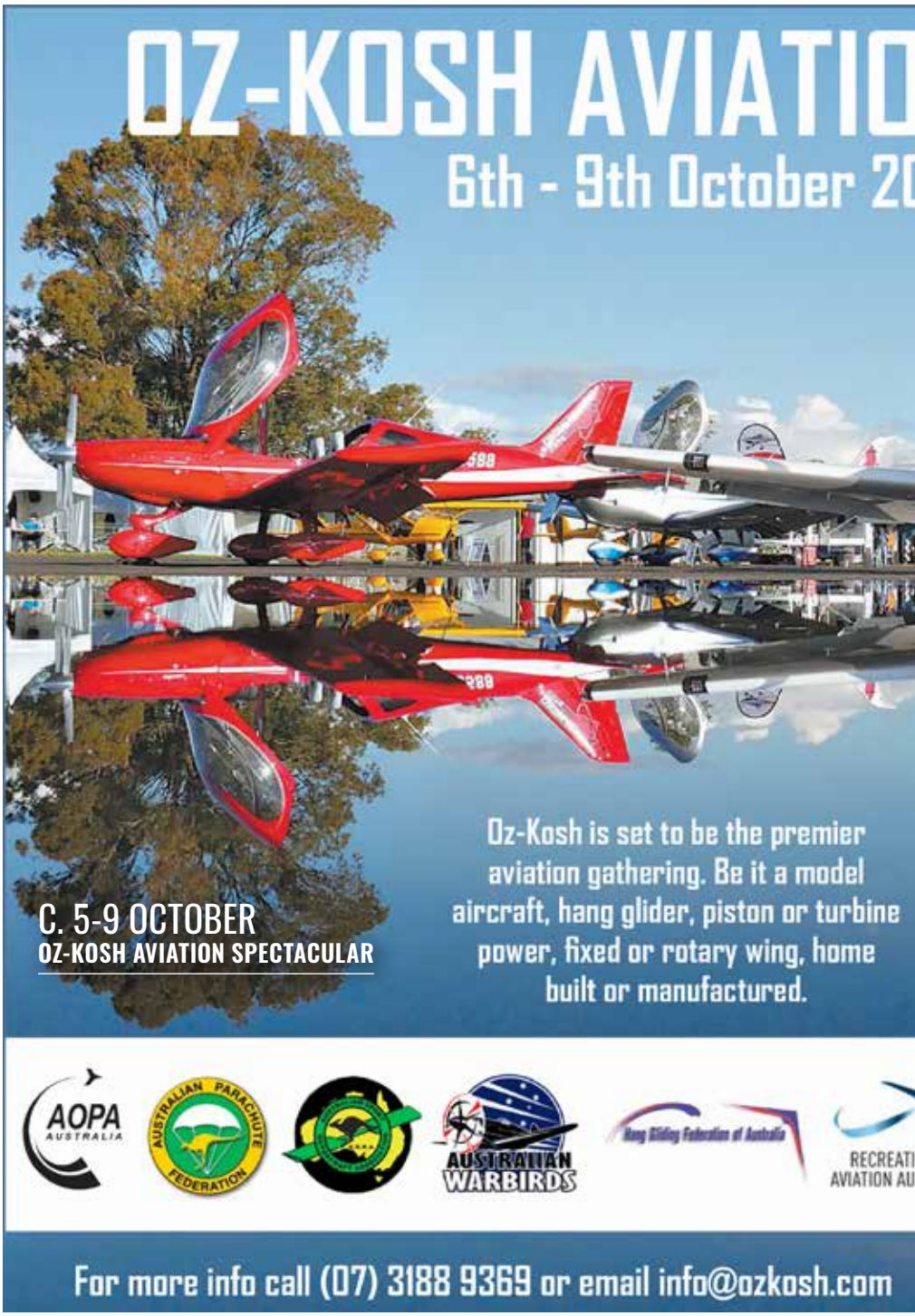
After all, trust is a two way street and we're all on the same side of it.

A. 17 JULY
LOXTON FAMILY FLY-IN AND BBQ

Loxton puts on a fun, friendly and relaxed fly-in/drive-in with BBQ every third Sunday of the month. All aviators welcome.
For more information, Kerrie Palamountain (08) 8584 7790, 0409 847 790 or kerriepal@bigpond.com.

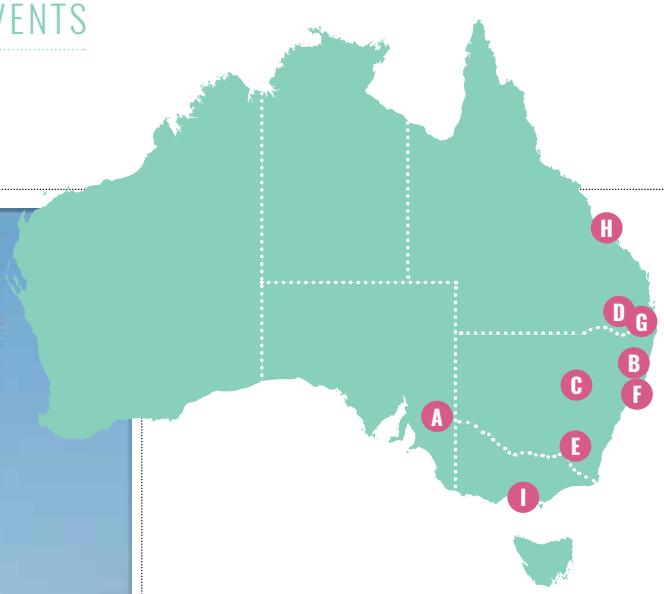
B. 14 AUGUST
GRAFTON WINGS AND WHEELS

Grafton Aero Club will host its 4th Open Day from 10am to 2pm and expects it to be much bigger this year. Includes hot rods, classic, vintage, sports, touring and race cars, plus go-karts, motorcycles, model aircraft, etc. Also exhibitions and demonstrations of stationary engines, blacksmiths and various things from the Men's Shed. Warbird and adventure flights, as well as joy flights.
For more information, http://graftonaeroclub.com/wings-and-wheels.



D. 27-28 AUGUST
GATHERING OF EAGLES

Watts Bridge Memorial Airfield invites everyone to be a part of its annual fly-in. Air show displays, parachute drops, expect to see a huge variety of aircraft types including warbirds and WW1 and WW2 replicas, vintage, aerobatic and homebuilts. Also vintage and military vehicles on display, WW1 and WW2 military re-enactors and other exhibits. Sat evening is a gourmet BBQ and music. 100LL Avgas available. Admission for pilots and aircrew is free with no landing fees. Camping available. For more information, Bruce Clarke 0488 336 762 or visit www.wattsbridge.com.au.



G. 8-16 OCTOBER

SKYDIVE RAMBLERS EQUINOX BOOGIE

Australia's biggest international freefall and music festival. Held every two years. Including night skydiving under the full moon and concerts. New skydivers welcome. All jumps filmed and shown on the big screen. Food, cocktails, swimming. For more information, www.ramblers.com.au.

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.

E. 10 SEPTEMBER

WAGGA CITY AERO CLUB OPEN DAY

The Annual Open Day will feature parachuting, free flights, BBQ, Young Eagles, vintage cars, Cirrus aircraft display. For more Information, http://waggacityaeroclub.com.

F. 1-2 OCTOBER

WINGS OVER MACLEAY

The regional air show will be held at Kempsey Airport as a fundraising event to support local mid north coast charities. It's the first event of its kind for the area. The local council has recently spent $2.5 million to make the airport a fully serviced aviation business park. The air show will be a family-fun day. Food, drinks and coffee on-site. For more information, www.wingsovermacleay.com.au.

I. 22-23 OCTOBER

INDOOR FLYING EXPO

Channel 31 newcomer "The Flying Show" will host a first-of-its-kind indoor aviation expo at the Melbourne Showgrounds. Exhibits will showcase the history of aircraft, including John Delaney's Wright Brothers Flyer replica project. Also exhibits on powered parachutes, gliders and paragliders, RAAus aircraft, model and hobby aircraft, drones, flight simulators, skydiving, hot air balloons and parachuting. More information, theflyingshow.com.au.

JOIN THE FLEET OF 1,000 JABIRU FLYING IN AUSTRALIA (AS MANY AS CESSNA 172) AND 2,000 IN TOTAL AROUND THE WORLD

DEAR JABIRU FLEET YOU WANT TO FLY WE'RE HERE TO HELP

The recent CASA limitations have had a crippling effect on Jabiru owners and operators of many flying schools and the Jabiru company. It has been a very painful and expensive exercise for everyone involved. From the start, Jabiru provided statistics and data on design changes that had been implemented some three years prior. The knee-jerk actions taken by CASA to appease the vocal few has done naught to improve safety and reliability of Jabiru.

Why? Because Jabiru was and still is the proven market leader for safety, reliability and performance.

We know you all want to fly. With a country as big as Australia to enjoy, Jabiru is the only way to go. Robust and reliable with fuel consumption a fraction of bigger aircraft, you can make your dollars stretch further. Jabiru delivers a superior combination of safety, reliability and performance. Why fly anything else!

NOW IS THE TIME TO PLAN YOUR NEXT ADVENTURE IN A SHINY NEW JABIRU

Sincerely,
Rodney Stiff
Managing Director

Jabiru Aircraft Airport Drv, Bundaberg Q 4670 Ph +61 (0)7 4155 1778 Fax +61 (0)7 4155 2669 info@jabiru.net.au www.jabiru.net.au

LETTERS TO THE EDITOR

SIGHT UNSEEN

Dave Edmunds' dealings with CASA over the Jabiru operational restrictions seem to be symptomatic of a government department lacking oversight and direction. Not an unbelievable situation, given the organisation's history and failure to have its own minister for many decades. If, as Dave says, that "no document related to the decision-making process within CASA existed", then how did this situation come to pass? Does the relevant documentation have a 'top secret' or 'eyes only' classification? The inference must be that bureaucrats came up with their decision to create the instrument over a latte or two or, in extremis, plucked it out of their nether regions.

It wouldn't be the first time transparency has seemed like a novel concept to government bureaucrats, which underlines the importance of ministerial oversight. After all, he or she is the one who eventually takes the hit at the ballot box as a consequence of the actions of functionaries.

STEVE MCGUIRE

THE THING ABOUT STING

On page12 of *Sport Pilot* June 2016 is a very good article on Mud Wasps. However, the photo is of a European Wasp. If this type is inside your aircraft, don't get in with him because he bites and keeps on biting and he hurts to the point where your safety comes into question.

A Mud Wasp is a little bit different. If you find one inside your aircraft, he has been up to no good, because what he does is this. He is a predator of spiders, which he uses as food for his young. To capture a spider, the Mud Wasp grabs it and stings it. The venom from the sting doesn't kill the spider, and the wasp lays an egg on the spider while it's paralysed and preserves it so it can then be transported and stored in the nest of mud, which he makes in the pitot tube of your plane. Then life gets interesting for you. There are many types of Mud Wasps in Australia but they all like doing the same thing. https://en.wikipedia.org/wiki/Mud_dauber

We also have European Wasps in Australia, which like anything sweet and can get inside a bottle of soft drink and then sting your throat if you try to drink from the bottle. This can be life threatening because of the swelling from the sting. They usually build their nests in the ground, using paper which they manufacture from wood.

ARTHUR BOYD

***FROM THE ED** / Yipes, thanks for that, Arthur.*

STUDENT OWNERS

I have a question that has been puzzling me for a while. I have done the L1 exam and passed. Does this mean that I can maintain my plane? I read somewhere that you can only start to maintain an aircraft after you get your Certificate, but was this rule put into place assuming the majority of students probably do not own a plane?

Because I own a plane and am quite capable of doing the regular maintenance, why can't I?

I have gone solo and have approximately seven and a half hours to go before I get my Certificate (if I pass).

I know I do not have long to wait, but for the sake of knowledge, I want to know if an aircraft owner who is also a student can maintain their own aircraft after having done the L1 exam. If not, why not? And is there something being done in the future to rectify this situation.

It is very hard in remote areas like Tasmania, where there are few qualified maintainers, to find one when needed. It seems ridiculous that if a student owner is qualified do the maintenance, why should they have to wait until they get their Certificate?

DEBBIE STEWART

***FROM THE TECH DEPT** / Currently the only endorsements a student pilot can hold are human factors and radio. The L1 endorsement is not granted until you gain your Pilot Certificate. RAAus continually reviews endorsements but, at this stage, we are not planning any changes to the way the L1 endorsement is granted.*

URL BE WELCOME

I've been meaning to drop you a note to see if we can assist readers of *Sport Pilot* with these huge URL's you use in the magazine.

Take for example Page 12 this month (*Sport Pilot* June 2016):

https://www.casa.gov.au/files/awb-02-052-issue-2-wasp-nest-infestation-alert

If you go here - http://tinyurl.com/ - and drop in any URL, it will be shortened significantly and enables fewer mistakes to be made when entering.

Here is the same address after being put through the site: http://tinyurl.com/hp46825.

Simplicity at its best.

IAN MCDONALD

***FROM THE ED** / Great idea Ian. We'll try it out starting next edition and see if it's easier for people.*

AGREEING TO DISAGREE

I cannot allow you to have the microphone without responding (Letters to the Editor *Sport Pilot* June 2016).

My comments to you were in response to articles and responses you submitted to letters written to the editor.

I am a member of RAAus (not by choice) and I am entitled to receive the magazine you publish. I also contribute (by way of subscription) to the cost of the print and taking it one step further, I assume, your fees.

Therefore I am entitled to disagree with what is printed, especially if you take swipes at CASA and encourage bad Airmanship by way of example. You may not have entered controlled airspace, but to enter controlled airspace to save your life would only mean poor planning or bad Airmanship!

You are the Editor. Who else should I write to? My letter was not heavily edited. You made it sound as if I personally had a go at you. Don't print rubbish (in my opinion) and I certainly won't write in.

If you wish to publish this letter, it's entirely up to you, but if you do and there are errors, I will certainly respond. On the other hand, if you wish to contact me personally, you have my e-mail address.

I look forward to your next issue.

GIANCARLO BERTELLI

***FROM THE ED** / Whether I like you to write in or not is by-the-by (I do like it). You are an RAAus member and therefore entitled to have your say. As you can tell, I have a thick skin and, as I said last month, I encourage robust debate within these pages. The robuster (is that a word?) the better as far as I am concerned. I was merely correcting you when you accused me of having violated controlled airspace, which I haven't (yet).*

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).

STOP PRESS

CASA RELENTS ON JABIRU

BY BRIAN BIGG

Just as this magazine was about to go to the printers, CASA announced it was finally prepared to lift its restrictions on some Jabiru aircraft.

In a draft proposal sent to stakeholders just before the expiry/renewal of the original Instrument, CASA presented a take-it-or leave-it proposal which would allow some Jabiru aircraft to fly unrestricted again after June 30.

Its draft says the limitations will continue unless a number of conditions are met - most of which involve the owner confirming their aircraft complies with all the latest maintenance schedules and Jabiru Service Letters. For aircraft which do not comply, the limitations will continue as before.

