

SPORTPILOT

RECREATIONAL AVIATION AUSTRALIA / SEPTEMBER 2017 VOL 73 [9]



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BRIAN BIGG

“The blokes who build and fly these machines like to get out and about as a group to show them off.”

Photo: Stuart Trith



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Global Aviation Products

Doing some pretty cool things

BY MICHAEL MONCK

WHEN I was around 14, I got my first job. It was a crappy job scraping meat juices out of the display cabinets at Woolworths. I hated it with a passion. I love a good steak as much as the next person but when your after-school life revolves around scraping congealed blood from meat trays, you begin to rethink things. Not a great way to be for a 14 year old! Having said this, there was an upside to the job – it paid fairly decent money. Well, pretty good for a teenager.

And being a teenager, I guess I was expected to spend my meat scraping money on cassettes (they were like a mechanical version of the CD for those of you who have no idea what I am on about) but I had better ideas. Rather than waste money on music, I went flying.

Living in the Hunter Valley in NSW, my nearest options were Rutherford, near Maitland, or Cessnock. I didn't have a car and there weren't any buses or trains, so I figured I would hitch a lift with someone else. Not knowing anyone headed in that direction, I took my chances on the open road and off I went. Somehow I managed to make it to Cessnock aerodrome and back a few times without being kidnapped or murdered (hitch hiking was another thing we often did in the cassette days).

At Cessnock, my time essentially involved hanging around, making a nuisance of myself and washing the odd plane. I'd help the LAMEs do work on engines and sweep the floor of the hangar. Every now and then I might be lucky enough to go for a fly in the back seat of a Cherokee. One of the first things I did, though, was buy myself a log book.

I was not even remotely close to being a pilot, but that little blue book with gold writing on the cover made me feel like I was a jet jockey, flying Mirages at nearby Williamstown. The only thing written in it was my name. No time, no ARN, nothing but my name. But, in my view, the simple fact I had that book made me a pilot.

I can't remember why, but for some reason I stopped going to Cessnock and did my first real lesson at Rutherford. It was in a C152 and my memory must be terrible because I can't remember what I was taught either. What I can tell you, however, is that I remember taking the controls properly for the first time and I loved it. From there I went through the usual process, straight and level, climbs and descents, stalls, etc. and then into the circuit.

I also remember the day I went solo as I am sure all pilots do. It felt like forever to get there but the reality is that it was only several hours after my first lesson. We had been doing some circuits that day and the weather wasn't awesome, so it didn't surprise me when the instructor said to knock it off. We came around, did a full stop landing and I exited the runway.

A moment later my instructor, Stuey, told me to pull up on the side of

the taxiway, gave me a few tips and told me to do one circuit then come back and pick him up. Then he climbed out.

The cockpit was eerily quiet and, despite the noise of the engine purring away in front, I swear I could hear my own breath. I know for a fact I could feel my heart beat in my chest. What's more, it was beating a little faster than usual.

I taxied back to the end of the runway, made a radio call and lined up. I then checked my radio, my flaps, transponder and lights before pushing the throttle full forward. Just like everyone reports, it amazed me how quickly the plane leapt into the air with only one person on board and before I knew it the piano keys at the opposite end of the runway were passing by a couple of hundred feet underneath me.

Then it rained. Not light rain. Pouring heavy, driving rain. Or at least that's how it felt. In that moment I hated Stuey for letting me go. My first solo came with a dash of complication I didn't really want. I hadn't experienced rain before and it freaked me out. But then I told myself it was just water. No harm would be done. The plane still flew the same and the circuit was no different, other than the fact it was a little damper than last time.

I turned crosswind, then downwind, did my checks, turned base, took some flap, entered final, a little more flap, touched down and it was perfect. I may have bounced or ballooned but, in my eyes, it was perfect. It was my first ever landing with no backup sitting next to me.

After taxiing off the runway, I picked up Stuey who was standing there like a drowned rat. I let him think I was angry at him and that he deserved to be soaking wet, but the reality was that he had just handed me the best gift you can give a pilot – their first solo.

I look back at that time with fondness and think about what I learned. I used to think it was only about learning to fly, but when I look back today I realise it was bigger than that. Flying gives me the opportunity to learn every time I do it and that day was no different. As aviators, no matter what we fly, we all share that common characteristic. We get to be up there, looking at the world from a different perspective and learning all the time.

We're pretty unique and lucky that way and I don't think we should take that for granted. So when I reflect on recent columns I've written for *Sport Pilot* and think about what RAAus offers me, or the respect we have gained recently, or the outcome of the elections, I realise what RAAus is really about – it's all about giving me and all of us the opportunity to do some pretty cool things.

In my view, we do have the best system in the world and when I look at RAAus from this slightly different angle that view doesn't change. RAAus is doing some pretty great things for members even when you're not looking.

Never forget how special it all is, how special we all are together. ✪

“Rather than waste money on music, I went flying”



CALENDAR OF EVENTS



A. 8-10 SEPTEMBER GOONDIWINDI FLY IN

The Gundy food and wine festival provides an excellent reason to fly in. The aero club will host an aviator's dinner on Saturday. Breakfast Sunday from 7:30am. The Gundy festival is set among the beautiful gardens of the local Community Cultural Centre, located on the Macintyre River, and has been staged in the Goondiwindi region for the past 16 years. The festival focus is 'Food, Wine and Music' showcasing fine regional food, award-winning wines and live music. The weekend also features the running of the Goondiwindi Cup. For more information, Marg Scells (07) 4677 5186 or 0439 775 184.



B. 9 SEPTEMBER WINGS OVER WARWICK

Queensland Recreational Aircraft Assn incorporating Warwick Aero Club (www.qraa.info) invites pilots and enthusiasts to the annual fly-in at Warwick Aerodrome. The strip is 1,600m all bitumen (www.warwickaerodrome.com) Food and drinks available. For more information, Phil Goyne 0417 761 584 or Graham Hawthorne 0427 377 603.



C. 9 SEPTEMBER ONE LONG TABLE FESTIVAL

An invitation has been extended to aviators for the Chinchilla One Long Table Multicultural Food Festival. The event is a celebration of the diverse culinary delights of the region. There will be multiple food vendors and live entertainment. The event is held in the main street of Chinchilla which is closed and tables placed together to form one long one. Starting at 5pm and finishing around 9pm. Fun for the whole family. For more information, manager@chinchilla.org.au (07) 4668 9172.

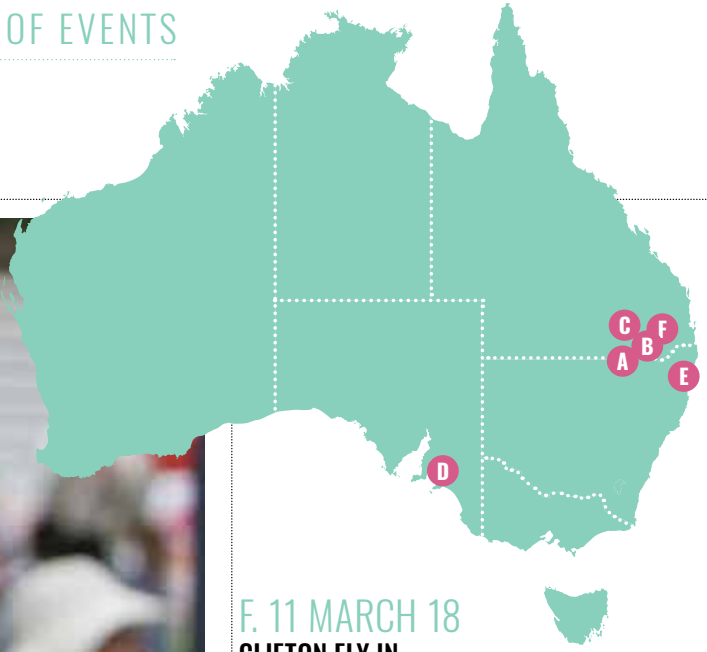


D. 7-8 OCTOBER JAMESTOWN FLYING GROUP

30th Anniversary. A weekend celebration to mark the founding of the group. Sir Hubert Wilkins Aerodrome, Jamestown SA. Saturday dinner, Sunday fly-in and BBQ. For more information, Chris Bretag 0428 485 651 or Danny Keller 0428 385 907.



CALENDAR OF EVENTS



E. 6-7 JANUARY 18 GREAT EASTERN FLY IN

Evans Head Memorial Aerodrome. Fly-in for a unique Australian aviation get together. Camping, fun activities, air displays, drones, joy flights, aviation history, classic cars, markets, great food and much more. For more information, greateasternflyin.com.au or Gai Taylor 0427 825 202.



F. 11 MARCH 18 CLIFTON FLY IN

Lone Eagle Flying School's annual fly-in includes International Women In Aviation Week. This has become an iconic event in the region and is the premier attraction for all types of aviation in southern Queensland. See various types, shapes, sizes and models of recreational, ultralight and homebuilt aircraft including sport, vintage, general aviation and any other flying machine. Come late pm Saturday, 11th for BBQ, drinks and hangar talk. Fly or drive in, see ERSA. On field camping, bring your swag. Advise for catering. For more information www.loneeagleflyingschool.org.au, Facebook.com/LoneEagleFlyingSchool, admin@loneeagleflyingschool.org.au or Trevor Bange 0429 378 370.



HANGAR TALKS

23 SEPTEMBER AIRWINGS FLIGHT CENTRE

Airwings Flight Centre 11am - 1pm
Narrandera/Leeton Airport,
Irrigation way, Narrandera, NSW For more information, www.airwings.com.au

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LETTERS TO THE EDITOR



A FLOAT PROBLEM

Recently a good friend of mine experienced a failure of his Rotax 914UL upon landing at his home airfield. Luckily, the failure occurred post touchdown as the throttle was retarded to idle, so the net effect was that the aircraft had to be manhandled back to its parking.

The cause of the failure was flooding of the engine at idle, due to the carb floats absorbing fuel and sinking (not an issue with cruise / high power settings, but not desirable at partial throttle settings).

There is a mandatory SB for carburettor floats on the Rotax website which DID NOT apply to this engine serial number.

The agent for Rotax has replaced the carburettor floats under warranty to a float with a new part number (rather than the same part number with dots identifying the upgrade status).