Jabiru has cautiously welcomed the proposal while expressing its disappointment at being told that if it objected to anything within the proposal, it would have jeopardised its adoption on June 30. For its part, RAAus says it will continue to push for ongoing assessment and lifting of restrictions for aircraft fitted with Jabiru engines and is committed to keeping members informed of all changes.

We'll have much more on this breaking story in the next edition.

WATERY FUEL

The recent spate of wet weather along the eastern coastline has sparked a warning from CASA about the dangers of allowing water into your fuel.

"Water in fuel results in loss of engine power, rough running and engine failure", advises CASA.

"There are a range of problems, including water entering the fuel tank through a faulty cap, water contaminated fuel pumped into an aircraft, unintended water retaining ridges in the bottom of fuel tanks and flawed water drain location. Poorly executed post-refueling and pre-flight water checks also lead to risks."

As part of an updated airworthiness bulletin, CASA makes several recommendations, including during pre-flight inspections and after every re-fuel, checking locks and latches for correct operation and to make sure the cap is tight and secure when closed/locked.

"When fueling from drums check expiry dates and use a filter. When refueling from jerry cans use an electrically conducting funnel equipped with a serviceable micro filter. Drain samples of fuel from the tanks in accordance with the approved data and be familiar with all drain locations on your aircraft. There is no single point of drainage that can be used to check for all fuel system contaminants simultaneously, so always take the time to properly check all drain locations."

For more information casa.gov.au/files/awb-28-008-issue-2-water-contamination-aviation-fuel-avgas-mogas.

WHAT IS OZ-KOSH?

BY BRIAN BIGG

***Sport Pilot* readers will have noticed several references in the past two months to a seemingly new aviation event in Australia called Oz-kosh.**

So we asked the SAAA for more information about it. Turns out it Oz-Kosh is Ausfly rebranded. Oz-Kosh will be held at Narromine in central NSW on October 6 – 9.

The event, supported by RAAus, wants to become Australia's premier aviation gathering.

According to SAAA, "The aim of Oz-Kosh is to provide a single place where anyone with an interest in anything that flies can come together to share their passion with a likeminded community.

"If you are a club, society or type group, your involvement at Oz-Kosh is not only welcome, it is vital for its success.

"Oz-Kosh will provide a forum whereby your association and its members can:

- Run and participate in seminars, how-to forums and builder's programs;
- Participate in seminars and forums put on by other clubs, exhibitors and industry suppliers;
- Have a central meeting place where you can meet and share your aviation passion with other interested aviators;
- Have a central place where industry and industry specific suppliers can come and demonstrate and exhibit their latest offerings and technologies;
- Have a place whereby your members and fellow aviators can come and meet industry representatives and regulators.

Oz-Kosh will only be successful if the aviation industry invests and gets behind it. The event will be established as a non-profit organisation, where foundation member organisations will share in any net proceeds for use to foster aviation in Australia.

For more information www.saaa.com.

James Nation receiving his award from Michael Monck

UNDO

In *Sport Pilot* June 2016 in a story called 'GYFTS breaks another record' we credited the wrong James.

In the story and photo we said James Reginato from Victoria was at the ceremony and received his award from the President, Michael Monck. It should have been James Nation from Tasmania.

Tocumwal airfield By Robert Pyne

HERITAGE FUND OPENS

RAAUS' special fund to help identify and preserve the history of recreational and ultralight flying in Australia is now accepting applications for support.

The board made a decision last year, when AUF/RAAus turned 30, to set up the Heritage Fund using $20,000 from reserves, as a gesture and a means to encourage members to do their part.

Projects such as restoring aircraft, curating museums dedicated to light aircraft and the Australian ultralight movement, and other heritage based projects, were able to apply for funds from July 1.

The distribution criteria for the fund was approved by the board at its meeting in Canberra in May.

The types of grants available include:

* a matching dollar for dollar grant from $500 to $2,000 for restoration work done by a private individual(s), who is/are a member(s) of RAAus, to an historically significant RAAus aircraft that is or are of a type that could or can be registered with RAAus;

* a grant from $500 to $5,000 for museums housing historically significant RAAus aircraft for restoration or repair works on aircraft that is or are of a type that could or can be registered with RAAus;

* a grant from $500 to $5,000 for museums housing historically significant RAAus aircraft for works directly related to aircraft that is or are of a type that could or can be registered with RAAus;

* The board may, at its discretion, approve grants in excess of $5,000, however, such decisions are limited to once per year and in no case may grants total more than half of the available funds to any single project.

For a full set of guidelines and an application form, visit the RAAus website. The first round of applications closes on July 31.

Members can contribute to the Heritage Fund by making a donation when you renew your membership or registration. When you click on the website, you will see an option there to support the fund. 100% of the money you donate will be allocated to heritage-based projects.

If you're not due to renew your membership or registration, or if you aren't a member but would still like to contribute, phone the office (02) 6280 4700 and the staff will help you.

OPS AND TECH MANUALS

The lengthy and difficult process of updating and publishing new versions of the Operations and Technical Manuals is finally drawing to a close.

At its meeting in Canberra in May, the board reached agreement on the finalisation of both manuals. At the time this edition went to print, staff in the office were putting the final touches on both manuals with an expected publication date of the end of June.

According to Michael Linke, CEO "Given the Technical Manual is a complete rewrite, a phase in and comment period for members will run for six months from the release date.

"The Operations Manual is an incremental release and changes have been widely consulted with relevant members already and, as such, changes will come into effect immediately upon release."

Check the website for the latest versions.

FEES GO UP

At its meeting in Canberra in May, the RAAus board took the difficult decision to increase fees. Membership and aircraft registration fees will increase by $5 from July 1.

The board says the decision was taken to reduce the pressure on the financial deficit and protect the organisation's reserves.

CONTROL YOURSELF

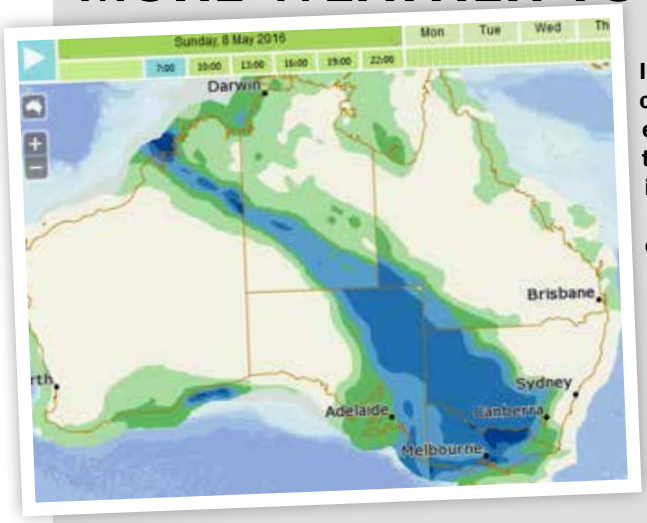
RAAus is soon to make its eagerly awaited application to CASA to allow RAAus pilots access to controlled airspace.

At its meeting in May, the board endorsed the progress staff had made in preparing the application. It also endorsed their work on another application asking CASA for an increase to the maximum allowable take-off weight for aircraft administered by RAAus.

Both applications were due to be submitted to CASA by the end of August. There is no indication how long CASA will take to review them or if there is any realistic likelihood of them being approved.

RAAus has promised to keep members up-to-date on progress.

MORE WEATHER TOOLS



BY BRIAN BIGG

In *Sport Pilot* June 2016 intrepid outback pilot, Rick Frith, reported on a new suite of weather tools available to pilots venturing away from home.

I became an instant addict to one of them mentioned by Rick called Meteye and told him so.

In reply Rick provided more information which I pass on.

"In hindsight, I should have pointed out one shortcoming of MetEye," he said. "It only shows winds at ground level, not winds aloft."

"The old site: http://www.bom.gov.au/australia/charts/viewer allows you to select wind speed and direction at surface, 850hPa (FL050) or 700hPa (FL100).

"It also shows Australia wide for a week at six hour intervals or each state for three days at three hour intervals. I have used it several times to check potential headwinds and planned fuel reserves before a desert crossing a few days in advance.

"Also, I should have noted the cloud height formula is only relevant if the air is unstable. If stable, clouds do not usually form, irrespective of the dew point difference."

For the full story, refer to Rick's excellent article on weather tools in *Sport Pilot* June 2016.

MEETING MEMBERS

The senior officers of RAAus have continued their journey to meet as many members face to face as possible. In May, the CEO, President and the Operations team went to Adelaide and Tamworth to hold members' forums.

The forums discussed the constitution and were a chance for members in both centres to ask questions and let RAAus know about where they hoped to see the organisation in the future.

CEO Michael Linke said the turnout in both places was very good considering the short notice. President Michael Monck said it was planned to hold more forums like this around the country on a regular basis.

The forum at the Tamworth Aero Club was timed to coincide with the GA protest rally at the Tamworth airport the same day.

Member's forum Evans Head

Member's forum Holbrook

ONE GROUP

FROM TIME TO TIME WE MIGHT SEE EACH OTHER AS FOES, BUT THE OVERWHELMING SUPPORT FOR CONSTITUTIONAL REFORM RECENTLY PROVED OTHERWISE.

As an organisation we seek unity. We want one organisation. One group of members. A group of people with a passion for the skies. Whether you instruct, build, maintain, fly, govern, process payments, implement safety programs, answer the phone or write policy, you are part of the RAAus family.

We are here together and we need to live together with tolerance and respect. Our only boundaries are how we see ourselves. Our only borders are how we see each other.

As Mick, our President, says this month we trust you and we want you to trust us. The overwhelming support for the constitutional reform is demonstrative of that trust, so we are starting from a great place as RAAus enters a new era.

Soon we will be looking for four more directors to join the team. We will be talking to members about how we manage disciplinary processes, our OMS will start to tell us how we can better inform and educate everyone and our commitment to technology will continue as we add features members have asked for.

Let's continue the conversation on safety. We will celebrate National Safety Month in October and, between now and then, we want to keep talking safety. The most recent issues of *Sport Pilot* have highlighted our maintainers, the often unsung heroes of RAAus. We've heard from a number of them about their commitment to RAAus. We now turn a focus to safety.

Our safety messages keep our pilots and instructors safe, as well as informing our maintainers on key safety findings and lessons learned. We share these on our website, check it out at www.raa.asn.au. Additionally the next few issues of *Sport Pilot* will feature even more key safety messages. Keep an eye out for them or share your stories with us.

Any member who shares an incident and a lesson learned which is featured in *Sport Pilot* between now and the end of October will receive a 12 month subscription (or an additional 12 copies) to *Sport Pilot* for free.

QUESTIONS ON NOTICE

AT THE SPECIAL MEETING IN CANBERRA IN MAY, THE BOARD RECEIVED QUESTIONS FROM MEMBERS ABOUT THREE RELEVANT TOPICS. SPORT PILOT ASKED THE CEO TO RESPOND TO THE QUESTIONS.

1 Is NATFLY dead?

To Natfly or not to Natfly? That is the question.

RAAus is strategically working on creating a sustainable future for all members and has made some major decisions over the past few years, such as suspending Natfly. The board and staff work hard to review these decisions to ensure they are the correct and best ones to make at the time. We are also pragmatic and mature enough to know some decisions have to be changed to better serve members.

So it would be wrong to say Natfly is dead and buried.

We didn't host the event in either 2015 or 2016, but we will be working with the organisers of Oz-Kosh this year to ensure there is a nationally recognised fly-in for recreational aircraft. We hope Oz-Kosh will bring together aviators from all walks and grows into what could be called NatFly on steroids. Oz-Kosh will be a sport aviation industry wide event held in Narromine over the second weekend of October. It will essentially be a fly-in for members. It will offer workshops and forums and be a place members can come together to talk all things aviation.

Stay tuned for more details on that.

For next year? We will wait and see what Oz-Kosh brings. The board of RAAus will meet shortly after Oz-Kosh to decide if we will continue to develop this style of event or whether or not the future holds something different for RAAus.

To aid with the board decision, we invite members to participate in a survey on fly-ins. The link is https://www.surveymonkey.com/r/FGP9DKT.

2 Do we still have a voice?

During discussions in the lead up to the constitution vote, doubts were raised about members having less representation in the new system. Having adopted the new constitution, RAAus wants to ensure all members keep their voices.

Which is why we have begun to establish a network of member advocates who will not be bound by the terms of the constitution. These people will not be formally elected, but instead be entrusted by local communities of aviators to act in this role. Members in an area would simply select people and then inform RAAus who that person will be. The advocate can step down at any time and, if they do, the local community is free to choose someone else more appropriate.

Initially we envisage around two advocates per state, but we expect this will vary with the changing requirements of members and the organisation. If there is a large base of members in a particular location, they can select someone to communicate their concerns. That person will have a formal channel, not only to board members but also to the CEO and senior staff. If the advocate doesn't perform, members can easily enlist a new one. No need to wait until a fixed board term has expired and no expensive elections.

The system being contemplated is similar to how we work with our existing volunteers, such as ROCs and PEs. These roles are an important part of our overall communication strategy and an important pathway for RAAus.

We will communicate more formally next month about the establishment of these roles.

3 The big stick?

As part on the vote of the new constitution, members adopted a new disciplinary code as well.

The current disciplinary procedures are flawed. They leave RAAus with little option but to expel a member if his or her actions, flying related or otherwise, bring the organisation into disrepute. This flies in the face of the philosophy we are trying to embed in RAAus. We're here to fly, not kick people out.

The new disciplinary procedures ensure expulsion will not be the only option. In fact, we try to avoid discipline at all. The new code embraces the simple idea of working together to resolve issues either through discussion leading to a mutual agreement, remedial training or some other form of training. Indeed, there may be no action if the situation doesn't warrant it. Discipline is, and always should be, a last resort.

Because the disciplinary process is administrative, every effort has been made to ensure the language used in the new framework is appropriate and reflects the roles and responsibilities of RAAus. Deliberately, there is no reference to findings of guilt or innocence, but instead terms which better articulate the nature and role of the process.

> "The new disciplinary procedures ensure expulsion will not be the only option"

It describes administrative concepts such as the balance of probabilities and administrative decision making, and provides guidance on the conduct of disciplinary inquiries, resolution options and appeal procedures. This framework is transparent and should be referred to by members and management whenever necessary.

RAAus will soon begin consulting with members to further develop the process and we look forward to everyone's input. Until it is finalised there'll be no change to existing procedures.

A NEW BEGINNING

THE BOARD OF RAAUS LTD INVITES MEMBERS TO NOMINATE TO BE APPOINTED AS A DIRECTOR.

The organisation is seeking four suitably qualified and experienced individuals to join the initial directors of RAAus Ltd and form a seven person board which will take office from October 15 at the first AGM of RAAus Ltd.

Additionally, in accordance with the constitution, Tony King who was appointed as an initial director at the May 2016 meeting, is required to stand down. He will seek re-election as a Director.

To assist with the nomination process, instructions on how to nominate are laid out below as is a detailed brief on the role of the board of RAAus Ltd.

Members should also familiarise themselves with the nomination pack and nomination form, which are available by emailing ceo@raa.asn.au or logging into your member portal.

KEY DATES

Nominations open: 1 July 2016
Nominations close: 25 July 2016
Election, if required: August 2016
Appointment of Directors: 15 October 2016

NOMINATION INSTRUCTIONS

Completed nomination forms, election statements, addressing items one to eight in the skills mix section below, together with an up to date resume must be received before 5.00pm AEST on Monday 25 July 2016.

RAAus prefers to communicate electronically and, as such, statements and resumes can be forwarded by email (together with the candidate's nomination form) to ceo@raa.asn.au by 5.00pm AEST on Monday 25 July 2016. Hand written statements will not be accepted. If you do not have access to email and prefer to post, send your completed nomination form, resume and election statement to RAAus PO BOX 1265 FYSHWICK ACT 2609.

The statement must include a declaration of all income, remuneration or honoraria derived from aviation related interests. Such organisations shall include those of sole trader, partnership, unincorporated association, incorporated association or Limited Liability Company.

A NEW BEGINNING

SKILLS

In keeping with the Board's governance role, statements should primarily and specifically address the nominee's expertise and experience regarding the eight skills:

1. Strategic expertise – the ability to set and review strategy through constructive questioning and suggestion;
2. Financial literacy – the ability to read and comprehend the company's accounts and the financial material presented to the board, in addition to understanding financial reporting requirements - the Centro case (ASIC v Healey (2011)) has emphasised the need for basic financial literacy for all directors;
3. Legal skill – the boards' responsibility involves overseeing compliance with numerous laws;
4. Managing risk – to include on the board a director with experience in managing areas of major risk to the organisation;
5. Managing people and achieving change;
6. Industry knowledge – experience in similar organisations or industries;
7. Understanding stakeholder expectations;
8. Information technology – there is a growing need for directors to have an understanding of information technology.

It is not imperative you possess all of these skills, but for completeness and to allow our members a fully transparent process, it is required that each of the above points are addressed in your nomination.
Potential nominees are strongly encouraged to contact the Chairman, Michael Monck, before nominating, to discuss the strategic direction and governance role played by the board.
It is important to be brief in your statement, but cover each of the above eight points. Election statements should not exceed four A4 typed pages using a standard 12 point font.
Resumes should be no more than two A4 typed pages using a standard 12 point font.
Members will be notified in due course of details regarding an election, if one is required. If an election is required, and after the close of nominations, all candidate statements shall be electronically circulated to eligible voters through a digital newsletter and Sport Pilot magazine. The same information will be mailed to members without digital access to their address on the RAAus member's register.
The board of RAAus Ltd reserves the right to review nominations before circulating to members to ensure they adhere to the nomination guidelines.

THE ROLE OF THE BOARD

Section 198A of the Corporations Act 2001 provides that 'the business of a company is to be managed or under the direction of the directors'. Every company must have at least one director and public companies must have at least three. Collectively, the directors are known as the board of directors. RAAus requires a minimum of three directors and a maximum of seven. RAAus intends to try and fill all seven board positons as part of this election.

The board of directors acts on behalf of members in overseeing and governing the company. Generally, it is the board's responsibility to identify an organisation's direction and goals and management's responsibility to decide how to implement these plans.

In practice, the role of the board as articulated by the Institute of Company Directors is to supervise a company's business in two broad areas:

- **OVERALL BUSINESS PERFORMANCE** — ensuring the company develops and implements strategies and supporting policies to enable it to fulfil the objectives set out in the company's constitution. The board delegates the day to day management of the company but remains accountable to the members for the company's performance.

- **OVERALL COMPLIANCE PERFORMANCE** — ensuring the company develops and implements systems to enable it to comply with its legal and policy obligations (complying with statutes such as the Corporations Act 2001, adhering to accounting standards) and ensure the company's assets are protected through appropriate risk management.

  The differing emphasis of these two areas, business performance and conformance/compliance responsibilities, can result in conflicting pressures on directors. Directors must balance these roles and give enough attention to both.

A NEW BEGINNING

WHAT ARE SOME OF THE SPECIFIC RESPONSIBILITIES OF THE BOARD?

Within the broad framework outlined above, some of the board's specific responsibilities are to:

- appoint a CEO and evaluate his or her performance;
- set and review the medium and long term goals of the organisation in consultation with management;
- approve budgets;
- monitor business performance;
- approve large investments and any major financial decisions;
- monitor the controls framework to ensure major risks are identified and managed;
- challenge the assumptions of managers' with 'Consult and interact with managers to challenge and improve the status quo.
- ensure there are systems in place to enable accurate financial reporting and so the organisation complies with all aspects of the law;
- ensure the continuing development of the executive management team;
- determine appropriate remuneration for the CEO;
- make provision for succession planning;
- be accountable to members.

WHAT IS THE RELEVANCE OF CORPORATE GOVERNANCE?

Corporate governance can be defined as 'the framework of rules, relationships, systems and processes within and by which authority is exercised and controlled in companies'. The practical benefits of a company having an effective corporate governance system are that some studies indicate a correlation between good performance and a high level of corporate governance.

In Australia, corporate governance of listed companies operates on an 'if not, why not' approach rather than mandatory detailed regulation. This approach means that, in general, a company does not have to comply with the ASX Corporate Governance Council's (ASXCGC) Corporate Governance Principles and Recommendations, but, if it does not, then it must outline in its annual report why not.

There is no 'one size fits all' set of corporate governance rules and this approach is seen as the best way to provide guidance and at the same time the necessary flexibility.

WHAT IS THE BEST SKILLS MIX?

The board needs to have a broad mix of skills, knowledge and experience. Different directors have different skills and backgrounds. The goal in selecting directors is to build a mix that can work as a well-rounded team of people each with an appropriate range of experience. In selecting a director, the board should consider the skills, knowledge and experience needed to govern the company both now and in the future.

It is important to select people who have sufficiently broad experience in the issues and opportunities the company is facing now or is likely to face in the future. While specific skills required by each board differ, there are some core skills which should be represented on a board as a whole (not necessarily in one person). These include:

1. Strategic expertise – the ability to set and review strategy through constructive questioning and suggestion;

2. Financial literacy – the ability to read and comprehend the company's accounts and the financial material presented to the board, in addition to understanding financial reporting requirements - the Centro case (ASIC v Healey (2011)) has emphasised this need for basic financial literacy for all directors;

3. Legal skill – the boards' responsibility involves overseeing compliance with numerous laws;

4. Managing risk – include on the board a director with experience in managing areas of major risk to the organisation;

5. Managing people and achieving change;

6. Industry knowledge – experience in similar organisations or industries, experience as a flying instructor, maintainer, engineer;

7. Understanding stakeholder expectations;

8. Information technology – there is a growing need for directors with an understanding of information technology

Additionally, if an organisation has special needs or exposure to a particular stakeholder group, it makes sense to include a director who has experience in that area. For example, a company that spends a great deal of time doing business with government may

A NEW BEGINNING

need someone with first-hand experience of the political process. Care should be taken by boards and individual directors, however, to avoid adoption of the role of specialist advisor.

WHO IS RESPONSIBLE FOR DECISION MAKING?

All decisions are made collectively by the board and all directors share equal responsibility for those decisions. This collective responsibility, accountability and wisdom, with its implicit checks and balances, are an important feature of good governance and decision making of Australian boards. Note that the Corporations Act 2001 does not give a greater responsibility to the chairman, although there is debate about this in case law.

WHAT IS THE BOARD'S ROLE IN STRATEGIC PLANNING?

Communicating a clear strategy to employees and members, and then implementing it, are vital to the success of an organisation. Many boards currently feel burdened by the volume of compliance work they face and feel this leaves them with little time for thinking about strategy. Yet without clarity about what the organisation does and doesn't do, the organisation will have trouble moving forward.

An important part of developing and implementing strategy is to clearly delineate between the roles of the board and management. The level of board contribution to strategic thinking and planning may vary according to the size of the organisation and its current situation. Large businesses tend to have a strong and highly skilled executive team which can formulate the essence of strategic direction. In this case, the board's role will centre on questioning, challenging and clarifying.

Questions to ask might include:

- What is the strategic intent?
- Have we considered all options?
- Have we thought left field?
- What are our cost constraints?
- Are there people already doing this?
- What can we learn from other organisations?
- If this is something completely new, do we really want to be the first ones to try it?
- Is the strategic plan looking at a variety of time frames – short, medium and long term?

Management has to implement the strategy so it is important they support it. In smaller organisations the management team might not have all skills covered and so would benefit from greater involvement by the more experienced board. An organisation in crisis might also require greater board involvement than usual.

To formulate strategy, offsite sessions are generally recommended by business commentators and advisers because they allow a different type of thinking from day to day or regular work to occur. Annual sessions are recommended. An essential part of the implementation is to devise a way of monitoring progress against the plan and to report back to stakeholders regularly. An added benefit of communicating a clear strategy is that it can help to build member confidence.

WHAT IS THE BOARD'S ROLE IN SETTING ETHICAL STANDARDS?

Compliance with the law is the minimum standard for running an organisation. There are a whole set of ethical values which govern the way in which an organisation operates.

It is now widely accepted that inculcating those values in an organisation's culture is an essential role of directors.

All potential directors would do well to listen to the advice of Owen J, who conducted the Royal Commission inquiry into the collapse of the HIH insurance group:

"Did anyone stand back and ask themselves the simple question – is this right? ...Right and wrong are moral concepts, and morality does not exist in a vacuum. I think all those who participate in the direction and management of public companies, as well as their professional advisers, need to identify and examine what they regard as the basic moral underpinning of their system of values."

(See Owen J, 'The Failure of HIH Insurance: Volume 1, A Corporate Collapse and its Lessons', (2003), available at www.hihroyalcom.gov.au.)

Paul Bennet puts his 400hp WolfPitts Pro through its paces

Raglan reigns supreme

PHOTOS AND STORY BY **ALAN BETTERIDGE**

WHAT do you get when you mix over 500 campers, 170 aircraft and more than 10,000 visitors to a country airstrip? The answer is the Old Station Fly-in and Heritage show at Raglan in Queensland.

Paul Bennet next to his immaculate WolfPitts Pro aerobatic bi-plane

Giant wheels and tyres are stand out features of a Carbon Cub SS

Rogin Taylor (left), Keith Page, Ian Wells, Peter Phipps and John Gordan with Ian's Zenith 701 float plane

Raglan reigns supreme

Those were the figures achieved over the weekend in May at what has become one of Queensland's premier flying events.

Thirty years ago when the late George Creed shaped up an airstrip on the Old Station property, he probably never realised it would one day attract such a huge gathering of planes, people and machinery.

One of the organisers, Ron Creed, says this year's event was double the size of last year.

"It's hard to believe the number of people who took the time and effort to attend," Ron said.

"It really takes a lot of effort from a lot of people to make it happen and when we see so many people enjoying the day it makes it all worthwhile."

Raglan is so much more than just a fly-in and offers an insight into days gone by. There are vintage tractors pulling a state-of-the-art tractor pulling sled, a heritage truck show, stationary engines, a car show and even a fashion parade.

But it is the aircraft most people were there to see – and they weren't left disappointed.

Aircraft ranged from helicopters, including a Sikorsky S76 Spirit, to a myriad range of RA-Aus registered and GA types to vintage warbirds, specialist aerobatic aircraft, like Paul Bennet's 400hp WolfPitts Pro biplane and Matt Hall's Red Bull Edge 540 Racer.

One of the more unusual aircraft to attend this year was Ian Wells' Zenith 701 which had been converted to a floatplane by the addition of Canadian Puddle Jumper floats.

Ian flew the aircraft from its base at Heathrow Airport in the Whitsundays near Proserpine in North Queensland.

"We took a couple days to make the trip down and it has proven to be well worth the effort to get here," Ian said.

In another good sign for our sport, a number of young pilots made the pilgrimage to Old Station.

One such was Philip Christian who, along with friend Justin Staier, flew over from Springsure in his father's Ninja.

"We stopped along the way at Rolleston for some business and it was a great trip," Philip said.

"Perfect weather and not too much turbulence," he added.

Philip has had his RAAus Pilot's Certificate for just two months but is making the most of it with the aid of dad's plane.

"Last year we drove in, but flying in this year was much better – and a lot quicker," he mused.

"It's good to be able to use dad's Ninja, I must just be the lucky son," he said. To which one of his friends quickly interjected with: "The privileged son I'd say".

"It really takes a lot of effort to make it happen"

Fokker Dr1 replica really looked the part

Greg Davis and girlfriend Estelle Panebianco flew in his Jabiru, which he purchased from his father

Very neat and tidy FK14 Polaris

"Many people come back to Raglan year after year"

Raglan reigns supreme cont.

Philip Christian flew over from Springsure with friend Justin Staier. Philip has had his license for only two months but flies his dad's Nynja every chance he gets

It was Wayne McLucas from Bundaberg's first visit to Old Station

Looking all the world like a giant praying mantis this Storch STOL wowed the crowd


Dromeda M-18B shows how life is in the aerial agricultural world


Fokker Dr1 replica in flight

Another young pilot was Greg Davis, a member of the Raglan Flying Club. Greg brought his girlfriend Estelle Panebianco along for the trip in his own Jabiru.

"I bought the aircraft from dad when he updated to a newer Jabiru and I am really pleased I did," Greg said.

Vale White once again flew his Foxbat in from Carrawal airstrip near Rockhampton and was enjoying what may be his last visit in his treasured aircraft he has owned for the past seven years.

"It's come time for me to sell the Foxbat and move on," he said. "The wife wants to do a bit of travelling, so the aircraft will go to be replaced with either a caravan or a fifth wheeler.

"But you can rest assured that as soon as the travelling is over, I will once again buy a new aircraft.

"At the moment it's a case of happy wife, happy life," he grinned.

> "We will do it again next year"

One of the great advantages of Raglan is the chance for people to walk around the aircraft and talk to pilots and other aviation enthusiasts without too many restrictions.

One such was Wayne McLucas from Bundaberg who was enjoying his first fly-in. He had driven in and camped for the weekend.

"My lovely wife, Von, had to work, so she gave me a hall-pass to come out to Raglan for the weekend," he said.

Wayne hadn't slept in a tent for a number of years, preferring to use the couples van, but found the experience to be fun – with the exception of one thing.

He wasn't aware of the long-standing Old Station tradition of setting off an explosion to wake everyone up in the early hours of Saturday morning.

"When that explosion happened at around 6 on Saturday morning I nearly fell off my camp stretcher!" he said.

"I guess that's one way to get the heart started for the day," he laughed.

Saturday night's entertainment consisted of huge open fires, live music and lots of fun. It was estimated more than 5,000 people attended the night time entertainment, an all-time record for the event.

Ron Creed said Raglan had become a tradition, with many people coming back year after year. He said as long as there was interest in it, the event would continue.

"As I said, it is a lot of work but, with all proceeds going to the Capricornia Rescue Helicopter Service, it is something we enjoy doing and will do it all again next year," he said.

Getting ditched

BY RICK FRITH

PART ONE OF A MULTI PART ARTICLE ON THE DANGERS OF FLYING OVER WATER, AS WELL AS THE EQUIPMENT AND TECHNIQUES YOU NEED TO CONSIDER WHEN THE NOISE UP FRONT STOPS AND YOU FACE THE PROSPECT OF GETTING WET.