I recommend all 912/914 operators get their carburettor floats weighed to ensure they remain within operational specifications (lest the next PFL becomes a real emergency when the throttle is retarded). If in doubt, order the new part number floats. At the very least carry power on all the way down final.

PAUL COYSH

GYFTS WINNERS

I thought you might be interested in the excellent coverage our local newspaper, the Monaro Post, gave to the GYFTS scholarships awarded to two of my students.

Excellent publicity for both RAAus, the Snowy Mountains Grammar School and Alpine Aviation Australia.

MARTIN HUGHES



Stories courtesy Monaro Post

SHIP AHOY

In June we used Tooradin as a halfway meeting point with some flying friends from Latrobe Valley. Met two members there both, I believe, named Michael. Really I thought there must be quite a story on the small ship almost driven to the airfield boundary - I was told the story was on the wall of the flying school.

GEOFF RAEBEL

ED- Does anyone know how the ship got there?



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).

IS THIS AN AUSTRALIAN RECORD?

BY KEVIN MCGRATH PRESIDENT LONE EAGLE FLYING SCHOOL &
DARLING DOWNS SPORT PILOT ASSN

YES I'm claiming a record for the largest Fly-Together. On Saturday August 5, 22 aircraft lined up and departed on a 20 to 30-minute flight from Clifton airstrip to Brisbane West Wellcamp, a regional international airport, now three years old.

All pilots took off smoothly 500m apart and arrived at Wellcamp in a continuous stream, again each 500m apart. The runway is almost three kilometres long and so wide that a STOL aircraft

could land across it.

The taxiways are wider than a lot of strips at other airfields.

I was Tail End Charlie and it was great to see the professionalism displayed in the landing circuit, the taxiing, the preparation for take-off, etc.

We flew over six townships enroute and the fresh green crops were a visual delight.

At Wellcamp, there was heightened security in place because of the alleged terrorist plot

against a passenger plane uncovered in Sydney a few days before this and every person who participated was affected by them.

At 10.30am we were told the first plane was to be gone by 12 noon. However, despite all these security issues, it was a fantastic day.

And, as a result, I am claiming an Australian record for organising and completing the largest Fly-Together from one airport to another - and an international one at that. 🙏



Photo by Scott Sorley



Photo by Veronica Sorley



Photo by Scott Sorley



Photo by Veronica Sorley

TRIBUTES FOR OLD STATION LEGEND

The recreational aviation community has joined with everyone involved in aviation in Queensland to mourn the death of Leonie Creed, who died in August at the age of 73. Leonie was the driving force behind the Old Station Fly-in, which she took over after the death of her husband, George.

For the past 30 years, give or take, flyers have been making their way to Raglan, ensuring the fly-in continues to grow and become one of the must-go events on the calendar.

Leonie was also the driving force behind the establishment and maintenance of the Capricorn Helicopter Rescue Service. She was a founding director of the service. Proceeds from each fly-in went to the service, amounting to many hundreds of thousands of dollars over the years.

It was fitting that, at the end of her funeral service at Old Station, she was taken away by helicopter.

There's no word yet on the future of the fly-in.



MORE SUBSCRIPTION OFFERS

RAAus featured another great subscription offer in August. The first 250 new members who contacted the office had the opportunity to get 12 months of the printed edition of *Sport Pilot* for just \$44. That's less than half the normal price. Needless to say it was filled up in no time.

Have you ever thought about subscribing to *Sport Pilot*?

A subscription is a great way to support RAAus while at the same time get your very own copy mailed to you.

RAAus wants more people to experience the joy of getting the magazine delivered to their front door.

There will be more offers coming so pay atten-

tion to the magazine and your e-newsletter.

Sport Pilot is Australia's leading sport aviation magazine, read by more than 10,000 people every month. The magazine has been the main communication channel for members of RAAus and aviation enthusiasts alike.

It's chock-full of news, reader stories, columns, feature stories and aviation classifieds - simply the best wrap up of sport aviation news in the country.

Keep your eyes open for another one day special deal later this year. If you can't wait, and you shouldn't, subscribe to the printed edition of *Sport Pilot* on the RAAus website today and never miss another thing.



DIGITAL DIRECTIONS



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VOTING DATE EXTENDED

A slow distribution of the July edition of the printed edition of *Sport Pilot* by Australia Post forced RAAus to extend the voting period allowed for the recent Board elections.

Company Secretary, Michael Linke said, "RAAus was made aware of some delays in delivery of *Sport Pilot* magazine by Australia Post which were beyond the control of RAAus. In the interests of ensuring all members had an equal and fair opportunity to cast a ballot, the date were extended until Friday 4 August."

Ballots were accepted which have been post marked up to and including that Friday.

Up to that date, members who had still not received their magazine, which contained the ballot paper and return envelope, could call or email the office and administration staff sent them a ballot paper electronically.

In these cases, members needed to print the ballot paper, mark their vote then mail the ballot paper to RAAus.



Nicolas Cheung

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BRISTELL IN FATAL ACCIDENT

RAAus is part of an ATSB and Victorian police investigation into the crash of a Bristell aircraft which killed a Chinese student pilot in July.

Nicolas Cheung, 19, died when the Bristell came down into a paddock at Clyde North, south east of Melbourne, during a training flight operated by Learn to Fly, a school with branches in Melbourne, Singapore and Hong Kong.

The instructor, a 25-year-old man from Newry, remained in hospital in a serious but stable condition at the time this edition went to print.

Learn to Fly said it was working with Mr Cheung's family, who had flown in from Hong Kong, following the 'terrible tragedy'.

On Facebook, the school said, "We have been deeply affected and saddened by the tragic death of Nicolas, in particular the impact of this incident on his family".

The Moorabbin-based school said it planned to hold a public memorial for the victim.

The school was also co-operating with RAAus investigators to determine what caused the accident.

ACCIDENT INVESTIGATION UPDATE

RAAus member Milfred Knight was killed on Saturday 4 March, when his aircraft crashed. He was flying an amateur built Avid Flyer in the Devonport region of Tasmania.

RAAus assisted local police with an investigation. A trained and qualified accident consultant attended the scene.

RAAus has recently finalised its report and provided a copy to police. The police and Coroner will now consider this report, together with other material they collected

as part of the investigation, before making any further comments.

RAAus would like to remind members to be aware of all service and mandatory bulletins associated with the safe and continual operation of aircraft. Specifically, members should review AN 08082014 Rev 2 regarding flight control duplicate inspections.

RAAus will provide a further update once the Coroner has made a final determination.



WATTS BRIDGE BLOWN OUT

BY ALAN BETTERIDGE

This year's Gathering of Eagles fly-in at Watts Bridge at the end of August was a no-go due to high winds - 35 gusting 45kts - which were quartering from the west to the south, not exactly ideal for our type of aircraft.

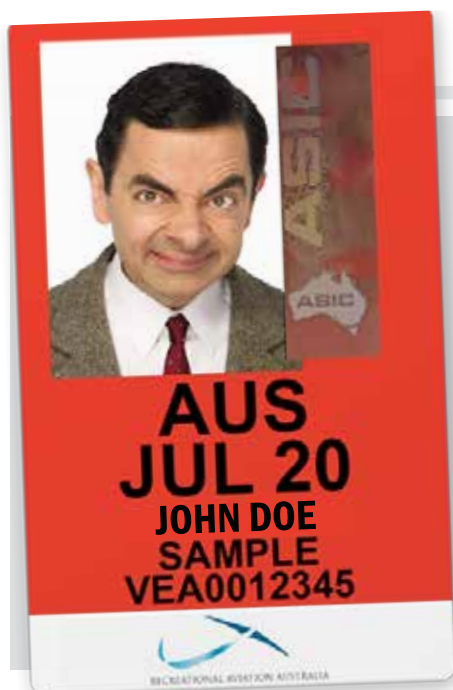
I went down on Friday, overnighted in my new tent and needless to say it was cold, -3 degrees which felt like -10 due to the wind (read more of Alan's camping misadventures elsewhere this edition - ED).

By 1pm Saturday there had been only three arrivals, two T28 Trojans and one very brave pilot in a C152 - all VH registered.

Strong westerly winds caused severe standing waves over the mountain range between the coast and Watts Bridge which was the biggest deterrent for all aircraft.

The wind was forecast to continue so I called it quits and returned home.

A 500km, 7-hour round trip with no result - bummer. Still it was a nice drive.



ASIC DELAYS

Once everyone found out the regulations for the processing of ASIC cards was to change from August, there was a flood of applications.

RAAus received an overwhelming number which caused delays of up to 10 weeks in the processing of them.

RAAus accepted applications up until the end of July. But as part of the transition, RAAus has partnered with Aviation ID Australia to help you gain access to a new ASIC if needed, make enquiries and changes to your existing ASIC, or get replacement cards. Check on the website for how you can contact Aviation ID Australia.



In the printed edition of *Sport Pilot* August 2017 'Coping with Pigs' story, the author was wrongly listed as Peter Gilbert.

It should have been Peter Jackson. This was the Editor's error.

A U S T R A L I A N

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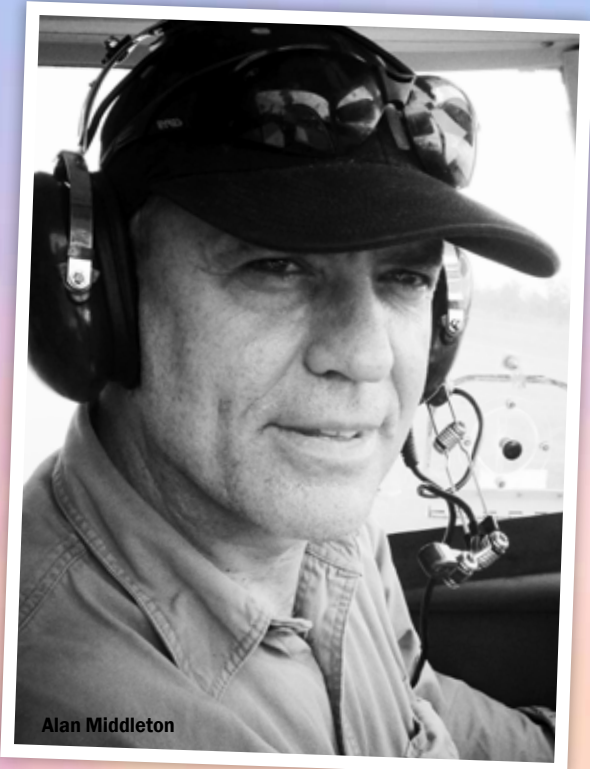
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IN THE NEWS



Michael Monck



Alan Middleton

2017 BOARD ELECTION

**THE COUNT OF VOTES TOOK PLACE ON 16 AUGUST.
MAX BROWN WAS THE INDEPENDENT SCRUTINEER.**

In total, 925 valid ballots were received.

In total, 99 late ballots were received.

In total, 14 invalid ballots were received.

A total of 1,038 ballots.

RESULT

Michael Monck	634
Alan Middleton	377
Barry Windle	333
Tony Davis	284
Neel Khokani	164
Total votes counted	1,792

Michael Monck and Alan Middleton were elected for three year terms.

WHY ARE THE TOTALS DIFFERENT?

A total of 1,038 ballot papers were received, of which only 925 ballots were valid.

In those 925 ballots, a total of 1,792 votes were cast (In most cases members voted for two of the five candidates, however 58 chose to only vote for one candidate).

867 people voted for two candidates = 1,734.

58 people voted for one candidate = 58.

1,734 + 58 = 1,792 valid votes.

867 + 58 = 925 valid ballots.

Thanks to all members who took the time and made the effort to cast their ballots.

Michael Linke
Returning Officer

OCT 19-21
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- Wet wing 135 L
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* additional options shown

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FEATURES OF THE J230

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- JABIRU 3300 cc engine, 120 hp
- Cruise speed 120 kts (true airspeed)
- Fuel economy 23-29 L/hr
- Wet wing 135 L
- 2 years or 500 hrs warranty (whichever occurs first)

Standard Inclusions: D180 with full EGT and CHT monitoring

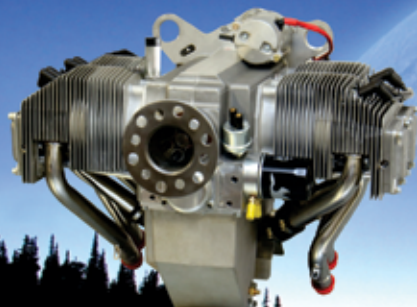


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3300 Aero Engine 120hp



MORE THAN 6500 UNITS SOLD WORLDWIDE





L'amour Jabiru!

BY DAVID P EYRE

THIS story, in some ways, started in 1990. I was the test pilot for the Seeker aircraft and, on one of my test flights, I was low flying around the west coast of Fraser Island. On the swamp land around Platypus Bay I saw a flock of Jabiru birds on the ground and perched in some shrubs. I was excited to see these magnificent birds with their regal plumage taking flight as they interacted with the Seeker.

My office overlooks the airstrip and that afternoon I spotted a dainty little aircraft touch down and taxi to our tarmac. It turned out to be a Jabiru. What a coincidence! It was VH-JQX, the second aircraft to be produced by Jabiru and was flown in by the designer, Rodney Stiff.

Rod offered me a flight and I accepted with some alacrity. The date was the July 5, 1990 and so began my long association and love affair with Jabiru. JQX was fitted with a 60HP KFM engine.

This was intended to be the standard engine for the Jabiru aircraft line but, unfortunately, was taken off the market because the Israeli air force bought the production rights.

Over the next few years, I flew many instructional hours in various Jabiru aircraft including running a few instructor courses.

In August 1995, I was invited to be the CFI of a school which operated Jabiru, 55-661. My first flight on September 1, 1995, was a bit of a disaster. The flight was supposed to be a check flight with Daryll Hoffman, a local dentist, but was also to serve as an area familiarisation flight for me.

Just after lift-off, the engine lost power and made a terrible racket. I quickly assessed that I could maintain height and control. Daryll said he had experienced this before which gave me confidence to continue with a shortened circuit.



L'amour



The aircraft was panting and wheezing as it took us safely to a landing. The cause was a blown head gasket. The engine was a Jabiru designed engine Rod had been forced to design because of the non-availability of the KFM.

Late in 1996, The advertising for Jabiru featured an aircraft registered VH-NQA. It turned out to be operated by the North Queensland Aero Club. For some reason, the club decided the Jabiru did not suit their operations, so Jabiru purchased the aircraft back from them. Phil Ainsworth, the consummate salesman for Jabiru, then offered to place the aircraft on the AUF register and sell it to me.

This aircraft thus became 55-1875. It had 147 hours on the clock when it began operating with me on February 14, 1997. 1875 has been with me ever since and has now flown 8,756 hours.

Because the hours now match its registration number, I thought it appropriate to glance back over its illustrious history.

The aircraft was completed on July 20, 1994, had serial number ST0004 and was the 53rd aircraft made by Jabiru.

Jabiru!



Baby at rest in the Flinders Ranges

“It has taught countless other people to become pilots”

The ‘Baby’, as Angela calls it, has had eight engine changes, including reconditioned engines. Some of these changes were because various engine problems caused forced landings. In one case, the gudgeon pin circlip wound out and allowed the gudgeon pin to hit the bottom of the cylinder skirt and cause an instant stoppage. In another, a valve elongated and let go and once again caused an instant stoppage. In all cases like these, Jabiru made changes to prevent similar problems down the track.

The ‘Baby’ has had three paint jobs. It has thus kept up with changing trends. It has been involved in teaching 18 pilots to become instructors. Some of these instructors have used their training to move on to bigger and better things (Although what could be better than a career in flight instructing?). It has taught pilots who have gone on to become airline, military and air force pilots, as well as many other aviation activities. It has taught countless other people to become pilots and many other conversions to type. It was during one of these conversions to an RAAus Certificate that introduced me to my wife-to-be, Angela.

‘Baby’ has an ADS-B fitted and believed to be the only RAAus aircraft so fitted. This equipment has proved invaluable to our operations. It allows Air Traffic Control to see us and advise other pilots of our presence, even when we are not communicating with ATC. Another benefit is that it would allow ATC to know where we were in the event of a forced landing in the bush. It has a completely redesigned instrument panel to GA standards. One of my modifications was to the control column. I redesigned it and had it certificated by an aviation engineer to have forked grips so the instructor, as well as the student, has access to the control column. Jabiru has seemingly pinched this idea! Sorry, Rod!

The ‘Baby’ has now been put in the long paddock, but still allows me and Angela to savour its delightful flying characteristics. It is now operating out of our 395m airstrip, Blue Bush Hollow, in the Flinders Ranges. My 27 year association with Jabiru has been rewarding. The staff have been extremely friendly and obliging. Having said all this, our new Jabiru 230 is without a doubt, the best aircraft I have ever flown even surpassing our own little ‘Baby’.



Sing a song





g of Sonex



BY BRIAN BIGG

At every big fly-in I've ever attended in the past few years, there's been a gaggle of colourful little Sonex aircraft, clustered together along one of the lines. The blokes who build and fly these machines like to get out and about as a group to show them off.



VH-BST won the Cessna Sader Cup in 2008



“Cheap to buy and cheap to fly”

Sing a song of Sonex

BEAUTIFUL? I reckon you'd be hard pressed to call a Sonex gorgeous, in the way some of our new carbon fibre and plastic machines are (Of course, feel free to write to me and disagree). But they are good looking enough. And they fit right smack bang into the RAAus envelope – cheap to buy and cheap to fly. And that's why many people opt for a Sonex.

John Monnett was the founder of the company. He's flown just about everything on wheels and floats over his 40-year career (so far). John was inducted into the EAA Homebuilder's Hall of Fame in 2001 and his designs are on display in the National Air and Space Museum and the EAA AirVenture Museum. He has the luck (or good planning) to have situated his factory on the field at Oshkosh, so once a year he gets bucketloads of people wandering past his factory. You'd think you'd sell a few with that many people going past the door, wouldn't you?

According to the company, the original Sonex design was the result of a request by an Italian company for a cheap microlight. Since then, John

has gone on to vary that design for the Waixex (which is just about the same as the Sonex but with a Y or V tail), the Xenos (a glider version with longer wings), the Onex (a single seat version with foldable wings) and the SubSonex (a jet version with pete's sake). Both the Sonex and Waixex were last year upgraded to B-versions. It's a fairly radical departure for the design, because the fuselage no longer tapers towards the nose. It still looks the same in the profile view, but there's more room on the instrument panel and on the cowl, both things requested of the company by builders. They can also now use a CAMit engine. Once the B models became available, the company stopped selling the earlier versions. There are no B models in Australia yet, but conversion kits are available for anyone wanting to upgrade.

Sonex says its sold plans and kits for about 500 aircraft around the world. According to Australian Sonex builder, Stuart Trist, about 100 of those are in Australia. He estimates there about 40 of the aircraft now flying here.



AIRCRAFT FEATURE



veted Lightweight Aircraft Association Cru-



BST over Lake Eyre



Sonex smile after reaching Birdsville



Shane Fewings and Stuart Trist, with Brian Ham's Sonex approaching from the rear

Lynn Jarvis in South Australia was the first out of the blocks in 1998.

When he built his, Sonex didn't even have a finished set of plans to send him.

"I had to source my own material and arrange my own import of the expensive bits – spar caps, canopy etc", said Lynn. Very quickly another 20-odd people followed Lynn's lead. Many of the early ones are registered with SAAA but more and more are starting to appear dressed in RAAUs numbers. I would argue that these intrepid builders are just the sort we need to encourage into RAAUs and bring their big brains and mechanical and building knowhow with them.

According to Stuart, a lot of the Australians might have bought the plans or the kit with a view to getting into the air as soon as possible, but the Sonex has a way of getting under your skin.

"It turns out to be a great pastime," he says. "it was a rare night I didn't spend an hour or so making or polishing something that needed doing.

"I built mine from a kit and at the end of the three and a half years I took to complete it, it felt strange to stand in the empty garage. I could

have done it quicker, but there was no need".

Stuart says its why some Sonex builders become serial offenders. They start on a new one because they miss the routine. Some also miss the builder community in Australia. On the website you can see there's a Sonex being built somewhere near you, no matter where you live. Stuart says there's always someone who can help out the first timers. Some have completed theirs from plans in just 12 months. The factory says it's possible with between 800 and 1,000 hours of labour.