DITCHING is what it's called when an aircraft lands in water while under control of the pilot. It usually happens because of engine failure or fuel problems and, according to one US study, has about a 90% survival rate.

Ditching is not included in the standard pilot training syllabus, but I became interested in it when planning tours across Bass Strait, circumnavigating south west Tasmania and flying over extremely rugged areas where rivers and lakes seemed a better alternative to trees and rocks as forced landing sites. CASA publishes CAAP 253-1(0) Ditching, which is an excellent overview on the issues because everyone must make their own preparations.

My thoughts are the result of an extensive review I've done of the literature, discussions I've had with three people who actually ditched, and several long over water legs I have done carrying my equipment, wearing my chosen protective gear and practicing the procedures (without actually getting the aircraft wet).

I have completed professional helicopter underwater escape training (HUET), travelled as a passenger to offshore oil platforms using full immersion suits and toured the AMSA Rescue Coordination Centre in Canberra. My aim is to make my odds of survival closer to 100% than 90% and perhaps, by writing this, make people think a little more about ditching.

In order to survive a ditching, you must remain conscious during impact with the water, be fit enough to exit the aircraft quickly, be able to swim well enough to avoid drowning, be wearing the appropriate clothing to ensure you don't freeze to death and carry the appropriate survival gear to ensure you are rescued. To do all this requires equipment, procedures and practice. If you aren't prepared for all this, best not fly over water at all.

The worst scenario is ditching in cold water. The coastal waters off Tasmania and many lakes and rivers on the mainland are below 15°C in winter. The data on cold water accidents and scientific research clearly shows that sudden immersion in cold water, (i.e. below 15°C) is very dangerous.

You can check current sea surface temperatures here: http://oceangrids.csiro.au/avg-sst (use the six day average) or http://www.bom.gov.au/marine/sst.shtml .

If you want historical data, it is available here: http://www.surf-forecast.com/breaks/Trial-Harbour (after selecting an appropriate surfing location and clicking Water Temp in the Weather State box).

It is now recognised there are four critical stages when people die after surviving the initial impact with cold water:

COLD SHOCK – This can kill within a few minutes, due to heart and respiratory problems. The gasping response means people cannot breathe properly underwater and escape the aircraft if submerged. This response begins at temperatures below 25ºC and peaks in water temperatures between 10 °C and 15 °C. Chill a bath with ice to 10ºC then quickly lower yourself in to experience the effect! A wet suit can mitigate this hazard.

SWIMMING FAILURE – This can kill within 30 minutes due to impaired strength and numb hands which prevent a survivor from climbing into a life raft, treading water or swimming. It occurs much sooner in cold water than warm water and will affect even proficient swimmers. Even if you are a good swimmer in warm water it is irrelevant when the water is cold. A life jacket is essential.

HYPOTHERMIA – Death is due to deep body cooling and subsequent drowning or heart failure. Although dependant on individual physiology, hypothermia can occur after about one hour in water at 5ºC, or two hours at 10ºC, or in six hours or less at 15ºC. A dry suit can extend these times, but only by a few hours, and the suits are clumsy, uncomfortable and expensive. Getting out of the water onto a life raft is essential in water below 15 °C.

A wet suit, hood and space blanket in the raft will help you retain warmth and delay the onset of hypothermia. Don't count on a quick rescue. If rescue aircraft are deployed on other missions, or you ditch just before nightfall, it may be some time before you are found, or emergency equipment dropped to assist your survival.

POST RESCUE COLLAPSE – About 20% of immersion deaths occur as a survivor is lifted out of the water, or within a couple of hours of rescue. Although this strange effect was first noted in 1875 and extensively studied during World War 2, the exact causes are not fully understood. It may be due to heart failure following a dramatic drop in blood pressure, caused by the removal of the water pressure from the lower body as the survivor floats vertically, or changes in blood thickness which occur during immersion in cold water.

The body's natural ability to compensate for these effects may be impaired at lower temperatures. A life raft can mitigate these two effects of water pressure and core body cooling.

NEXT MONTH: The equipment I carry as standard when flying over water.

Be a star, fly with DAR

BY BRIAN BIGG

Australia is about to get a new microlight from a European company older than Boeing. The Solo is a single seat aluminum composite aircraft from Aeroplanes DAR of Bulgaria. According to the company, it was established in 1917 by Bulgarian King Ferdinand as a workshop for the national air force. It later evolved into an independent manufacturer.

Be a star,

THE first manager of Aeroplanes DAR was German aeronautical engineer and aircraft designer, Herman Winter, who later went on to help create one of the most famous planes in German aviation history, the Fieseler Storch.

Tony Ilieff took over the company in 1995 and set out to ramp up production of single, two and four-seated ultralight and LSA aircraft based on all metal technology.

DAR's history as a kit supplier shows in its approach to manufacturing. Sheet management software is used to design and produce parts and components so assembly of elements, like wings and tail surfaces, is easy. All the composite parts in the Solo have been made by carbon, aramid and fibreglass in molds under vacuum. The company says the composite technology allows the different parts to be integrated, for example the process allows the central beam and vertical stabiliser to be combined. The landing gear is also made by fibreglass under a new 2-stage vacuum process.

The Solo has been designed to be easy to put together. That`s why the airfoil and assembly were chosen and modified to be easily handled by novices and assembled in a regular workshop.

There are two variations.

The Solo UL is an ultralight with MTOW 260kgs. It is powered by a Polini THOR 250DS (36.5HP) engine. It has a two blade wooden prop and can be fitted with rescue system GRS 260.

The Solo 120 is lighter version which meets the German 120kg rules. This aircraft also meets ultralight regulations in Russia, Korea, Brazil and others. It is powered by a Polini THOR 250EVO SS (36HP) engine. It has a two blade wooden prop and can be fitted with rescue system GRS 240.

fly with DAR

DAR SOLO UL

SPECIFICATIONS

Wing span	9.45m
Wing area	9.765m²
Length	4.76m
Height	2.47m
Engine	Polini Thor 250 DS
Design diving speed (VD)	164km/h
Never exceed speed (VNE)	150km/h
Maximum speed in level flight at maximum continuous power (VH)	121km/h
Design speed for maximum gust intensity (VB)	121km/h
Design maneuvering speed (VA)	109km/h
Stall speed or minimum flight speed in VSO	51km/h
Best rate of climb	2.6m/s
Speed at best climb	60km/h
Empty weight	136kgs
Maximum load capacity	116kgs
Maximum take-off weight	252kgs
Maximum take-off weight with installed rescue system	260kgs
Fuel quantity	15 litres

The Australian importer of DAR aircraft, Leo Moras, of Sports Aircraft Australia, says he discovered the aircraft in September 2014.

"I took a flight to the DAR Factory after visiting family and friends at Treviso near Venice," Leo says. "The factory was basic and clean with several airframes in the process of being built and technical workers busy in their work.

"The CEO, Tony Ilieff, took time to explain to me the various tasks and componentry being done on the shop floor to the airframes which were going to UK. I was very impressed with the design and quality. This was no rag and tube design of the past."

Leo says DAR aircraft are tested to destruction at over plus 6G, to the satisfaction of the German DULV for its Type Certificate 3 axis.

"The old concept of rag and tube (think Drifter design) has been replaced with aluminium wings and rudder, with a carbon fibre main beam, carbon fibre flaps and fin.

"All this extraordinary lightness of the airframe means the Solo comes in at a mere 136kgs empty weight, yet allows a maximum take-off weight of 252kgs (260kgs with ballistic chute).

"I fully expect the Solo to bring fun and affordability back to Australian skies. The delightful design will also have a myriad of other uses too," says Leo.

Dar says the Solo has been designed with the idea that the pilot should be close to the stars and the flight experience be more 'bird-like' and less technologically difficult. More focused on the pleasure of just simply being in the sky.

The company's motto is "Be a star fly with DAR!"

The first aircraft is due to arrive in Australia in the next couple of months and sell for around $40,000. Expect to see a lot of them pop up from paddocks near you soon.

POSTER OPPORTUNITY

Want to see yourself or your aircraft larger than life on your clubhouse or bedroom wall? Sport Pilot is offering subscribers the chance to show off their favourite aviation photo in this double page centre spread of the magazine each month.

Each edition one photo will be chosen (We will try and make sure every photo sent in gets a run).

If you are an aircraft seller, it's a great chance to show off your product. If you have a fancy paint job, now is the time to show it off.

And if you have a great photograph of you and your mates at a fly-in, it will make a good memento.

Send your photos (As separate jpeg attachments please) to editor@sportpilot.net.au. It obviously has to be in landscape, not portrait, mode and be as big a file as possible please.

Skylark

Mick and Hellen Ryan in their Dova Skylark photo by Karin Middleton

Pat Hawe

Spying on the neighbours

STORY AND PHOTOS BY **ALAN BETTERIDGE**

FOR most people approaching the age of 80, the idea of relaxation is a game of golf or maybe bowls. Or perhaps just sitting back and taking life as it comes. But not for Electra (near Bundaberg) resident Pat Hawe.

Pat has just obtained his RAAus Pilot Certificate and has taken delivery of his new pride and joy, an FK9-WB LSA.

What makes Pat's achievement even more remarkable is the fact he completed his training in under three weeks!

"I had always wanted to learn to fly, but when I was younger I couldn't afford it. Then when I was older and had the money, I didn't have the time.

"My daughter, Maree, got her GA licence when she was just 16 in the 1970s and I used to go out to the airport and fly with her," Pat said.

"I think maybe my love of aviation rubbed off on her and I know she enjoys it immensely."

"I've been a farmer all my life and, when I retired, we sold half the farm and I decided to buy my own plane.

"My friends thought I was nuts and told me that, since I was retiring, I would probably be dead in six months anyway, so why bother?" he said with a grin.

"Recreational aviation was new to me but it did offer an opportunity to finally do what I have wanted to for many years – pilot my own aircraft."

Pat already owns a Cherokee Six/300 which has taken him and his wife Tricia all over Australia.

"A pilot we know from Brisbane comes up and flies it for us. That has been great, but I really wanted to become a pilot myself."

For Pat the path to becoming an unrestricted private pilot in GA wasn't for him.

"The length of time to do it was an issue and, for the main part, I wanted to be able to just fly around locally. Doing that in a Cherokee Six is probably a bit of an overkill.

"Going the RAAus route was the best way I could achieve what I wanted for a lot less money, in a lot less time and, in many ways, it was the better option."

Pat did his research on which LSA he wanted and, after tossing up between makes and models, set his mind on buying a Rotax 912 ULS powered FK9-WB.

"The FK9 is German designed and 85 percent built in Poland with final assembly in Speyer, Germany.

"I was impressed by it because it is a wholly composite machine with an integrated tubular steel cage in the cockpit area, which makes a very safe aircraft to be in an accident," he said.

Pat bought his aircraft from Silent Wings Aviation in WA and was happy with the service he received.

"They were great to deal with and they flew the aircraft from the west for me."

After taking delivery of his $145,000 machine, Pat made arrangements to do his training with ProSky Aviation in Gympie.

"Being able to train in my own aircraft made things a bit cheaper and gave me experience in the machine in which I will be doing most of my flying.

"I'm just a retired farmer and have no real formal qualifications but farming has given me a feel for machinery.

"I loved it when Brett (Pat's instructor) pulled the power for a simulated forced landing.

"It's funny, but I really enjoy the challenge of being able to find a place to land safely."

Now that Pat has his Pilot's Certificate he enjoys doing local flying while working up the necessary 10 hours to get his passenger endorsement.

"I love being able to fly around the district and especially being able to spy on my neighbours," he laughed.

Pat's wife, Tricia can't wait until she can accompany Pat on his local flights.

"I love flying and have every confidence in Pat's ability," she said.

"Nothing could stop me from flying with him – and I finally get to be able to sit in the front!" she chuckled.

Pat keeps his aircraft in a hangar on his own 900m airfield (known locally as Pat's Field) along with his Cherokee Six, his daughter's Comanche 260 and his neighbour's Savannah.

Pat's achievements prove you are never too old to do something new and, while senior pilots may work harder and sometimes have to put in more hours learning to fly than their younger counterparts, it can be done.

The abilities required for seniors are exactly the same as for younger pilots.

Some of the required skills may decrease with age, but you can't generalise.

Some adults don't have what it takes to be good pilots regardless of their age.

> "The abilities required for seniors are exactly the same"

Seniors may not be as quick, but they have an advantage over younger pilots of having more experience and better-developed decision-making skills.

Bottom line: Age is not a limit. The ability to fly depends on an individual's physical and mental ability.

So, what's next for Pat? I asked him if he had thought about doing cross country training and he said he wasn't sure.

Having met him, and knowing what he is capable of, I have no doubt by this time next year he will have completed his cross country endorsement. He is just one of those inspirational people you meet every now and then. And I'm sure he will tire of just spying on his neighbours!

Pilot Bashing

VIEWPOINT

IT strikes me that many of the articles I read under the banner of 'Human Factors' are simply an outlet for pilot bashing. Yep, like politician or doctor bashing, I reckon we've invented pilot bashing.

We do it to each other and we accept it from various authoritarian sources, rather like those strange religious orders where the acolytes walk around flogging themselves and smiling beatifically. It's about time we pilots stopped taking the blame for all poor aviation outcomes.

Firstly, the whole concept of Human Factors, as a discipline or subject for study, really came about as part of the overall area of risk analysis. In any system where humans and machines interact, there are bound to be adverse outcomes. That's the risk of the interaction; and the purpose of risk analysis is to try and recognise and, hence, to ameliorate it. The Human Factors part of the equation is to see what role the human plays in the creation of the adverse outcome.

Secondly, Human Factors doesn't just mean pilots. There are a lot of humans in each equation, engineers, air traffic controllers, administrators (yes, administrators) and even the person who washes the aircraft. There is a long list of people involved, from the manufacturer of the aircraft to the person involved in its eventual disposal.

Thirdly, there's also a lot of software involved with the hardware these days and our involvement with software is becoming more and more complex as we become more reliant on it. It's a two edge sword. It makes our life easier and more complex at the same time. Certainly software opens Pandora's Box in terms of who is to blame for any adverse outcome. Software also allows Big Brother into the cockpit, which may be good for analysis of pilot error, but it also adds to the stress of the environment as well as electronically capturing and storing pilot actions. Any such analysis is always open to interpretation and observer bias.

But guess who takes the blame for any errors?

Fourthly, the subject of Human Factors now includes a myriad of interrelated sub-subjects including human performance (get your own medical degree), survival and a poorly defined (is there any other?) Airmanship. The water is now well and truly muddy about what Human Factors is trying to achieve.

SO WHAT ARE WE TRYING TO ACHIEVE?

And have we achieved anything at all up to now? From my reading of the subject, not much. There are no statistically substantiated outcome studies to demonstrate that teaching Human Factors has had any benefit in decreasing adverse aviation outcomes. There may well be observed associations of events, but as far as I can tell, there are no authoritative studies available.