Part of the appeal for first timers, according to just about everyone who has built one, is that the task doesn't require any high level of skill. But, if you are like me, with any project like this, you start out full of confidence but quickly realise there's a reason why you work in an office for a living. But you'd have to think that for most backyard fiddlers, it's got to be more satisfying to end up with a new aeroplane than a reconditioned Ford or new bathroom for the granny flat.

The other appeal of the Sonex is the flexibility for the builder to put their own personal touches

into it. The plans contain several construction options, including conventional or tricycle landing gear, as well as a centre or dual stick. Motor mount drawings are supplied for all three recommended powerplants: the 2180cc Volkswagen, 2200 Jabiru and 3300 Jabiru.

For the real prepper, the plans are all you will need, but for the more feint hearted, all the welding can come supplied, and even the wing ribs can be provided. Every set of plans come with spar caps, which is something unique to Sonex.

So when all is said and done, the good turn out by the Sonex gaggle to every fly-in is not something which should be seen as unusual. These people grow to be a tight knit group over the years they take to make their machines. They regularly call each other and lend each other emotional and technical support through the process.

No wonder they want to get together from around the country when they are finished. It's a chance to show off what they have done with their own hands with the people who helped them make it happen. It's a beautiful thing. 🙌



SPECIFICATIONS SONEX

CAPACITY One passenger

LENGTH 5.51m

WINGSPAN 6.71m

HEIGHT 1.42m with conventional landing gear

EMPTY WEIGHT 281kgs

GROSS WEIGHT 522kgs

FUEL CAPACIT 60.6 litres

CRUISE SPEED 110kts at 8,000ft

STALL SPEED 35kts flaps down

NEVER EXCEED SPEED 171kts

RANGE 348nm

SERVICE CEILING 18,000ft

MAXIMUM GLIDE RATIO 11:1

RATE OF CLIMB 800 ft/min



Building a Sonex

According to Stuart Trist, the first thing you will need is a two-car garage. According to Stuart Trist, the first thing you will need is a two-car garage. That way you never have to put the car away for a few years. Lacking this sort of garage, a hangar will do.

Also a two car garage will allow to you store the bits you finish out of the way of the things you are still working on.

As for tools, one trip to Bunnings should do it – a drill press, bandsaw, pop riveter and a solid compressor will cover most of it.

And, although it's not spelled out in the plans, the next thing you will need to do is build a table, not just any table, but a 4 by 12 workbench

where all the work will take place.

You'll have time. It takes about three months from the time you order a kit to when it lands with a thud in your driveway.

When the plans arrive, it can take up to six weeks for you to look at them and work out just what you have got yourself into.

They don't come with a step-by-step instruction guide.

"The IKEA method doesn't work with the Sonex," says Stuart. "Rather the builder has to spend some time getting to know the plans, absorbing what they are trying to tell him and working out for himself what needs to be done in the entirety. It's a much more satisfying pro-

cess than just following step A, then B etc."

"The next step is to make contact with someone in the Sonex community. It will go a lot easier on you when you get to that bit that just won't go right, if you have someone on the end of the phone or email, who knows what you are up to and can offer advice." The SonexAus website is a good starting place.

"Because all the welded and angle parts are supplied in the kit, it doesn't require any expertise".

All the sheet parts have pre-drilled pilot holes too, and the kit is self-jigging, so it's pretty simple to get your project reasonably quickly to where it sort of looks like an aeroplane.



Ron Olson turned his lounge room into a cosy winter Sonex factory



Bruce Towns lent a hand to get painting underway



“Everyone starts out being terrible at riveting, so don’t get too depressed about it,” says Stuart. “Eventually you get better at it and you’ll look back at your first attempts and wonder how you could not have known how to do it.”

Most builders start with the tail section and other small things like the control surfaces. If you stuff things up, and you will, it’s not too big of a problem to fix.

The tail should only take a few weeks, then come the wings. This is easier if you have purchased the pre-formed ribs and spars, but it’s not so difficult, according to Stuart.

“If you are methodical about it all, its difficult to go wrong,” he says.

“You can do your own wiring and instrument panel, particularly with the plug and play multi-functional instruments available now”.

You will need help with the engine. By now you should have many friends in the Sonex community who can come to you in your time of need. Just like a group of Amish they’ll provide the many hands to make the light work.

“Painting is a whole ‘nother story,” says Stuart. “Definitely have a go, provided you have access to a suitable dust free area and someone who has some painting experience to guide you”

After all, there’s no point building a beautiful machine only to have everyone snigger at it when you show it off at a fly-in the first time.

“The other thing you shouldn’t do,” advises Stuart. “Is perform the first flights yourself. Don’t do it. Often the process of building means you haven’t been doing a lot of flying – for up to three and a half years in my case. You certainly

won’t be current on your new machine, which will probably have rigging and other mechanical issues to get sorted out before it leaves the ground in a serious way. Also you as the builder will be less likely to look at your new baby with the same critical eye as an expert.”

In the end you finish up with a wonderful aircraft, which will cruise at well over 110kts, can turn on a dime, is forgiving to the unwary, is capable of +6 to -3 aerobatics (shh) and cost you in the vicinity of \$50,000, if you don’t count the endless hours of your time and the endless trips to Bunnings – it wasn’t just one trip after all, was it?

And for Stuart? When his aircraft left the garage for the final time to take up residence in the hangar? “I started renovating the house”, he laughs. Of course, he did. ☺



WHO is in charge?

On a reasonably overcast afternoon, two pilots departed Bridport Aerodrome in Tasmania in a Europa aircraft.

The ownership of the aircraft had recently been transferred and the purpose of the flight was to familiarise the new owner with the flying characteristics of his new purchase.

The Europa was registered in the experimental VH category. It's a two-seat, low-wing, composite kit aircraft. It can be flown from either seat, but the fuel sight gauge and instrument panel are oriented primarily for left seat operation.

After flying to the north-east of Tasmania, the pilots turned around in the face of approaching bad weather and returned to Bridport. They completed two touch-and-go circuits. Shortly after take-off on the third circuit, the engine spluttered for a short time, then stopped. A forced landing was conducted in a nearby paddock.

One pilot sustained spinal injuries and the aircraft was damaged.

The Australian Transport Safety Bureau report into the incident found the primary cause was the engine ran out of fuel. But there was an underlying, more important reason the aircraft was lost – confusion. Both pilots thought the other was in command.

The ATSB said inadequate communication between the pilots resulted in the plane taking off with no defined flight plan, no pre-flight brief and each pilot believing the other was in charge.

The ATSB also found low fuel levels onboard had the potential to interrupt the fuel flow to the engine.

“The lack of a flight plan prevented the pilots from ensuring there was sufficient fuel and reserves available to ensure safe flight,” the report said.

“In addition, in-flight fuel monitoring was not

sufficient to identify low fuel quantity and ensure fuel supply to the engine was not interrupted.”

WHO'S ON FIRST

The two pilots had flown together on three previous occasions, before the transfer of ownership. Pilot A told the ATSB he flew the aircraft from the left seat on the second and third flights, but Pilot B reported all three flights were conducted with pilot A in the right seat. Pilot A had no formal training or experience flying either a Europa or similar performing low - wing aircraft other than during these three flights. Pilot B reported knowing that pilot A did not hold a pilot's licence, yet reported telling Pilot A, prior to departure, that Pilot A would be the pilot in command for the flight. Pilot B indicated that pilot A accepted the role of pilot in command, but wanted Pilot B along for confidence, due to his limited experience in the aircraft.



Pilot B advised he was not ‘instructing’ Pilot A, but rather, offering ‘reassurance’. Pilot A reported that, because Pilot B was the previous owner and held a pilot’s licence, he had the necessary qualifications to act as pilot in command and therefore Pilot B was ‘the pilot in charge’.

During the pre-flight preparation, most of the time was taken up with running the engine and conducting an examination of the aircraft. Both pilots reported the aircraft had 45-50 litres of fuel on board and considered it would be sufficient for the flight. However, neither confirmed the exact amount of fuel on board, nor conducted specific planning for the flight in terms of actual endurance and reserve fuel amount, as there was no agreed confirmation by either pilot as to who was the pilot in command and neither pilot ensured that any of the actions required by the regulations, to ensure a safe flight, were completed.

Despite the aircraft being equipped with dual controls, the aircraft instrument panel and fuel sight gauge were oriented primarily for left seat command operation. Therefore Pilot B, in the right seat, was not in an ideal position to act as pilot in command, or to assist if it were required, during flight.

The ATSB report said the accident highlighted the importance of pre-flight planning.

“Pilots should ensure every flight is appropriately planned for, using accurate flight times and fuel calculations.

“Once airborne, the continual monitoring of time and remaining fuel should be conducted.

The investigation also found neither pilot understood the fuel system and identified instances of misinterpretation of a number of the regulations concerning the maintenance of amateur-built experimental aircraft.

FUEL ME ONCE

The ATSB report had some pertinent things to say about the fuel system on the aircraft.

- The fuel sight gauge reflected the fuel quantity available to the engine with the main tank selected. There were no other fuel quantity indicators. In addition, the fuel sight gauge was accurate in level attitude only.

- The fuel sight gauge scale in the aircraft included reserve fuel in the indicated quantities, which is not in line with industry best practice.

- An unofficial fuel calibration had been conducted by Pilot B to determine fuel quantity when reading the gauge on the ground, with the aircraft in a tail-low attitude. The unofficial calibration resulted in additional marks on the fuel sight gauge that were to be read in conjunction with associated marks on the pilot check card.

- During the unofficial fuel calibration, Pilot B reported that 35 litres of fuel was required to be added to the tank to bring the sight gauge to the 5 litre, level (in-flight) mark. This demonstrated that a significant quantity of fuel could be present in the tank, but unavailable to the engine in tail-low attitudes, such as during climb.

- The fuel valve was likely set on the reserve tank for the flight (considering the final position of the valve and both pilot’s recollection regarding movement of the valve).

- The fuel sight gauge (main tank) would not have indicated the reducing fuel levels in the selected reserve tank when the fuel level dropped

below the height of the tunnel.