From studies in other disciplines, where human interaction with machines have been analysed in more scientific ways, it seems the operator (pilot?) makes at least two errors per session. That doesn't mean those two errors led to adverse outcomes, because in most cases the errors were noted and action taken to correct them. I doubt very much if most of us would make as few as two errors per flight, or even per circuit, but we do correct them – mostly.

The important thing is the 'Swiss Cheese model', which reminds us there is an initiating event, which is then compounded by another error or event which, uncorrected, leads to another and so on, until an adverse outcome ensues. In those studies, it seems 60% of the adverse outcomes are triggered by an error which is not corrected. That error is then compounded by other failures - which leads to the adverse outcome.

Reason's version of the Swiss Cheese model of accident causation (Reason JT, Human Error. 1990) sites 'latent factors', which can lie dormant in the system for a long period, including the activities of designers, high level decision makers, construction workers, managers and maintenance personnel, whose activities are removed in both time and space from the direct control interface. He also cites pre-disposing factors (weather) and psychological precursors (fatigue, boredom, illness etc.).

SO WHERE ARE WE?

It seems in most accidents (60%), the pilot makes an error which he fails to correct. This is compounded by a latent fault in the system (error in a checklist or a previously undiagnosed mechanical failure resulting from a preceding sequence of events), compounded by the weather (say), and compounded further by one of the IMSAFE things. Hence, from the outside it appears reasonable to correct the perpetrator of the initial events – the pilot. So therefore let's teach Human Factors.

But when looking at outcomes, it appears that teaching Human Factors may not have been all that successful – although may have seemed like a good idea at the time. What has happened, though, has been the rise of an entire industry of pilot-blaming safety gurus who refuse to look at the system itself, and their part in it (resulting in more rules and administration), which in themselves create a significant pilot burden.

Historically the situation is corrected by the three E's - Education, Engineering and Enforcement.

My solution is to be understanding and compassionate with each other, to continue to learn from mistakes (our own and other people's) – and, of course, continue to blame the system.

A mile of runway

BY NIC VARDANEGA

Left to right, Rod Flockhart, CFI Flightscope Aviation, Nic Vardanega, Chris Howarth, Senior Flying Instructor at Flightscope Aviation

FOR the past three years, my interest in aviation has been growing. I fly radio-controlled models and am involved in aviation studies at school. When I was given the opportunity, as part of my aviation studies, to take a Trial Introductory Flight, I was hooked.

I applied for a Recreational Pilot's Certificate Scholarship opportunity through Flightscope Aviation located in South East Queensland. Such scholarship opportunities are quite rare, but I booked in for an assessment flight and submitted my application nevertheless.

Then amazingly, I received the "Guess what, Nic?" phone call from CFI, Rod Flockhart. I had been awarded the scholarship! I could hardly wait to start my flying training, and just three weeks later I was having my first lesson with Senior Instructor, Chris Howarth. Much like high school, the word 'study' was heavily emphasised as an integral part of my flying training, and this was certainly to be the case when it came to understanding the dynamics and principles of flight theory and in preparing for the various RAAus exams.

Every single lesson I had with Flightscope Aviation was an amazing experience, supported by their dedicated and experienced instructors. To say my training was fun is an understatement – it was just awesome! And the prospect my training was eventually to end, and I was to become a pilot at the age of 15, was also incredibly exciting. Thankfully, my nerves didn't get the better of me during my flight test and I finished the first part of my remarkable training journey on schedule.

> "My aviation story will certainly not stop here"

My aviation story will certainly not stop here. After I complete Year 12 next year, I plan to go on to complete my private and commercial pilot's licence, with the goal of pursuing a career with a regional airline operator.

With that all said, I would not be where I am today without the scholarship opportunity from Flightscope Aviation. The instructors here are hard-working, dedicated, inspirational, passionate aviators and I would like to thank both Rod and Chris for their professionalism and support. Flightscope Aviation at Archerfield is certainly a school on the move – thanks for always going the extra mile.

"A mile of highway will take you just one mile – a mile of runway will take you anywhere!"

Stalls and Spins

BY PROFESSOR AVIUS **AVIATION GURU**

THE DISCUSSIONS ABOUT STALLING IN RECENT EDITIONS OF SPORT PILOT SHOULD PUT THE FOCUS ON INSTRUCTORS, THE WAY WE TEACH STUDENTS HOW TO PREPARE FOR STALLS AND HOW THEY SHOULD REACT TO THEM WHEN ONE HAPPENS, EITHER DELIBERATELY OR ACCIDENTALLY.

IT would come as a surprise to most students to learn that many instructors themselves are not comfortable with stalls. I still remember my first. It was in a Cessna 150 and really caught my attention. In hindsight it was more about my unfamiliarity with the aircraft and my feeling of not being in control of the situation, rather than the actual stall itself.

But as I progressed, including an introduction to basic aerobatics, my flying skills developed and I was a better pilot for it all. I came to really enjoy loops, rolls and spins. Everyone should try it.

Most pilots who present for a BFR haven't done a stall since their last BFR. And, if they trained with an instructor who didn't like stalls, their own training may have been on the skinny side. For these pilots, retraining might actually become necessary to bring them up to the minimum standard. Many other pilots have been trained properly but remain uncomfortable and lack self-confidence when stalling. Others will tell you horror stories that are mainly ghosts.

The stall shouldn't be feared. It should be respected.

I recall a pilot who came for a BFR in his own aircraft. He admitted to having a fear of using full flap because someone had told him about the supposedly nasty stall characteristics. After a lot of coaxing, he agreed to a flight exercise which would include upper air work with flight near the stall and stalls with full flap. We went through the Pilot Operating Handbook for the aircraft and the exercises were completed without incident. The pilot was surprised by the placid behaviour of his aircraft, even with full flap, and later reported to me his confidence had returned in full, even when using full flap into short fields.

For most RAAus pilots, the aircraft you trained in was docile and reluctant to demonstrate a sharp break at the stall. It preferred to mush down gently. But that makes it important to ensure you receive comprehensive conversion training when you step up or across to a more advanced type. Your new aircraft may well have very different characteristics to the forgiving aircraft in which you trained. A lot of pilots get caught out this way.

It is also fairly common that most pilots believe they are most exposed to a stall when the power setting is low: It is certainly one aspect, but there are others – steep turns with the power on are also risk areas.

It's important for instructors to fully expose the stall range to every student.

They come in a variety of flavours, power off, power on, secondary stall. In a turn there are power off and power on and straight ahead, there's the wing drop, the incipient spin and the full spin (not in RAAus aircraft of course).

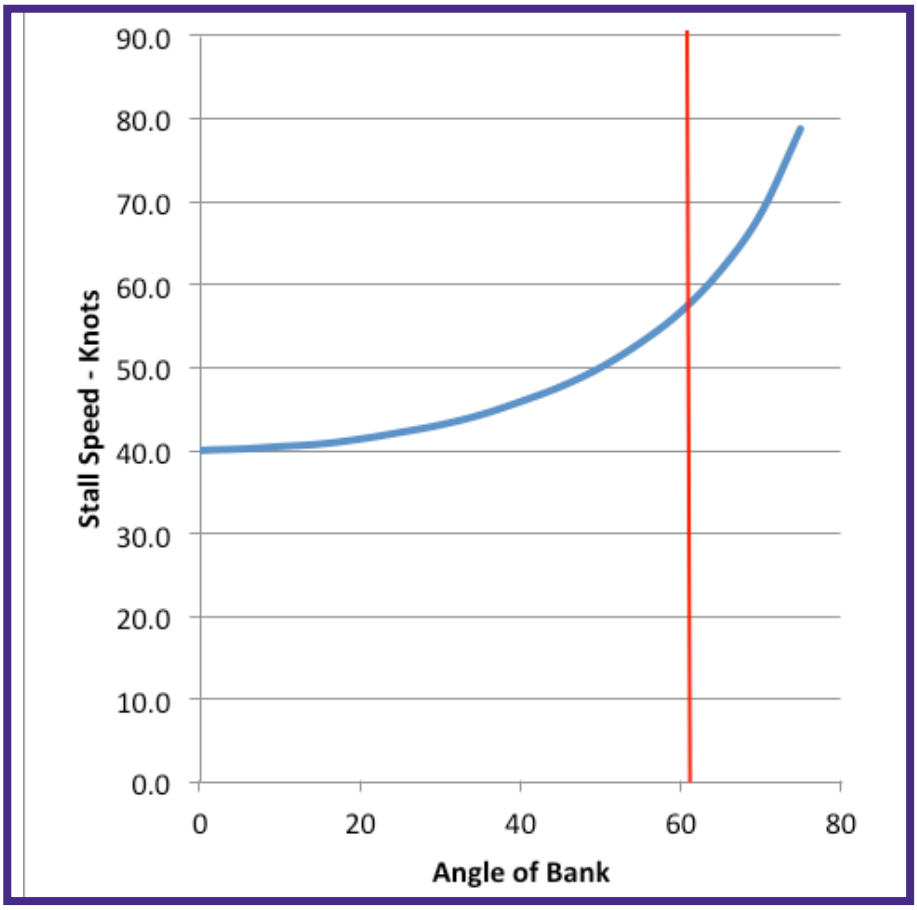
Because of the limitations placed on RAAus pilots (no intentionally spinning in an RAAus registered aircraft remember?), it is possible for an instructor to have never been exposed to a fully developed spin themselves. So on the day it happens, it will come as a complete surprise to everyone on board.

If you are an instructor in this category, my recommendation is to get yourself off to an aerobatic school (or a gliding club with a basic trainer), explain your situation to the duty instructor and ask for some spin and spin recovery training. In doing so, make sure the instructor completes a reference notation in your log book; It may cost you a few hundred dollars, but you will be a better pilot for it and maybe one day it just might save your butt.

Make a commitment to yourself, your passenger and your family and make a plan to get proficient in all aspects of stalls.

REFERENCES FOR MORE INFORMATION:

http://www.langleyflyingschool.com/Pages/Pre-takeoff%20Briefing.html
http://www.aviationsafetymagazine.com/airplane/landing-accidents-and-runway.html
http://www.pilotfriend.com/training/flight_training/fxd_wing/stalls.htm



Angle of bank vs stall speed 60degree angle of bank = RAAus maximum

On the runway

BY DAVE KING

MENTIONED RECENTLY IN SPORT PILOT ON THE SUBJECT OF ACCIDENTS WAS THE FACT THAT 70% OF NON-FATAL ACCIDENTS ON LANDING ARE OF THE TYPE WHERE THE AIRCRAFT LEAVES THE RUNWAY.

From my own personal experience, I can report I was never properly taught how to control an aircraft from the high speed touchdown, through the gradual speed bleed down, to the point where the brakes could be applied to bring the aircraft to a full stop. Like many other pilots, I taught myself how to do it from experience over the years.

I was taught how to taxi with aileron into wind, rudder direction and elevator position in those situations. I was never taken out onto the runway and taught to get near take-off speed, then abort and bring the aircraft under control. Each time I turned up for a lesson, after the preliminaries, we were in the aircraft and off. Landings were always a bit of a gamble even in those days of training in a Thruster. The on-the-runway-and-slowing-down-a-bit sort of just happened. I would suggest the same still happens in schools where, with some of the more modern training aircraft, the landing speeds are far greater.

I've built two aircraft in the past 12 years and each time had to teach myself runway control. I spent 14 hours on the runway with my Hummelbird, which included quite a few hops to a metre or so before I did an actual circuit. After five hours in the air, the engine failed. I can remember not being alarmed about the situation and just put it down in a paddock. My head was trained with the correct landing attitude and speeds which made the entire event a non-event.

Another aircraft I built more recently has a castering front wheel. I had not had much experience with this type of steering and, after the first brake failure and exit from the runway, I quickly realised I had a lot to learn. This aircraft also has a huge vertical fin and rudder so needs more effort to keep straight at speed in a crosswind. Again I had to teach myself the ground handling and did not take off for eight hours until I felt I was ready for a circuit.

During my first 50 hours or so there have been several situations where I've been glad I persevered getting the high speed ground handling down pat.

I have been with other pilots as a passenger where a landing has nearly gone pear shaped and realised, after thinking about it later, that we had been lucky. I have seen other pilots just give up in a bad situation and it was mostly due to the fact they couldn't think quickly enough, or didn't recognise a situation quickly enough, to save it. I believe this was due to a lack of proper high speed training on the ground.

In my view, the average new student should spend at least three to four hours on the runway learning the ground control from low to high speed. It should be a requirement that the student has this situation down to a tee before ever taking off for the first circuit.

What do you think? Is Dave correct that students should much more time on the runway, learning high speed control, before progressing to circuits? Let us know your view. Email editor@sportpilot.net.au."

A rose by any other name

BY ALAN BETTERIDGE

A healthy line up

The duck-egg blue Storch perfectly matched the clear blue sky

Dual GA and RAAus licence holder David Wait with the Maryborough Aero Club's C172

Dave Keen flew into Gayndah in his CTsw which his wife lovingly refers to as 'Cutie'

SIX months and $4m later Gayndah Aerodrome in Queensland was re-opened in June. The aerodrome has been widened, strengthened and has had extensive drainage works completed.

About 35 aircraft flew in to attend the opening ceremony and pilots were treated to a free sausage sizzle for their trouble.

Dave Keen flew in from Maryborough in his CTsw and was impressed by the standard of work at the refurbished aerodrome.

"They have done a great job and this gives all pilots in the region another place to go," Dave said.

Dave, who is rightly proud of his aircraft, said his wife, Sue had named it Cutie."When she first called it that I thought she was referring to me," he grinned.

In re-opening the aerodrome, North Burnett Mayor Rachel Chambers said the council had made the decision to rename the location *Gayndah Aerodrome Ted Kirk Field* in honour of local resident Edward Kirk.

Mr Kirk flew Spitfires, Hurricanes and later Typhoons during WW II and, after demobbing in 1946, returned to Gayndah to run his cattle properties.

He became a councillor on the Gayndah Council in 1961, a position he held until his retirement from local government in 1994. Mr Kirk passed away in March this year at the age of 92.

Cr Chambers said the council would welcome all recreational pilots to Gayndah and called on them to give the council a call prior to arriving.

"If they give us a call we can possibly arrange some sight-seeing tours for them or even accommodation if they need it," she said.

David Wait, also from Maryborough, flew into Gayndah in the local club's C172. David, who holds both a GA and RAAus licences, said he was pleased that, in addition to the airfield works, pilots were now able to get fuel at Gayndah.

"The new refuelling facility is a real boon for pilots flying in this neck of the woods," he said. "Both Avgas and Jet A1 are available and you can access it with a credit card 24 hours a day. Having Jet A1 available will be a great thing for operators such as the RFDS who are sometimes called at all hours for medical emergencies. Maybe I should refuel the trusty C172 with Jet A1 and see if it will fly faster and higher," he laughed.

"The new refuelling facility is a real boon"

The aerodrome is situated within walking distance of the town and its re-opening has been widely welcomed by the community. The North Burnett region is now hoping to attract aviation related businesses to the airfield to make the most out of the investment. "We will welcome all companies which would like to move here," Cr Chambers said. "Just give us a call and I will do everything in my power to make it happen," she added.

The NBRC can be contacted on 1300 696 272 during office hours.

Aircraft Baffles

BY DARREN BARNFIELD **RA-AUS TECHNICAL MANAGER**

I remember the fun and frustration I experienced when I started the baffling process on my Corvair Powered VP-2 Volksplane, so let's talk some about baffles.

Most aircraft engines are air-cooled. This saves weight, coolant and complexity, involves fewer hoses and increases reliability. But air-cooled engines also have their own set of peculiarities. They need to be kept within certain temperature limits or else the cylinder heads can crack. With liquid cooled engines, such as the popular Rotax series of engines, the temperature and air flow is much less of a problem.

Before you begin to create your own baffles for your engine it really pays to go around and look at other similar aircraft engine installations. This may take some time but will give you ideas about how to do it. While you're at it make lots of photos for later reference. This will be of great help, possibly even years later, when you are working on installing your own baffles.

The engine of my Corviar powered VP-2 Volksplane

BAFFLE FABRICATION

You will need enough thin aluminium sheet: 5052-H34 or 6061-T1 20 to 40 thou will do just fine. Try and avoid 2024-T3 because it cracks too easily, a set of aviation cutters (left, straight and right), a drill with rotary file for the larger holes, a set of files, clecos and rivets, some pencils (sharpie in different colours) and a lot of patience. The fun will continue when you get to run your engine because the baffles may require further tweaking and in some cases a rethink of how to direct airflow.

TEMPLATES

Create your templates with cardboard, properly identified of course, so when the time comes to lay them out, you can get the most out of the sheet of metal you have without wasting too much material. Remember to measure twice and cut once. It's always good to remind yourself to mark which way the bend is to be made. It's amazing how many parts have to be made twice because you get a simple bend wrong.

CUTTING

Use the aviation cutters, or your preferred cutting method, to cut out the baffles and make sure to stay outside of the lines. These type of tin snips can be purchased at most Bunnings or general engineering stores such as Total Tools. The easiest way is to start with the four side baffles, they should fit the cylinder heads and form the basis. Make sure they get a good fit around the cylinder head covers. Using a dremel-type tool works perfectly. Make sure you take the time to deburr all your parts.

BENDING

A bench folder is one of the best tools for this process but, if you don't have access to one, you can use a vice and bending blocks to form each bend. Make sure to use a large bend radius because a small bend radius may increase the risk of a crack later on. At each intersection of the bend drill a stress relief hole. Tony Bingelis' Sportplane Construction Techniques is a must for all amateur builders and maintainers. You can find it online or purchase a copy at the EAA online store.

ASSEMBLY

Overlap each baffle with the incoming air-flow, so the air enters the pressure chamber streamlined and not turbulent. This is a very important part of the process. Many people fail to take into consideration what turbulent air can do or how it effects the cooling of an engine. Clean air flow helps to provide proper cooling of all cylinders. When riveting baffle segments make sure to think ahead, so that whenever you need to remove a segment it is not permanently attached to some other baffle part, leaving you to remove more than is really needed.

When all segments are installed you need to trim the top of the baffles so they follow the inside of the top cowling, with room to spare to install the baffle seals. This will take a lot of time and you will remove and install the cowling time after time, seemingly without end.

BAFFLE SEAL

The baffles need to have a gap with the top cowling of about 12 to 19mm so the baffle seal can be installed. You will need to install the top cowling and feel with your fingers through the front opening to make sure there is enough room for the seal to be installed. If there isn't re-trim the baffle with a cutter. Allow the seals to overlap each other by 25mm or so which will help air flow.

RIVETING

Install rivets every 50mm, punching holes in the seal first and use a large penny-type washer under the rivet to hold the seal, otherwise the rivet can pull through. You can also use strips of aluminium to hold the seals into place. Drilling holes in this silicone-type baffle seal is really frustrating. It will wrap around the drill bit, making punching a better way of doing it. A wad punch is the best tool for this process.

GAP SEALING

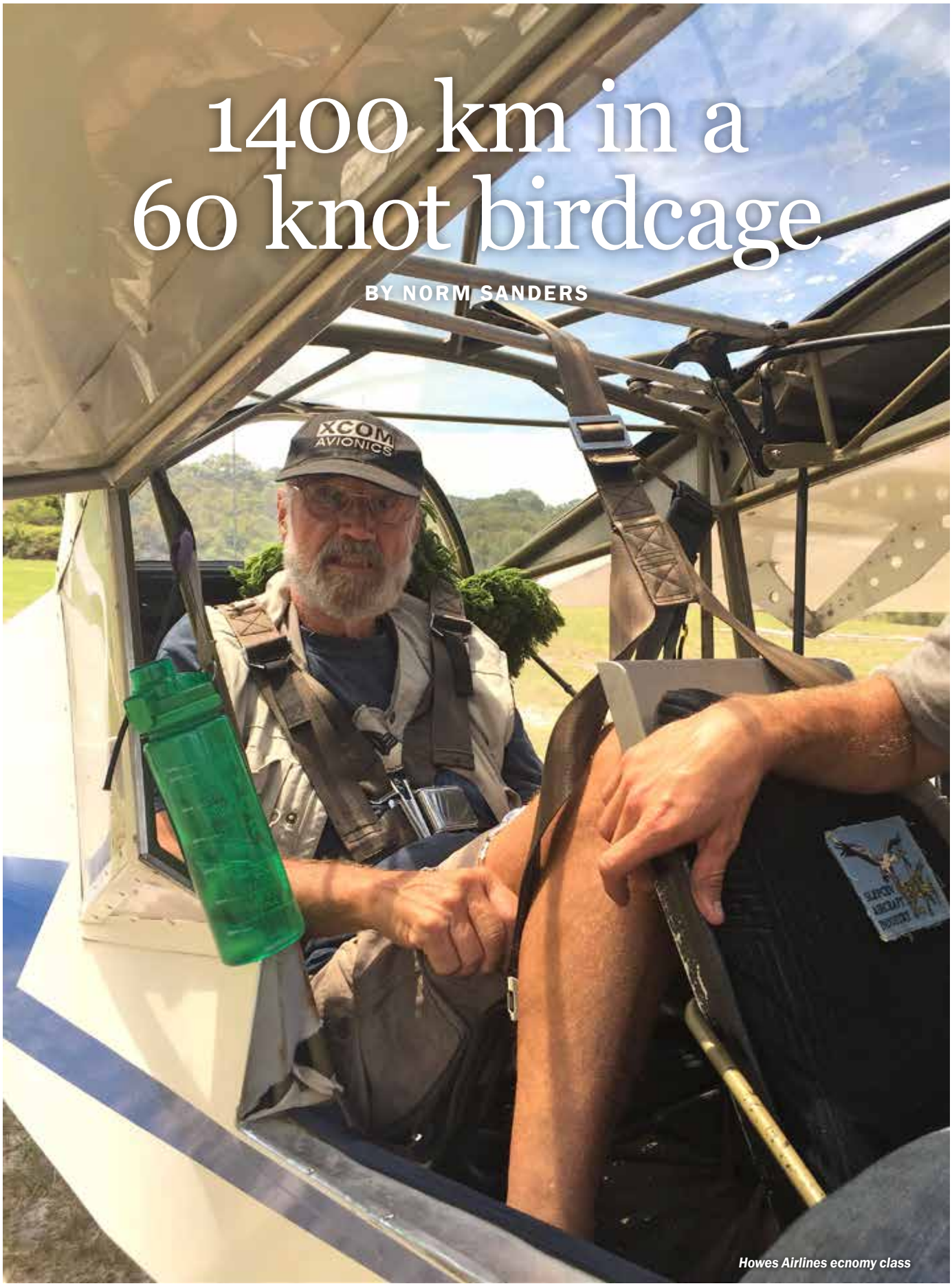
When all seals are in place and after the top cowling fits perfectly, the time has come to close all remaining gaps in the baffles and seal them with a high temperature sealant (340°C or higher). Use the red silicone sealant from Dow Corning, or another suitable brand. Any LAME or L2 should be able to advise you on such a product.

PAINT FINISHING, POWDER COATING AND ANODIZING

Finally, when it's all finished you can anodize all baffle segments in a nice blue, red or gold finish for corrosion protection. It looks great, even more so when you have built yourself a pressure chamber with its own separate top cover. Another method commonly used is powder coating.

1400 km in a 60 knot birdcage

BY NORM SANDERS



Howes Airlines ecnomy class


Tea time on the beach

"The trip took three days"


Nebo International Terminal


Old Station accommodation

Old Station steam and jet

TIM Howes bought this 3/4 scale replica of a WW II German plane, the Fieseler Storch for $25,000 in Ayr, Queensland. We went up to bring it back to Tyagarah.

The Slepcev Storch is a Serbian type-certified, kit and ultralight STOL aircraft, designed by Yugoslavian-Australian Nestor Slepcev and currently produced by Storch Aircraft Serbia in several different versions.

We stayed at Heathrow Airport, south of Airlie Beach the first night (where we had afternoon tea) and Old Station the next. Old Station near Gladstone is a fantastic place. The steam engines all work, as does the Mig 16 and the Korean War (Mash) vintage Bell 47 helicopter. Worth a visit.

The trip took three days. Met some great people. The Storch, however, was not designed with passenger comfort in mind.

Balancing act

BY ANTHONY **SIBARY**

AS I entered the gates of our rambling estate and drove up to our house, my wife asked me "where do you find the time?" This is a question I often ask myself.

OK, we don't actually have gates and we live in a residential area, so 'rambling' may not be the most accurate way of describing our place. But, I definitely have a wife and she did ask me that question upon my return home from my last flight. "I make time" I replied.

Perhaps it has something to do with being a Gemini, or because I recently turned 45, but lately I have become acutely aware of time management and just how precious a commodity time is.

No matter how hard I try, I cannot get it back. The hour I had just spent in traffic, for example. The trip, which normally takes 30 minutes, had been just doubled.

That 30 minutes, those 1,800 seconds which are so precious, had been lost. And I was left wondering just what else I could have done during those 30 minutes. This is why time management is important.

The unexpectedly long journey could have been made in 30 minutes, had I left home earlier. But it was winter and there was ice on the windscreen, so I decided to have another coffee and delay my departure. Did I manage my time wisely? Probably not and the flow-on effect meant my morning had slipped away.

As aviators, so much of what we do involves managing time. I use checklists in the cockpit to help me prioritise. I find they are of great benefit as they help me make the most of my left seat time.

When I conduct my pre-flight checks outside the aircraft I always follow a set pattern. That way I don't miss anything and it helps me use my pre-flight time efficiently.

Several years ago I had it explained to me that the 24 hours in every day should be spent in the following manner - eight hours of work, eight hours of play and eight hours of rest. It sounds simple enough and should you need or spend more than eight hours sleeping, for example, that time has to be taken from either your work or play. It is all about balance.

Just as we need to maintain the aircraft in balanced flight by coordinating our control inputs, so it is with managing time. Given that I now work 24 hour shifts, the 3 x 8 hour balance concept is a little tough to follow, but I am doing my best. As usual, when I have time to fly, I don't have the money and, when I have the money, I don't have the time.

> "Another machine which requires concentration and balance"

Of late I have had both the time and the money but not the weather. It has not been a total loss, though, because bad flying weather often means great motorcycling weather. It's another activity I love and one which has so much in common with flying. Both require balance and coordination and intense concentration. Both are activities many folks think are far too dangerous and both activities punish us severely if we make mistakes.

Ironically, my last visit to the Oaks was on my motorcycle. It was a superb ride out to get there but when I arrived, I found it was too windy so I didn't get to go flying. I resolved to spend a few hours doing my cross country theory study, but the sun was shining and hey, if I couldn't get up in the air to spend my leisure time productively and efficiently, my motorcycle beckoned.

Time management? What's a few hours anyway? After all, it's all about balance.

See you in the pilots lounge for cocktails and debriefing. Or you can follow me on Instagram (instagram.com/anthonysibary/) or on my blog at anthonysibary.com.

Human nature

BY BRIAN BIGG

OVER THE PAST FEW YEARS SOCIOLOGISTS HAVE LEARNED THAT BECAUSE OF HUMAN NATURE, GOVERNMENTS AND AUTHORITIES CANNOT SOLVE SOCIAL PROBLEMS BY TAKING A HARD-LINE ATTITUDE TO THEM. IT SEEMS HUMANS ARE HARDWIRED TO CHALLENGE AUTHORITY.

SOME examples.
When NSW went through a period of high crime in the 1970s and early 1980s, the government responded by introducing draconian criminal laws designed to terrify criminals into going straight. But, over the next 10 years, criminologists tracking the statistics noticed that, rather than going down, serious crimes actually increased.

Some of the problem stemmed from young offenders being sent to jail where they became hardened by exposure to experienced criminals. But it was more apparent that career criminals were just not deterred by more severe penalties. We all know the government's hardline stance on marijuana use has not decreased the number of people who try the substance every day. In fact, it could be argued that, despite the hard line war on drugs, more people now use the dreaded weed than ever before.

"Humans have the instinct to push back when someone pushes them hard"

And it's becoming apparent that no matter how hard we crack down on Learner and 'P' plate drivers, the number of deaths on the road caused by speeding and alcohol is not decreasing. (For some evidence of the counter intuitiveness of cracking down on crime, read http://tinyurl.com/zjukfk9).

As a contrast, consider the Netherlands, which is famous for its liberal views on both soft drug use and prostitution. You'd think the people of Holland, given full rein to indulge, would spend every day randy and off their faces.

But they don't. Holland has one of the lowest crime rates in Europe. Its red light district is actually a very safe tourist destination. Dutch marijuana sellers have actually been known to provide information to police to help them bust cocaine and heroin traffickers.

It appears to me humans have the instinct to push back when someone pushes them hard, but to respond more thoughtfully when treated responsibly. Australian aviation authorities would be well advised to contemplate this when considering regulations.

Remember how we reacted when they introduced the ASIC card? It was long overdue in commercial aviation and a welcome addition to security. But in rural areas, and for non-professional pilots like us, it was a thoughtless imposition without regard to how we flew.

So how did we react? We went along with it as long as they were watching, then we quietly let it slide. And they in turn, recognising the regulation was misaligned, concentrated primarily on making the system better at the bigger airports, which is what they should have done the first time (we don't use the cards, so can we please have five year validity please?).

It was the same with the regulation allowing them to conduct random alcohol testing. Everyone knew it was an international aviation law designed to ensure commercial pilots didn't try to climb on board after they'd downed a few in the departures bar. It's a great law and one we should support, but it's not designed for, and should never have been targeted at, recreational pilots. The one-size-fits-all regulation for us was overkill.

How did we react? We ducked and dived when the random airport checkers appeared (SMS texts are very handy, aren't they?) until the inevitable time when CASA realised it was unenforceable, unrealistic, unfriendly, expensive and not cost-effective to chase us. And they quietly dropped it for most places other than the big airports, which is what they should have done the first time.

I've said this before - most pilots are type A personalities - prone to argument and self-assurance, if not arrogance. If the general public doesn't react appropriately when harsh laws are forced on them, the same approach is certainly not going to work on pilots.

So two requests. Can we not have one-size-fits-all policies? Most of us don't go near the general public.