- About 16 litres of fuel was recovered after the forced landing, with approximately equal amounts from each tank drain point. Considering the fuel tank setup and likely sloshing of the fuel during landing, there was likely to have been about 10 litres on one side of the tunnel and six litres on the other prior to the engine stoppage. The six litres in the selected tank had the potential to allow the fuel to un-port and interrupt fuel flow to the engine.

- Inadequate fuel records for the aircraft had been maintained.

- The aircraft’s log book was incomplete with respect to fuel system maintenance and the aircraft fuel filter had been replaced with an unapproved part.

The Europa Owner’s Manual Normal Operations section stated that following take off, the electric fuel boost pump was to be selected to ‘off’ after the aircraft reached 1,000ft AGL.

The Pilots Check Card and Flight Planner ‘climb’ check differed from that. It said the electric fuel pump was to be switched off after flaps and landing gear were selected ‘up’ and before a cruise climb of 90-100kts was established. No altitude guidance was provided on the check card for this action.

SAFETY MESSAGE

“All flights, even those conducted for private purposes, should be conducted with due consideration of operational needs and requirements, including appropriate experience, training and licencing on type. This accident highlights the importance of pre-flight planning. Pilots should ensure every flight is appropriately planned for, using accurate flight times and fuel calculations.

Once airborne, the continual monitoring of time and remaining fuel should be conducted.

CAAP guidelines for aircraft fuel requirements recommend private VFR flights plan for 45 minutes of fixed fuel reserves.

Good communication between pilots, observing recommended operating procedures and effective flight planning, will all help to reduce risk and enable safe flying.

Finally, ongoing safety requires aircraft owners and maintainers to operate and maintain the aircraft in accordance with relevant regulations, including those specific to experimental aircraft.”

“This accident highlights the importance of pre-flight planning”

Warning on whale watching



AUSTRALIA has 45 species of whales and dolphins which live in or migrate through its waters. Such an abundance provides a fabulous opportunity for people to have high quality whale and dolphin watching experiences. These opportunities also enable Australia to have and promote a sustainable industry which allows the public to view and learn about these animals in their natural habitat. Associated with this is the responsibility to ensure that potential impacts from watching whales and dolphins are managed appropriately.

Aircraft may disturb whales and dolphins due to their speed, noise, shadow, or downdraft (in the case of helicopters). Aircraft should be operated in accordance with the provisions outlined below.

Note, these provisions do not apply where general civil aviation rules do not allow for the requirements to be met (e.g. due to take off and landing requirements).

DISTURBANCE

Whales and dolphins may be disturbed by the presence of people, vessels or aircraft. Disturbance to animals, particularly from cumulative effects, may lead to long-term negative impacts.

Although not well understood, the following are some of the potential problems that may be caused by disturbance:

- disruption of behaviour (e.g. feeding, nursing, mating, migrating and other behaviours);
- displacement from or avoidance of important habitat areas (e.g. resting, feeding, breeding and calving areas);
- stress;
- injury;
- increased mortality; and
- reduced breeding success.

It is important that people recognise signs of disturbance and immediately move away from animals that are disturbed. The following reactions may indicate that a whale or dolphin is disturbed:

- attempts to leave the area or moves away from the vessel quickly or slowly;
- regular changes in direction or speed of swimming;
- hasty dives;
- changes in breathing patterns;
- increased time spent diving compared to time spent at the surface;
- changes in acoustic behaviour; and
- aggressive behaviours such as tail slashes, and trumpet blows.

NATIONAL STANDARDS FOR AIRCRAFT

GYROCOPTERS

As illustrated in Figure 1, a person operating a helicopter or gyrocopter in the vicinity of whales and dolphins must:

- not fly lower than 500m (1,650ft) within a 500m (1,650ft) radius of a whale or dolphin;
- not hover over the no fly zone;
- avoid approaching a whale or dolphin from head on;
- avoid flying directly over, or passing the shadow of the helicopter directly over a whale or dolphin;
- cease the activity if the whale or dolphin shows signs of disturbance.

OTHER AIRCRAFT

As illustrated in Figure 2, a person operating any other airborne craft including fixed wing, gliders, hang-gliders, hot air balloons and airships in the vicinity of whales and dolphins must:

- not fly lower than 300m (1,000ft) within a 300m (1,000ft) radius of a whale or dolphin;
- not approach a whale or dolphin from head on;
- not land on the water to observe whales or dolphins;
- avoid flying directly over, or passing the shadow of the aircraft directly over a whale or dolphin;
- cease the activity if the whale or dolphin shows signs of disturbance.

In some instances, such as for scientific or educational purposes, or commercial filming, it may be necessary for aircraft to approach closer to a whale or dolphin than outlined in the national standards. This may only occur under the authorisation of the relevant state, territory or Australian Government agency. In these cases, all aircraft must operate within the conditions of authorisation.

SOURCE:

Australian National Guidelines for Whale and Dolphin Watching
<https://tinyurl.com/y76sw8sz>

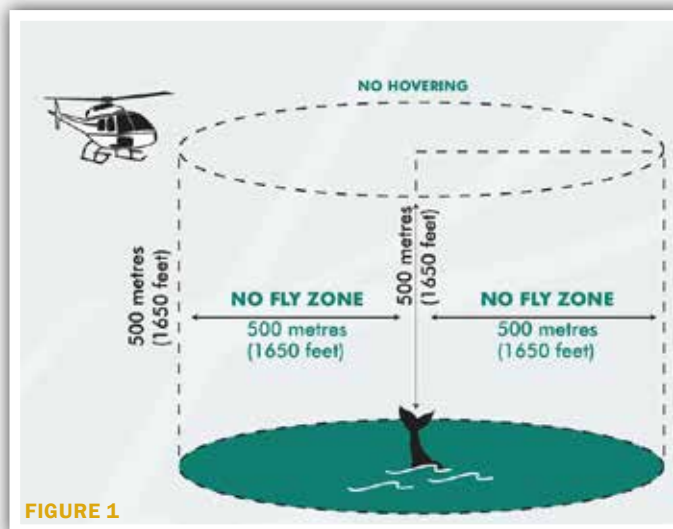


FIGURE 1

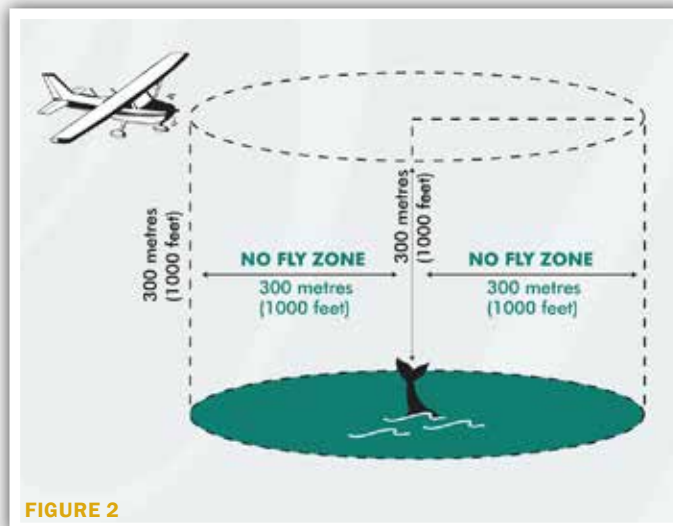


FIGURE 2



Looking for somewhere to stay during your whale watching experience?

Fraser Views Bed and Breakfast



Large deck overlooking Fraser Island

Fresh cooked hot breakfast

Three queen size beds

Combined lounge, dining with kitchenette

Fresh cooked evening meals available

Airport transfer by prior arrangement

Fraser Island barge services 10 min drive



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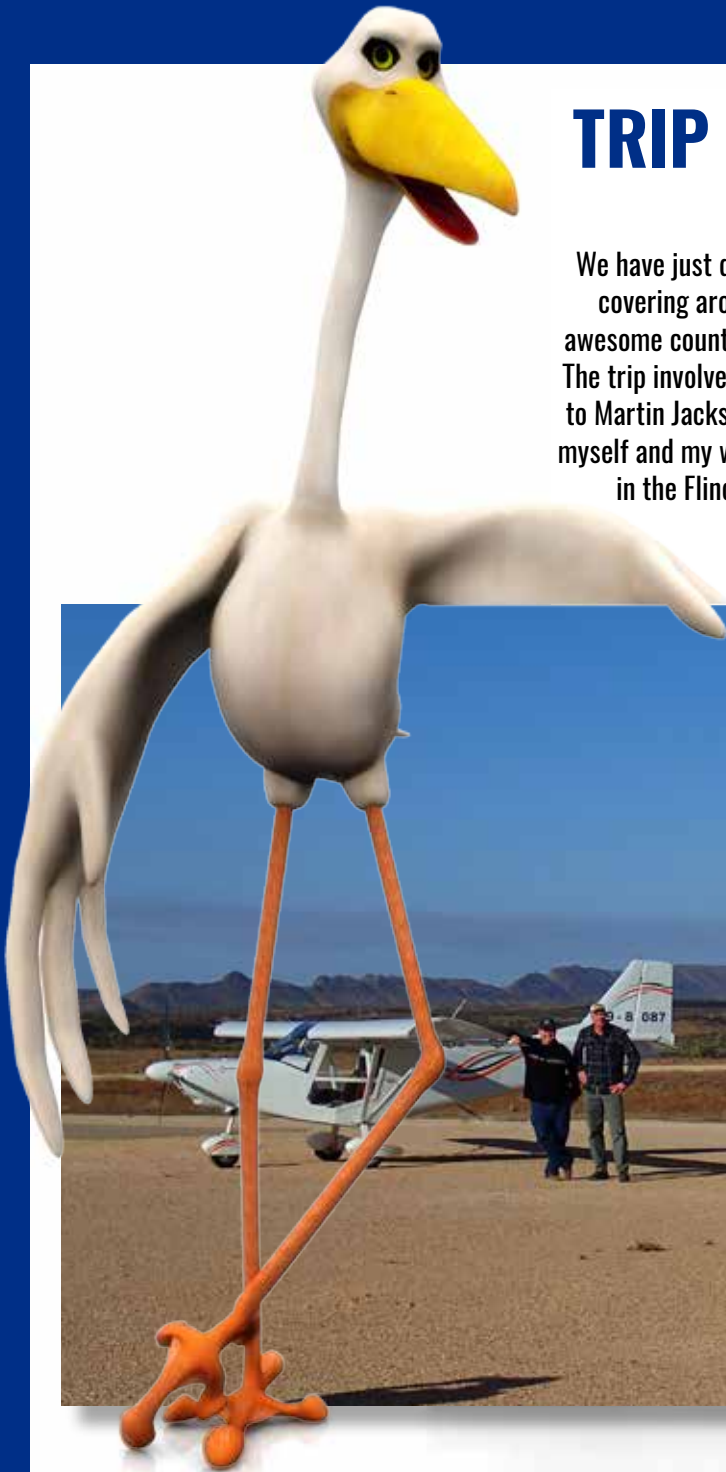




TRIP TO THE CAMEL RACES

BY GUY SMALL

We have just done a 12 day trip from Lismore out to Marree camel races covering around 2,300 miles and 30 hours flying time. We saw some awesome country, visited and stayed at some unique towns in the outback. The trip involved two Savannah S and two couples, the white one belonging to Martin Jackson and his wife Anne Marree, and the blue one belonging to myself and my wife, Sandra. These photos were taken at the Arkaroola strip in the Flinders Ranges where we stayed the night before heading off to Marree. Martin Jackson is on the left and me.