And can we, after 15 years, get past the 9/11 knee-jerk terror paranoia which lumped all pilots in with the bad guys and we recreational pilots as the worst of the worst? We have actually always been part of the solution, not part of the problem. Involve us, treat us like adults, stop treating us like potential criminals.

I want to be able to sit at the door of my hangar after a good day's flying and have a couple of beers with my flying buddies without having some public servant accuse me of putting the flying public at risk.

And if you let us fly in controlled airspace, we promise we'll play by the big boy rules.

We can tell the difference, you know.

A clean sweep

DESIGNING YOUR OWN AIRCRAFT BY DAVE DANIEL

THERE'S no doubt about it, swept wings look good and, if you want your plane to look fast even when it is sitting on the ramp, they are a must!

But while elegantly swept wings certainly add a bit of glamour, when installed on an obviously subsonic design, they are likely to have the aerodynamics experts tutting disapprovingly. So are there actually any legitimate reasons to style your ultralight like an F16?

Let's start with the most well-known reason for wing sweep, controlling the shockwaves associated with flying close to or beyond Mach 1. Unless someone has found a cunning way to wring an extra 600kts out of a Thrustster-TST, this is not likely to be a problem for your average ultralight. But I'm going to discuss it anyway, because it is interesting, even if it's not relevant to our sort of flying.

FASTER FASTER

As a result of its aerodynamic shape, an aeroplane causes the air flowing past its surfaces to be accelerated; this is especially true for the airflow over the wings. It is the acceleration of the air, and the resulting low pressure area produced, which generates lift. All aircraft, assuming they are robust enough not to disintegrate at high speed, will have what is called a 'critical Mach number'. This is always somewhat less than one and is defined as the lowest speed at which some point in the airflow around the aircraft has been accelerated to Mach 1. When the local airflow reaches Mach 1, a shockwave forms and, if the speed increases further, results in a dramatic increase in drag, known as Wave Drag. Typical low speed aircraft are not designed to operate above a few hundred knots and so the critical Mach number is not a design concern leading to values as low as 0.6 (which is still roughly 400kts). Jet transports, on the other hand, cruise at higher speeds and so are carefully designed to achieve critical Mach numbers comfortably above 0.8.

From this it should be clear that if you want to get around quickly while using the minimum amount of fuel, it is in your interest to make the critical Mach number of your aircraft as close as possible to one and thus avoid the onset of Wave Drag at high cruise speeds. Due to the highly accelerated airflow around the wings, they inevitably end up being the primary focus in achieving this goal. Aerofoil selection is vitally important and a whole family of supercritical aerofoils have been designed specifically to delay the onset of Wave Drag and minimise its effects. Going beyond aerofoil selection however, one of the best ways to increase a wing's critical Mach number is to include some sweep. From a drag point of view it really doesn't matter if you sweep the wings forwards or aft, but the structural requirements for significantly forward swept wings are extremely challenging and make them heavy, so they are noticeably rare while aft swept wings are familiar from virtually every commercial jet transport ever built..

So why does sweeping the wings help? It turns out that the critical Mach number of an aerofoil is heavily dependent on its relative thickness, that is its depth divided by its chord length. As can be seen in Fig.1, sweeping the wing forces the airflow to travel further to get from the leading to the trailing edge, this makes the wing appear to the airflow like it has a longer chord, reducing its relative thickness and raising the critical Mach number.

WINGING IT

Now all this high-speed stuff is very interesting but it doesn't explain why so many low-speed aircraft have swept wings. Surely all these designs have better reasons for wing sweep than simple aesthetics? Thankfully it turns out there are a few good reasons to apply wing sweep to a low speed aircraft, although usually the amount of sweep is much less extreme than the average jetliner.

One of the most common reasons for applying sweep to a production aircraft is to fix a Centre-of-Gravity (and, by association, stability) problem. If you've already tooled up for production or are modifying an existing design and suddenly discover your C of G range is not where you'd hoped it would be, it often turns out to be easier to fix by tweaking the centre of lift with some mild wing sweep, rather than engage in an extensive redesign to save or relocate weight. Of course this solution still requires a redesign of the wing, but it may avoid having to make any major changes to the fuselage.

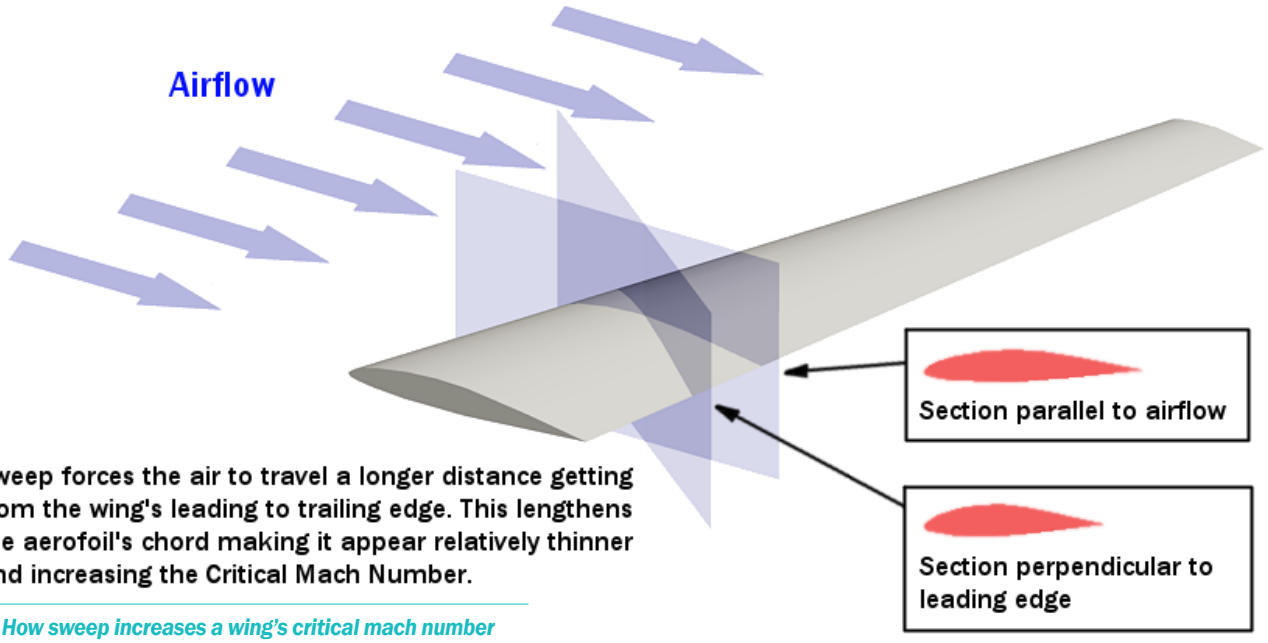


Fig. 1 - How sweep increases a wing's critical mach number

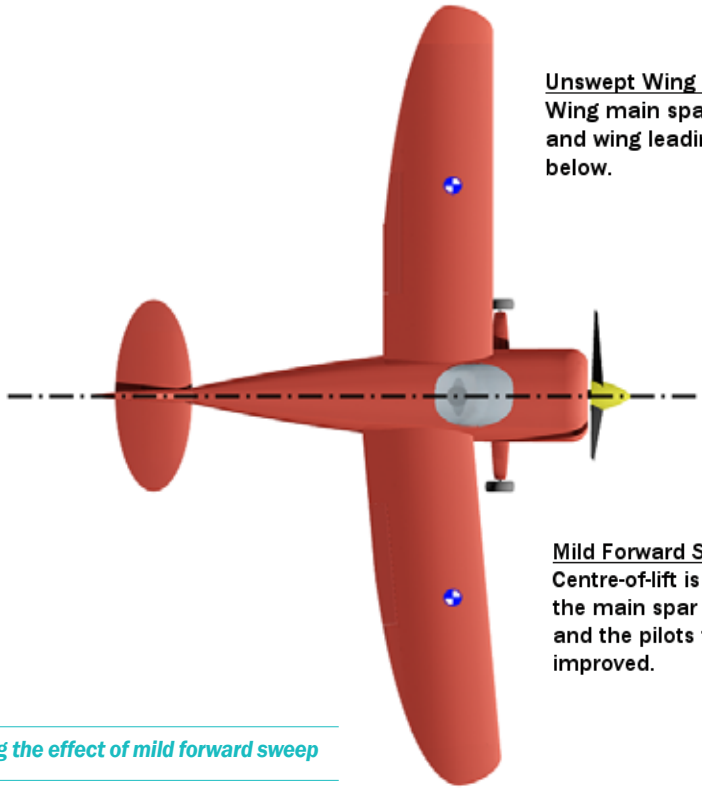


Fig. 2 - Split view showing the effect of mild forward sweep

Of course, wing sweep on a low speed design is not always indicative of a modification or design fix. There are two other fairly common explanations. The first issue is one of providing a clear field-of-vision. By sweeping the wing slightly forward there would be little, if any, structural or aerodynamic penalty but it would allow the wing leading edge to be positioned slightly further back where the wing intersects the fuselage, potentially hugely improving the pilot's field of view. The second reason is structural.

Having the wing spars pass through the fuselage unbroken is usually optimal from a weight point of view, but this requires space inside the fuselage for a carry-through structure which may clash with the position of the pilot, passengers or other structure.

By sweeping the wings, the Centre-of-Lift can be kept in the desired position while allowing the repositioning of the spar carry-through to a more convenient location.

As the saying goes, 'An aeroplane is a giant collection of compromises', and, for low speed aircraft at least, wing sweep represents another handy tool at the designer's disposal, allowing him to either adjust the structure without messing up the aerodynamics or adjust the aerodynamics without messing up the structure. So the next time you see a swept wing don't judge it too harshly, it may just be an ingenious piece of design.

Fig. 3 - The Douglas DC-3 and C47 Skytrain's aft swept wing was designed to accommodate a rearward weight and balance problem

MAINTAINER OF THE YEAR

TIME TO NOMINATE

THE time has arrived for you to put your hand up and call out your choice for RAAus Maintainer of the Year.

This is a long overdue recognition of the people who keep our aircraft in the air. Nominations opened 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 the form and nominate them.

Each state will have its own finalist. The awards will be judged by an independent panel of members from the recreational and GA community.

MAINTAINER PRIZES

FIRST prize will be a return airfare for one person to the EAA Oshkosh Fly-In 2017. The prize will include meals and accommodation.

There are other prizes too, thanks to the generosity of our sponsors.

- Jabiru Australia will supply a Jabiru engine course;
- Bert Flood imports will supply a Rotax engine course;
- The Industrial Shed will supply a Bahco tool set;
- Peter Harlow from Foxbat Australia will supply a flyaway toolkit;
- Bolly Propellers will donate a 3 Blade BOS 3 Ground adjustable propeller.

And other prizes are still being finalised.

For more information, www.raa.asn.au.

Conrod bearing check

Wirelocking practice

From the left: Peter, Mark, Mark, Garry, Richard, Damien, Adrian, Samantha with CFI Larry Jones on the right.

Adrian doing a Rotax 912 Differential Pressure check

Samantha and Kev

Know your Rotax

BY KEV AND CAROLE MACNALLY

A group of nine pilots took part in our latest WM Rotax maintenance course at Strathalbyn in South Australia in April.

The weather in South Australia was a little cooler in the morning than we were used to, having flown in directly from South East Queensland. We have been running these courses since 2012 and have so far conducted 31 of them in various locations around Australia.

The goal is to give consistent and current information to anyone interested in learning about trike (WM) and Rotax 2-stroke and 4-stroke engine maintenance. The course is used by the HGFA for issuing endorsements for their maintenance personnel.

This was our fourth time hosted by Adelaide Airsports and the Southern Districts Flying Club. The Club has since agreed to become the base for all our future courses. The club rooms are very well fitted out with a kitchen and new ceiling fans.

The hangars are just a short walk away, where there are a variety of 2-stroke as well as 4-stroke trikes, some tandem, some single seat, the amphibian Cygnet trike and now a couple of gyros as well. There is always something for our course participants to inspect. This time all the attendees were weight shift pilots, with a range of experience.

Our course attendee, Samantha Saffin, offered her 2-stroke trike for the practical tasks and went through setting up her carburettors and completing a cyclone conrod bearing check. She has already put her name down to come back soon for a refresher course. The practical elements are always enjoyed and were accomplished by all.

Since our RAAus National Technical Manager, Darren Barnfield, attended one of the earlier courses, we have kept him informed of RAAus attendees (98 to date), so their course completion can be noted on their records. 55% of HGFA registered trike owners have also completed the course.

It is always a pleasure to meet up with Adelaide Airsports owner Larry Jones, Stewart Bond, Director of FlyLight UK and CFI Matthew Walter, (Moose) the owner of Mallee Microlights and Lameroo Airpark. We really appreciate the time they take out of their very busy schedules to help us run these courses.

We are still available to travel to any venue willing to host a course and where there are enough people to cover our travelling costs. However, our waiting list will now be for courses based at Strathalbyn and will be on a first-come-first-in basis. As soon as we have enough people on the list we start contacting people regarding their availability.

If you are not available for the dates we organise, don't worry, you will remain on the list for the next course.

For more information, kmacnally@bigpond.com.

Richard doing a pressure check

Winter Wonderland

BY THE OPS TEAM

You may well be contemplating a third layer of clothing at the moment, while listening to the wind whistling through the gaps in the windows

For many Aussies, winter is a non-event by comparison with our northern hemisphere neighbours (and those south of Bass Strait), but it is still a good time to look at winter flying considerations.

For pilots, a range of variables are worth putting on the radar at this time of year.

IN THE COLD LIGHT OF DAY

The lift formula might respond well to the cooler temps of winter but not much else does. Mechanical devices, particularly reciprocating engines, like to be warm, just like we do, so management of the T's and P's is a clear area of renewed attention. For some engines and locations a different oil viscosity may be required as part of the normal servicing. Likewise batteries, particularly the lead acid variants, love to protest as the temperatures drop.

Another potentially dangerous effect is condensation. It can happen in all the wrong places and that's before we even talk about the external conditions.

Water contamination in fuel, windscreens during taxi and take-off and in those hidden crevices in the airframe are all potential places where water vapour can cause problems. Greases and lubricants also change their behaviour in colder temps and while generally this is not a major concern, freedom of movement of cable runs and, controls should be carefully evaluated as part of a winter pre-flight.

The winter days are shorter and the defined civil twilight time changes substantially around the winter solstice. For most of us it will have been a while since we did an arc to time conversion for daylight but this information is available to us from NAIPS, and the Bureau of Meteorology.

And as the sun sets on a picturesque winter afternoon, the golden glitter which remains is often ready to blind the pilot on final approach, particularly as a lot of winter approaches are into an afternoon westerly wind. Local topography and shade are further factors pilots need to consider, especially at unfamiliar airfields.

Correct planning and consideration for all the above factors should be part of our normal flight planning.

JUST BACK FROM THE WINDY CITY

If winter is the season then the wind is its voice. Whether they are westerlies or southerlies, the fronts push through Australia like bulldozers in the sky in winter. The recent east coast low events are still clearly etched on our Facebook walls and memories, reminding us of the intensity of these systems. Cold air is denser and it packs a punch. Pilots need to be aware of the seasonal changes in our winter patterns and seriously consider the effects of these weather systems on any flight. Wind velocities of 30kts or greater are common during the winter months. These can represent up to 50 percent of our recreational aircraft performance capabilities and definitely exceed the crosswind component for most of our aircraft.