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) to editor@sportpilot.net.au. It obviously has to be in landscape, not portrait, mode and be as big a file as possible please.



Broken fingers

BY THE OPS TEAM

I ADMIT TO BEING MORE THAN A LITTLE HORRIFIED WHEN I READ BRIAN'S EDITOR'S CHOICE ARTICLE ENTITLED 'FINGERS CROSSED' (*SPORT PILOT* AUGUST 2017). PARTICULARLY IN LIGHT OF RAAUS' IMPROVED REPORTING CULTURE THESE DAYS AND THE FOCUS ON NATIONAL SAFETY MONTH IN OCTOBER - ASSESSING FITNESS TO FLY. COME ON BRIAN, YOU CAN'T JUST WRITE ABOUT SOMETHING LIKE THIS AND NOT EXPECT ME TO RESPOND, CAN YOU?

IN 'Fingers Crossed', Brian discussed the behaviour of one of his flying buddies called Trev, who appeared to be showing the early signs of dementia. The article outlined the evidence Brian and his other pilot friends had gathered about Trev's mental state and reported how they had a discussion whether or not to say something to Trev himself, or even report him to RAAus. In the end, the group decided to wait and see before saying anything. If the problem got worse, someone would say something but, in the meantime, they would give Trev the benefit of the doubt.

While I sympathise that Trev's problems might not be easily managed, there are a number of steps we must all commit to when faced with our own personal Trevs.

MANAGING THE SITUATION

For Trev' situation, a non-threatening chat to him via his best friend (if he still has any) might be the best way to encourage him to talk about his own behaviour. Start in general terms by asking him about his latest trip and then casually ask if anything happened on the trip. Trev might be quite aware of, and actually scared about, his most recent adventures and he might be aware himself of his possible decline. Like many people do when faced with news we don't want to deal with, he might have decided not to do anything, in the hope the problem will just go away.

Once Trev realises his problems are visible to others and could have an impact on his hobby, he might decide to do something about it. This could include taking a flight with a trusted CFI to check he is still on top of his game, seeing a doctor if he has health concerns, or taking other steps to ensure his problem doesn't get the better of him.

Maybe he is just becoming a cranky old man! The change in our outlook as we age often includes what seems to be irrational anger at situations, which years ago would have been laughed off.

Maybe pilots at the airport could offer to accompany Trev on trips as an extra set of eyes (a safety pilot) or take him flying in their aircraft to ensure he stills gets airborne.

STICKING OUR NOSES IN

Rather than worry about being accused of sticking our noses in where they aren't wanted, think about how terrible you will feel if Trev has a serious accident or worse. If only you had said something, maybe he wouldn't have been so badly hurt. Too many times when attending accident scenes, RAAus gets told the pilot's behaviour or attitude had worsened over the past few months, that his actions had become more erratic or he had made some serious mistakes. So Trev's behaviour is not uncommon among our more senior pilots.

While Trev will probably react badly to your conversation initially, if he is really a thoughtful pilot, eventually he will see the reasons why you spoke to him about your concerns.

GOING THROUGH A TOUGH TIME

If you are wrong about your dementia fears and Trev is just going through a tough time at home or elsewhere, at least you have let him know you think it is potentially affecting his flying and alerted him that others have seen the change in him.

I was recently told of a pilot at an aerodrome whose behaviour had also changed for the worse in recent times. He had become increasingly snappy, irrational and very irritable. While it is easy to just walk away, there is usually a reason for these changes. In this particular case, it was a

job change which had made the pilot, and subsequently friends and family, miserable. Once we started a conversation, a simple enquiry about how work was going meant it didn't take much to get to core of the problem. We moved onto possible strategies to ensure the new role didn't cause too much additional stress and we decided the best answer was for the pilot to

have a discussion with his boss.

You see, until we had our intervention, the pilot was sort of aware of his changed behaviour, but didn't really realise how much it was impacting his friends and family. It wasn't a pleasant start to the conversation, but it led to much improved quality of life for all concerned, along with his sensible decision to stop flying until his work situation improved.

SHOULD RAAUS TALK TO HIM?

If Trev responds poorly to your conversation (and it should be a friend or family member who initially talks to him), you can then contact RAAus and submit a confidential complaint through the online Occurrence Management System. While RAAus has no specific power or authority in these cases unless a serious safety issue has arisen, if we receive a complaint about a pilot's behaviour which potentially impacts on safety, we can take action.

The report cannot be anonymous, but will be treated confidentially. It must include details of the time, date, location and aircraft registration or any other relevant information. Once the complaint is processed and investigated, we can take a variety of actions.

These may include suspending the pilot until a flight review with a CFI is completed, or additional retraining completed, requiring them to fly with a safety pilot or some other action.

At the end of the day, this is a complex community problem and like many complex community problems, it takes a combined approach, with careful and respectful interactions to achieve a good result.

ARE THERE ANY CHECKLISTS?

There are no checklists or specific guidance in these matters, because each situation is personal and unique to the person.

However, isn't the Aussie culture supposed to include looking after your mates?

If you don't do that, what's the point? Sure, Trev may not talk to you for a while, but you will know you have done the right thing.

See something, say something, look after your mates, check on each other and don't be afraid to have those awkward conversations. The life you save may be your best mate's, and isn't that worth it? 🧐



First solo mishap with an epilogue

BY DAVID P. EYRE



MANY YEARS AGO, IN NEW GUINEA, I WAS APPOINTED TO BE THE BASE FLIGHT INSTRUCTOR IN LAE, EVEN THOUGH I WAS RELATIVELY INEXPERIENCED.

One of my students had progressed well through his training and had reached the stage of being ready for his first solo. It was a bright sunny day with a gentle zephyr of a wind right down the runway. We taxied back to the threshold of runway 14 where I conducted the usual send-off patter, informed ATC, climbed out and sent him on his way.

As the little Cherokee 180 flew around the circuit, I walked back to a maintenance workshop situated alongside the runway.

Now, as most pilots will know, flight instructors, although confident, become quite nervous on the first flight for the student. As the student approached touchdown I was chewing on a blade of grass and clenching my hands.

I breathed a sigh of relief as the student touched down right in front of me. Although the landing was a little flat, the aircraft was running along smoothly enough and I believed it was a successful landing. Suddenly, to my dismay, the aircraft reared up and became airborne again. The student pushed the stick forward and bounced on the nosewheel and then went completely out of phase, with back and forward movements of the stick as the aircraft bucked along the runway until it came to a stop. Propeller bent and twisted, nose wheel collapsed, fuselage buckled and one very white-faced student stumbling out of the cockpit.

Although I tried to settle the student down, he jumped into his car and that was last I saw of him!

In my analysis of the event, I realised what the problem was and since that time I changed the way I taught landings and have inculcated this with my instructors.

“To my dismay, the aircraft reared up”

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TESTIMONIAL
'I decided to get your videos to watch repeatedly while saving for flight lessons. The videos are really helpful, definitely worth the \$\$\$.'
J.Wiatkowski

EPILOGUE

Back in Australia, many years later, I was the CFI of a company manufacturing and selling ultralight aircraft. One day my boss, Jim Fenton, handed me a letter with an inquiry from a chap in New Guinea asking about our aircraft. It turned out that the letter was from my former student referred to above. In my reply to him I outlined the virtues of our aircraft, training costs and all the usual guff.

I wished him all the best and, without mentioning the first solo mishap, I enclosed a photograph of the damaged Cherokee. I never heard from him again!

Dale Carnegie, in his book 'How to Win Friends and Influence People' would not have too pleased with me. ☹

David welcomes your own aviation anecdotes.
Email them to editor@sportpilot.net.au



A dog of an afternoon

BY BRIAN BIGG

IT STARTED OUT GOOD AND I HAD THE BEST INTENTIONS, BUT I'VE ENDED UP UNEXPECTEDLY LEARNING ANOTHER LESSON ABOUT THE DANGERS OF FLYING. AND ISN'T LEARNING LESSONS WHAT WERE ALWAYS ON ABOUT, DOGGONNIT?.

IT began about lunchtime. I'd been working on the magazine all morning and was looking to have a break. Our little black-and-white Maltese Shihtzu, Sammy Dog, had been snoozing at my feet all morning. When he saw I was standing up with the intention of going out, he began to get very excited. He's not silly. He knows a walk is in the offing if he can convince me to take him.

I had other ideas in mind. It was a beautiful day and I planned to push the aeroplane out and get up off the ground. Working on the magazine never fails to make me want to go flying. So I faced a conundrum. Carry through with my original plan to go for a fly, or take the dog for a walk? In the end, I decided to compromise and take the dog with me for a fly. I should say that I hadn't taken him before in the aeroplane, but on car trips he usually settles down quite quickly and sits quietly until we reach our destination. Apart from one spectacular accident when he was just a pup, he doesn't suffer motion sickness either.

So I retrieved the lead from behind the door, which got the little fella very excited. He towed me along behind him all the way to the car.

At the airport, I left him bouncing excitedly backwards and forwards across the back seat of the car while I pushed the aircraft out and finished the pre-flight. Then I went back to the car, grabbed his lead, led him the short distance across the tarmac and hoisted him into the aeroplane. I left the lead attached to his collar.

Immediately he stood up to look out the window as I went around to the other side and climbed in. The take-off and climb out were normal and the flight itself was another in a long line of beautiful flights I've had along the coast. It might be Australia's busiest air corridor but the north coast of New South Wales can have days where there is no one else up in the air. This was one of them. The air was benign, the temperature comfortably warm and it was just one of those perfect days for going nowhere in particular.

The only cloud on the horizon was the pooch.

Sammy didn't seem to want to settle. He stood up with his paws on the windowsill and walked in circles on the seat, tangling his lead and forcing me to push him out of the way when he got too close. It occurred to me then that I hadn't given him a drink or checked to see he'd been to the toilet before we left. So, despite the beauty of the day, I decided to turn and take the little fella home before either he threw up or took a crap on the seat, both of which now appeared to me to look more and more likely in his agitated state.

Back at the airport I joined the circuit. There was no one else around, but I made my usual calls and set up for landing. As I turned onto base, Sammy took leave from his pacing and put his head down into the footwell and tried to burrow behind the rudder pedals.

First I tried to call him out. "Come on Sammy," I called. "Come on out of there."

Then I reached over to try to drag him out. He yelped, because his lead had become tangled on the right-hand side pedal, trapping him partly between the pedal and the firewall.

I couldn't push the right-hand rudder pedal without him screeching in pain. And if I pushed the left-hand pedal to give him more room to get free, the aircraft wandered off course.

I abandoned the circuit and climbed up to a decent height, in a slow right-hand spiral (trying to keep the rudder pedal away from him), to reassess my options. I half leveraged myself out of my seatbelt and the seat to reach over into the well where Sammy was trapped.

A quick glance outside, however, made me realise that the aircraft had taken the opportunity of my gymnastics to follow me over to the right-hand side and now we were in danger of turning upside down. I straightened it up and tried, slowly wiggling my way to the right to where I could reach deep into the well and untangle the lead from the rudder pedal. Then I sat up quickly again because I could feel the aircraft wander off the straight and narrow again. This

time, I kept hold of the end of Sammy's lead. He was still tangled and yelping in fear. Once more I jiggled to the right, deftly untangled the lead from the pedal by feel alone and sat back up, roughly dragging the dog back onto the seat. I kept a firm hold on the lead all the way back to the airport, fully aware that I was likely to be cleaning up some muck from inside if I wasn't careful, either vomit or something infinitely worse.

Looping the lead around my right hand to stop the distressed dog from moving about, I performed a quick circuit and speedy landing and fairly raced the aircraft back to the parking area. Cutting short all my post landing checks, I turned it off, popped the canopy and dived out of the seat with the dog in my arms. I set him down in the grass next to the parking bay.

Sure enough, as soon as Sammy touched the grass he stopped, squatted and gave me a guilty look as he revealed the course of his distress. He'd been busting to go from the time he stood up from underneath my desk.

It was all my fault. I'd forgotten the first rule of being a pilot is to take care of your passenger's needs, even if that passenger is all hairy and licks your face (like my grandmother) or is a dog.

That last sentence will get me into the dog house, I'm sure. ☹️



Is he winking

"The only cloud on the horizon was the pooch"



Weight in Balance

BY ROB KNIGHT

WEIGHT and Balance is a subject discussed too often in hushed whispers, as if an out-loud discussion might mobilise gremlins and smite one of the group out of the sky. Yet it is so simple that children using its concept play in perfect safety on see saws.

So what's the big problem with aeroplanes? Over-weight is pretty obvious, but not so the balance part. An aircraft today, looking exactly as it did yesterday, rears up after take-off, rolls, pitches down, and dives into the ground. To the uninitiated, it could seem the occupants must have got on the wrong side of the supernatural.

But black magic it certainly is not. Centre of Gravity issues are both very simple and potentially very deadly. Yet, in almost all circumstances, very easily remedied. The problem is that for these dangerous issues, the remedial action must occur before the flight commences. After lift-off, it is already too late.

Centre of Gravity issues relate directly to the forces acting on an aircraft in flight. An incorrect Centre of Gravity position can create forces the controls cannot overcome so pilot control over the aircraft is irretrievably lost.

WHAT IS THE C OF G?

It is the pivot point on which a see-saw balances. In an aircraft; it is the point on which the whole aircraft will balance, or it is the point through which all the aircraft weight may be considered to act.

Its effect on the aircraft in flight is this – it determines the point about which the aircraft moves.

All aircraft movement takes place about the Centre of Gravity as is depicted on the Figure 1. It remains stationary and the aircraft moves about it. The location of the Centre of Gravity is fixed except for the minor changes (in most light aircraft) as payload may be dropped (cropdusting) or fuel is consumed. For this reason, designers try to keep the fuel and payload centres of an aircraft as close as possible to the Centre of Gravity.

THE FORCES

The forces acting on the aeroplane in flight comprise the lift which supports the weight and thrust which counters the drag. But they are arranged in a very special manner – in couples. A couple is a situation where two equal forces act in opposite directions about a point. See Figure 3 for this. It is a depiction of a couple – two forces acting about a point and causing the arrangement to rotate. Opposing a couple relies on another couple, as shown Figure 4 where the blue couple acts clockwise opposed by the red couple acting opposite. Because they equal each other and there is no residual imbalance, we say that they are in equilibrium.

Similarly, the four forces acting on the aeroplane are paired and set up as two couples. Lift and weight are coupled to act about the Centre of Gravity and pitch the nose down, while thrust and drag are paired as couple two to pitch the nose up. As previously stated, if they can be arranged so they oppose each other equally, the aeroplane will require no further force to maintain its attitude.

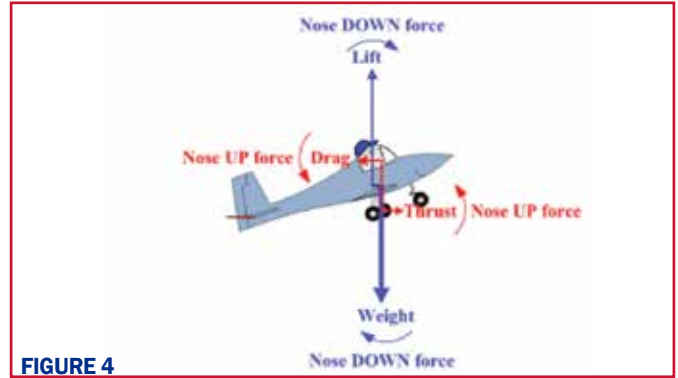
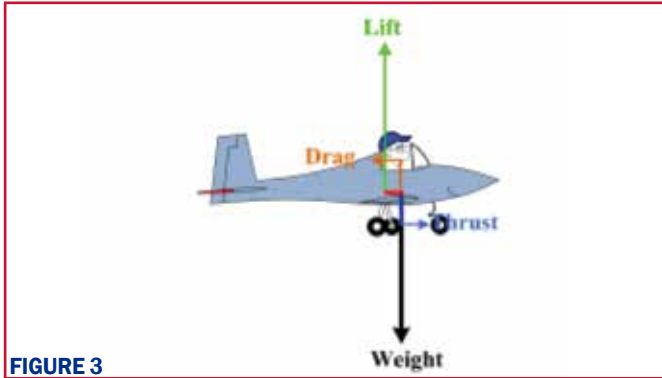
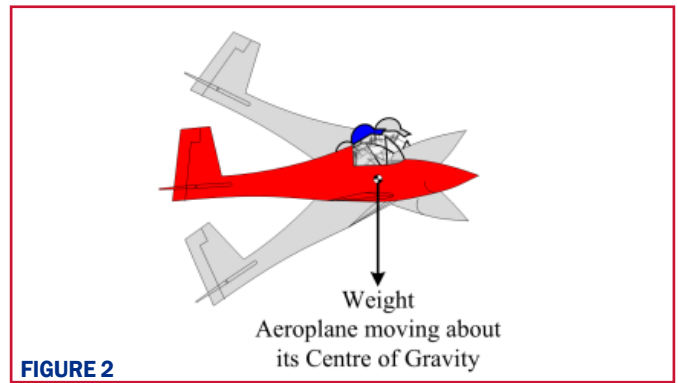
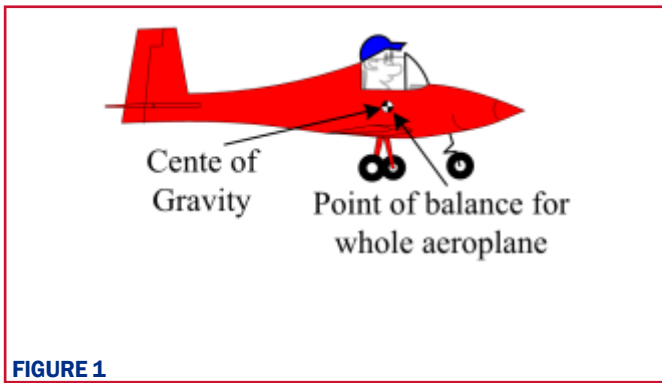
This is a designer's dream because it minimizes drag and so maximises speed which, in turn enhances the range and endurance of the aeroplane design.

For these couples to function correctly, the weight must always be forward of the lift which is represented by the Centre of Pressure, and the thrust line must be lower than the drag line as shown in the image Figure 4. This presents a state of equilibrium.

What we are doing when we calculate the position of the Centre of Gravity, is identifying the point where the weight line is acting. It is presented as a distance from the datum, or as a percentage of the mean aerodynamic chord (MAC).

Where MAC is used, details should be provided in the flight manual. In definition, MAC is simply the average chord length along the span of a wing.

Now let's consider the interaction of these four forces and their couples



as the aeroplane is maneuvered in flight. If we lower flaps in a high-winged aeroplane, the drag line will rise and increase the power of the thrust/drag couple. This is likely to cause the nose to pitch up. In a low winged aeroplane the reverse may occur. A decrease in thrust in either a high-winged or low-winged aeroplane will decrease the power of the thrust/drag couple and cause the nose to pitch down – a highly desirable trait as an aid to maintaining airspeed if an engine failure occurs.