The days before these monsters barge through are generally warmer and relatively

calm, creating an illusion for the uneducated or poorly planned pilot. We recently were told of an RAAus training navex flight which was conducted during forecast, and actual, 35kt winds.

The aircraft was also pushed back by lee-side roll cloud as a result of standing waves on nearby ranges. What was the proposed learning outcome is not clear. What sort of message this embedded on the new cross country pilot is probably more obvious. Even a seasoned wave soaring guru reported it had been too strong for him to venture aloft.

CLOUDING YOUR JUDGEMENT

Cloud formations are the complexion of winter and often take on different characteristics and behaviours. This is relevant to where you operate, but winter patterns can be characterised by lower cloud bases, increased cloud cover as a stratus, larger expanses of frontal change and of course stronger winds, particularly as fronts pass through.

Even when conditions are clear, inversion layers can reduce visibility, making visual navigation more challenging. Ironically this is usually coupled with the best burn-off weather under stable highs adding the additional factor of a 'smoking room' effect to the visual equation.

Of course, fog in its various forms also loves to come to the party to interrupt and challenge the morning breakfast sortie. Lurking in valleys and near radiation sources such as lakes, fog can linger long after any planned fuel reserves are exhausted and often challenge the accuracy of the best forecasts.

All these phenomena need to be considered, clearly understood and planned for during winter, requiring different criteria and decision making for a successful flight. The winter pilot is a hardy soul, but one who is ever mindful of the risks and nature of the weather into which they venture.

THE HUMAN FACTOR

If we can't change the weather, we can change the way we approach it and how we deal with the seasonal variations which confront us, wherever we live.

So why not; Take the time to understand the winter weather patterns in your area. Ask your CFI or local weather guru.

Get to know the effects of turbulence and changes to established summer circuit patterns to make sure you are familiar with less used runways or areas.

Plan for the shorter days, start later to avoid fog and plan to be on the ground well before the sun falls over the horizon.

Respect the weather - it is the boss. The good news is that winter fronts tend to pass fairly quickly on the eastern seaboard, a little differently in the southern latitudes. But whether planning to fly locally or on a longer flight, realise winter conditions will change and waiting it out will often be rewarded with far better conditions.

Know the physics. In regards to mechanical considerations, aircraft performance or the environment and indeed your own human performance, knowing how all these elements are affected by changing conditions will allow you to assess and mitigate the risks accordingly.

Most of all, don't miss out on those cool crystal clear winter days. Despite the cold, they can be an aviators dream!

"The winter pilot is a hardy soul"

A beautiful morning

BY CAROLE & KEV MACNALLY

HERE is a couple of photos from the recent ISIS Flying Club quarterly Breakfast Fly-In, which was held at Childers in May.

We were in one of two microlights, which flew up with an Ibis and a Cessna 172 from Maryborough in Queensland to the Childers airstrip for a cooked breakfast and coffee. It was a beautiful morning and we all enjoyed the hospitality of our hosts before we headed back home again before the thermals took hold.

It was a good turn-out with another line of aircraft forming up along the fiels, soon after we took these photographs. A total of 22 aircraft and 46 people attended.

Electric Dreams

THE BEST BITS ABOUT BUILDING YOUR OWN BY DAVE EDMUNDS

I intended to write another article this month on aircraft engine reliability, but was overtaken by events.

In *Sport Pilot* November 2014 in relation to electric aircraft I wrote the following:

"The problem is energy storage. Typically lithium batteries store energy at 576,000 joules/KG. I read this on the internet so it must be true. A litre of Avgas weighs 720gms, and stores 32 megajoules per Kg. That is, Avgas has around 55 times the energy density of li-ion batteries."

In March this year a Beijing university announced it had developed a prototype lithium Sulphur (Li-S) battery with an energy density in excess of 3.6 megajoules per Kg. This battery is nowhere near production yet, although other high-capacity Li-S batteries are. The Zephyr 7 solar-powered aircraft which stayed aloft for 14 days used Li-S batteries to get it through the night. Its energy density is around double that of Li-ion batteries.

So, Avgas has around nine times the energy density of this new prototype battery. Bearing in mind that the efficiency of an electric engine is at least four times that of a gasoline engine at its best, and that the weight difference of the engines would allow additional batteries for the same effective weight, the potential here finally is for an electric aircraft approaching the range of an equivalent Avgas-engined aircraft.

The electric engine will maintain its efficiency through all parts of its operating envelope, while the Avgas engine will only run at its best rated efficiency at full-power climb, assuming no cooling though the use of a rich mixture. On descent the Avgas engine may reduce fuel consumption to perhaps half, while the potential is there for the electric engine to actually recover some of its energy and push it back into the battery. In cruise, the Avgas engine efficiency drops due to pumping losses, that is, the energy required to suck air past a partly closed throttle.

This new development has come out of the laboratory much more quickly than anticipated less than two years ago.

The electric engine has just one moving part, the armature, which is connected to the propeller. It has no magneto, alternator, fuel pump, injectors, push rods, rockers camshaft, turbo or other support systems required by Avgas engines. The electronic control systems for an electric engine are less sophisticated than that required for a FADEC Avgas engine. The little $20 drone quadcopters have all of the intelligence necessary to drive four such engines. The engines in these drones are very similar to that of a full-sized aircraft electric engine. The controller simply has to be scaled up to deliver the power required.

> "An electric aircraft will very suddenly soon be with us"

Siemens has announced a new electric engine designed for aircraft which has a power to weight ratio of 5KW per Kg. For comparison, a 100hp Rotax has a weight to power ratio of just over 1KW per Kg. If the Siemens technology can be scaled down to a 100hp engine, it will weigh just 15Kg, allowing even more weight for batteries.

Siemens has installed one of their 300Hp electric engines in an Extra 300 for airshow work.

In another recent article I pointed out the problem of supplying Avgas in rarely-visited outback communities. It would be vastly simpler to install a fast-charger at the airport, run from the town's renewable energy system. Similarly, people living on remote properties would find it easier to charge their aircraft from a solar system than to source Avgas. The aircraft could then supply energy back to the system if it gets cloudy. You don't want to fly then anyway. Electricity has the advantage of not going stale no matter how long you store it. It doesn't need to be tested, and the delivery equipment can be checked by anyone who can read the panel on the equipment.

In my November 2014 article I showed that the installation of an electric engine system in a Jabiru aircraft would require 1,200Kgs of batteries for equivalent performance and range. Redoing these figures now, assuming the new Li-S technology, we would only require 191Kgs of batteries.

Assuming a 15Kgs engine we have the same performance and duration as the Jabiru with a weight penalty of only 55Kgs, and this figure is at the upper end of the likely difference. That is, using these evolving technologies it is possible to get the same duration and performance from an electric Jabiru with one person as a standard Jabiru with two people.

This is an extraordinary change in just 18 months, and there is no reason to suppose that this will be the end point of these evolving technologies.

No doubt many of you will think this sort of thing is pie in the sky, but the May edition of the EAA's *Sport Aviation* magazine carried an article about the flight testing of an electric aircraft, which looked like a normal aircraft, and another article on the development of such aircraft in the US. I believe that in the way that Tesla cars just appeared out of nowhere, an electric aircraft will very suddenly soon be with us.

There are parallels now with the introduction of automobiles around the turn of the 20th century when in a decade or so cars were everywhere and the infrastructure to support them appeared with astonishing rapidity. Things happen so much faster now.

Wouldn't it be good in a country such as ours, where political leaders are so fond of innovation, that this time we were not behind the curve?

AND NOW FOR SOMETHING COMPLETELY DIFFERENT

A subject I need to mention on an annual basis.

Congratulations to those young people who received GYFTS scholarships, covered in last month's *Sport Pilot*.

Readers may have noticed that none of those young people came from Canberra. This is because there is no opportunity for young people in Canberra to learn to fly. Canberra is, by far, the largest population centre in Australia without a secondary airport.

The population of Canberra will hit 400,000 this year and there is a substantial additional population in Queanbeyan and the surrounding area. It was the intention of the Commonwealth Government, prior to self-government in 1988, to build a secondary airport.

The closest general aviation airports to Canberra are at Polo Flat in North Cooma, and Goulburn, both at least an hour away by car.

Over the years various potential sites have been identified, and numerous studies completed to validate the need for such a project, but the ACT Government is adamant that it will neither discuss nor countenance such a facility.

No reason for this objection has ever been stated, but the opposition is so trenchant you have to wonder if there is another unstated agenda.

There is a great deal more to this story. This is another example of an Australian government with a deep-seated objection to innovation and industry.

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, located Victoria. 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. Ph Tony 0429 132 128.

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. $83,000. Contact George 0474 007 371 or tecnam.7086@gmail.com

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.

4522 SKYFOX GAZELLE

80hp Rotax, engine 2305 hrs, all AD's completed, 100 hrly/annual service just done, oil/filter changed 25hrly, always LAME maintained and hangared, never crashed or hard landed, exterior/interior 7/10, transponder fitted, new (original spec) wooden prop. Ultra reliable and rugged, great first plane. More photos available. $24,000 ONO. Contact Matt 0417 345 161.

4571 EDRA SUPER PETREL LS

2012, 24-7891. In great condition. Rotax 912 ULS. Arplast PV50 GL3/165 in-flight adjustable prop. Icom radio, Garmin transponder and nav. Spacious and comfortable interior. Large luggage shelf. Great visibility, good dash layout. Easy to fly and operate on and off water. Good range and economy. L2 maintained. Just had annual inspection. $125,000. Contact Robert 0438 009 791.

4602 SAVANNAH S

Built September 13, just 50 hrs. Since new, full VFR instruments, aero 500 GPS, X Com radio, vertical card compass, always hangered, hangar available Caboolture, $62000. Phone John 0434 515 628.

WHERE IS CAGIT?

CAGIT MOVES TWICE

Great news for pilots looking to grab the CAGIT and bring it home. After a reasonably long sojourn in the Top End, the trophy has moved, not once but twice since the last edition of *Sport Pilot*.

John Gotts and Rene Smit in their Jabirus snatched the trophy from David Carroll of Central West Flying at Bathurst last September and took it to MKT at Noonamah in the Northern Territory.

Early in June, Noel Thomas, from the Alice Springs Aero Club wedged it out of that hard-to-get-to place and set it up proudly in the Alice.

Where it didn't remain for very long at all. Late in June, NSW pilot Mark McLachlan saw his chance, lifted the trophy and swept it off to Moruya. Like Alice Springs, Moruya is a fairly popular aviation destination so unless Mark hides the CAGIT somewhere clever, don't expect it to remain there long either.

If you or your crew are contemplating a high speed heist of recreational aviation's most coveted prize, its best to keep up-to-date with its latest location by checking the CAGIT Hunters Facebook page, administered by Dexter Burkill, Peter Zweck & David Carroll www.facebook.com/CagitHunters/.

Rene Smit, Top End Flying Club, Darwin (left) handing over the CAGIT to Noel Thomas, Alice Springs Aero Club (right) on June 13

ADVERTISERS INDEX

RAAus at a glance

ALL ABOUT YOUR ORGANISATION

1,856
Subscribers to printed *Sport Pilot* as of May 31
Source: RAAus

21.4
Percentage of the membership who subscribe to the printed copy

800
Average number of people who read *Sport Pilot* with 24 hours of it going online each month

2,710
The number of people who read *Sport Pilot* on Issuu.com between April 1-20.

2,487
Number of hits the RAAus *Sport Pilot* webpage received during May

7,300
Number of people who read *Sport Pilot* April 2016 on every platform from April 1-20

31%
RAAus website visitors who go straight to the *Sport Pilot* page

12
The number of people directly involved in the production and distribution of the different versions of *Sport Pilot* each month

59
The total number of *Sport Pilot* editions. First edition was May/June 2011.

RAAUS GEAR

THE NEW RANGE OF RAAUS MERCHANDISE IS NOW ON SALE ON THE WEBSITE.

The flash new gear comes in a great range of styles and colours – perfect as gifts and for promoting RAAus to your friends and family. There is also a small but growing range of accessories to go with them and even publications for sale on the site.

BASEBALL CAPS

Normally, baseball hats have a hard button on top. When wearing most aviation headsets, the button can cause discomfort. The RAAus button-less hats are custom made without buttons. They are a great way to show everyone you are proud to be an RAAus member. They come in three colours.

- **PRICE** $15.00

HOODIES

The unisex heavyweight zipper hoodie comes in grey and blue. The style offers a great combination of comfort and price. 50% cotton and 50% polyester.

- **PRICE** $45.00

PERFECT FOR GIFTS AND PROMOTING RAAUS

TRIKE TEE-SHIRTS

The search is over for a fantastic Trike tee shirt to give an aviation loving relative. They will be the envy of everyone on the airfield. This tee shirt is 100% cotton and available in two colours. A V-neck body fit - 100% combed superfine cotton.

- **PRICE** $25.00

3-1 JACKET

A great jacket for all seasons. Fleece inside for the colder weather, hood for the rainy days and, when the warmer weather comes along, you can zip off the hood and sleeves to make a vest. The ideal piece of clothing to keep in your aircraft all year round.

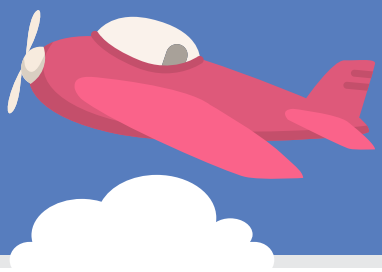
- **PRICE** $65.00

MAINTAINERS TEE

The Maintainer's Tee by RAAus is crafted entirely from 100% cotton, making it perfect for all day wear. The tee boasts a stylised logo printed on the chest and a small RAAus logo on the back near the neckline. 100% combed superfine cotton.
V-neck body fit.

- **PRICE** $25.00

Easter Solo



THE Easter Bunny arrived on time for local Moree doctor, Wladec Smolilo.

Wladec went solo as Pilot-In-Command of the Moree Aero Club's Jabiru J170C on Sunday, March 28.

His milestone flight happened at 18:40 hours, departing off Runway 01, in ideal conditions.

CFI, Fred Nolan said, "Wladec did not have it easy getting prepared for his first solo, always a surprise event.

"The day before, very strong winds and turbulence made flight very demanding. Again on Sunday, the winds were still very strong, but by the evening, conditions improved and, after 60 minutes of demonstrating proficiency, Wladec took off for his first flight without me nagging him.

"It was probably a very peaceful trip," Fred commented.

"The Qantas flight from Sydney arrived at that point too, so we made arrangements with the crew which enabled Wladec to complete his flight," Fred said. "It looked 10/10."

Wladec will qualify for his RAAus Pilot Certificate when he completes the rest of the training syllabus.

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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914 F/UL | 115hp

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912 S/ULS | 100hp

In comparison to the 80 hp version of the Rotax 912 series the 100 hp product line offers more power while keeping the weight.

582 MOD. 99 | 65hp

912 A/F/UL | 80hp

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