Of greater consequence is movement of the Centre of Pressure. As mentioned earlier, the Centre of Pressure is the point on the aerofoil chord through which all the lift forces act. It is the equivalent of the Centre of Gravity insofar as the aeroplane's lift is concerned. Also as mentioned earlier, the lift upwards and the weight downwards are arranged as a couple with the effective arm between being the linear distance between the Centre of Gravity and the Centre of Pressure. And herein lies the problem – as the angle of attack changes so does the location of the Centre of Pressure. With an increase in angle of attack, the Centre of Pressure moves forward along the chord. This is unstable and effectively reduces the arm and thus the strength of the lift/weight couple. This means there is less natural force to hold the nose down and the elevator must be used for attitude control.

Before the stalling angle is reached, any increase in angle of attack will cause the Centre of Pressure to move forward along the chord, and always closer to the Centre of Gravity. If the Centre of Gravity is already too far back, catastrophe is waiting.

THE MESSAGE

The message is as simple as it is dramatic. Operating an aeroplane with a Centre of Gravity position behind the aft limit stated in the flight manual for that aircraft is extremely dangerous. If an aeroplane is improperly loaded and its Centre of Gravity is behind the aft limit, the arm between the Centre of Gravity and the Centre of Pressure is diminished, which reduces the strength of the nose-down lift/weight couple. At some stage of flight, the thrust/drag couple may overpower it or the arm may reverse and control of the aeroplane will be inevitably and irretrievably lost. Flying an aeroplane with its Centre of Gravity aft of its design limit is tantamount to driving at 120kmph down the motorway with loose wheel nuts on all four wheels. Yes, they may not come off this time, but at some point you are going to end up in the dirt.

If the Centre of Gravity is only slightly aft of the limit and the aeroplane's

angle of attack during the flight remains low, maybe nothing will happen. Perhaps, at most, the lucky pilot might be surprised at how easily the aircraft flares and settles onto the ground at the end of a short flight. However, on a longer flight, in an aeroplane whose Centre of Gravity moves aft with fuel burned, the outcome could be entirely different. In an accident report in New Zealand, a Piper Seneca took-off from Auckland International on IFR flight south. It was overloaded but, worse, it had an excessive baggage in the aft locker. The flight was uneventful until the aircraft was slowed down to enter the holding pattern at 7,000ft a little north of Wanganui. The

accident report indicated that, as the pilot slowed the aircraft and raised the nose to maintain height, the lift/weight arm had diminished almost to zero. The aircraft stalled and entered a spin from which there was inadequate elevator authority to affect a recovery. All on board were killed.

Perhaps a more typical stall/spin caused by an aft Centre of Gravity position is where an aircraft takes off and, at about 50ft above the runway, suddenly rears up, rolls and dives into the ground. Here, the aft Centre of Gravity position causes a slower response and is aided by the increasing lift with increasing airspeed. As the pilot eases the controls back to establish the correct attitude for the climb, he increases the angle of attack and the Centre of Pressure moves forward, diminishing the power of the lift/weight couple. The Centre of Pressure might actually move ahead of the Centre of Gravity, in which case a complete reversal of the couple's force takes place and it changes from being a nose down to a nose up couple. Now two nose-up couples are in force and there is no hope of ever recovering control of the aeroplane.

We should also note the effects of a Centre of Gravity forward of the forward limit. Here the pitch control is also lacking but, because this error makes the aeroplane effectively nose heavy, the issue comes when raising the nose to the correct attitude after take-off and raising the nose with falling airspeed when landing. This may lead to landing with excessive speed which can cause a runway over-run. This has obvious dangers of its own, but is not nearly as potentially lethal as an uncontrollable stall/spin after take-off.

Prudent pilots never operate their aeroplanes outside of any flight manual stated limitations or limits.

“The message is as simple as it is dramatic”

NEXT EDITION

How to find the Centre of Gravity position. ☒

Letter from Oshkosh

BY DARREN BARNFIELD RAAUS TECHNICAL MANAGER



From left Dean Tompkins, Nick Wright, Chad Summers, Jack Pelton, Darren Barnfield and Charlie Becker



The legendary Stan Lee



Darren Landing at EAA 2017 in the Dornier DO 28 owned by Dan and Mary Fulwiler



THIS year I had the awesome opportunity to fly in to the EAA event in a Donier D028. An amazing experience for any pilot because there is nothing like it anywhere else in the world.

For anyone who has never attended EAA, trying to put into words the magnitude of this event is almost impossible. This year for the first time the Blue Angels conducted shows. It was a performance that I don't think I will ever see done any better.

The primary reason for my visit this year was to support the RAAU Maintainer of the Year award winner, Chad Summers. Chad took the opportunity to bring his family along and spend some time travelling around the US before coming home. In the year leading up to AirVenture the behind-the-scenes relationship building and sharing of knowledge continued to develop.

In my recent travels to this event I had made the acquaintance of Charlie Becker. Charlie is an extremely active member of the EAA and is in charge of community and chapters. The EAA has 900 chapters around the world.

Last year, I discussed with Charlie our Maintainer of the Year award and told him a trip to Wisconsin was the prize for the winner. Based on our talks, I was able to arrange a meeting for Chad with him and EAA CEO, Jack Pelton. Jack has had a long career in aviation, finishing up as the CEO of the

Cessna Aircraft Corporation prior to taking on his role with the EAA.

Chad and I met with Jack and Charlie on the Saturday morning in the EAA Museum at the EAA chapter awards breakfast. Before the breakfast we managed to get a personal meeting with Jack. Also there was Mick Wright, who was third in the maintainer of the year award and former RAAU tech manager Dean Tomkins. It was a lively discussion and Jack made the comment that he was very impressed with the direction of RAAUs, especially with its maintainer of the year award, recognising the importance of maintainers in our industry.

So it was a massive trip again. We saw everything from powered parachutes to Blue Angels, from two B 29 bombers (Fi Fi and Doc) to, for the first time a B1, B2 and B52 were displayed at a public air show, to listening to astronauts in the Theatre in the Woods, Blue Origin- private space travel rocket, homebuilt jet powered aircraft, ultralight displays, an F22 crew chief discussion, arranging partnerships with suppliers like Flight FLIX to meeting Stan Lee and other people from all over the continent who all share that one passion - aviation. For me EAA 17 was a whirlwind 10-day visit, meeting with manufacturers, designers, aircraft importers and enthusiasts.

This will be remembered as the best EAA event I have had the privilege to attend and promote RAAUs. ☺

Adventure before dementia

VIEWPOINT



Surrender gracefully the things of youth (Desiderata). I've never really liked children. My own children were tolerable, even enjoyable on occasion, but other people's - not so much.

It was eventually quite liberating to disclose this abhorrent lack of character and finally not have to goo and gah at babies or say how cute other people's kids were. Oscar Wilde said "style is so much more important than sincerity" and, despite much sincerity practice, it is beyond me to look at photos of the entire range of poison dwarves belonging to my colleagues.

Perhaps it's because I'm a control freak that I find children so disconcerting, but there it is. I prefer people my own age and I say all this by way of a disclaimer. I'm definitely biased and agree with W.C. Fields. When asked how he liked children he replied "boiled or par-boiled".

One of the things I therefore love about recreational aviation is that it's full of old folk with similar likes, dislikes and backgrounds with a wealth of experience. I suppose it's inevitable that people with time and money should be over 50, and it's best to have both those things if you're drawn to the sort of aviation which has no commercial gain. As I inferred before; I prefer grey hair to pimples.

So, as you can see, why would I want to attract more youngsters to my organisation?

For a start, they are out to get a cheap foothold into a career in aviation. This, from our viewpoint, means we have to teach aviation, navigation and communication at a base level for their advancement into PPL and CPL. Something to do with primacy for them, but a burgeoning syllabus for us.

Secondly, the subtle change of educational standards is leading many good RAAus schools down the joint RAAus/GA pathway. Inevitably this will lead to young pilots wanting to be RAAus instructors to get hours under their belts. Personally, I'd want someone my own age, with whom I can identify, who will teach me what I want to know to fly RAAus.

Thirdly, introducing a younger cohort to the clubs changes the type of hangar talk we all enjoy. What does someone aged 20 have to contribute to the experience of someone aged 70? Bravado?

Finally, it appears we are metamorphosing into something we're not. A clear-cut change in image and the charge is being led by our younger members. Soon we will replace jeans and tea shirts with epaulettes and badges of rank and we will eventually provide a pathway for their political advancement and administrative careers.

Obviously flying schools have to keep their doors open and they need paying clients to do it. Fair enough, but with the well publicised ever-increasing ageing population, why are we spending time and money advertising to attract the young? Are we spending enough on advertising to the baby boomers, who not only have the numbers but the money and time too. 'Adventure before dementia' seems to be a good catchcry and I'll donate to an octogenarian's first solo award.

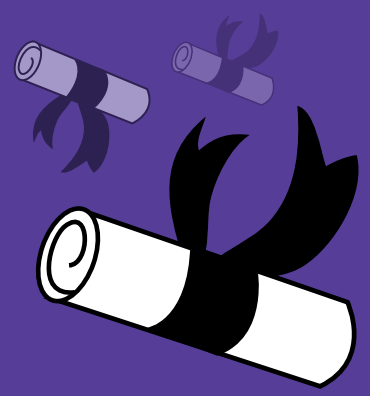
I suppose in a way I am having a grief reaction to the loss of the original ultralight federation. A strange inverse of 'loss of innocence' and a direct loss of simplicity. I like RAAus and I like my RAAus friends but I regret the complexity which seems to be our future. CASA seems constipated with paperwork and I hope we are not going onto the same diet. Old bowels might not tolerate it, eh? ☹

"I suppose in a way I am having grief reaction"



A fun experience

BY PROFESSOR AVIUS AVIATION GURU



BAR talk often revolves around who is an average pilot, who is a good pilot and who is a good instructor.

More often than not they are not the same person. Have you ever stopped to ask why? To be an instructor you need to first be a competent pilot; but to be a great instructor you need to be a competent pilot and a competent teacher.

To be one of the better/great instructors you need, as well as aviating skills, to engage with the student to ensure learning is relevant to the student's background, understanding and skills.

Most student pilots are there because they want to be pilots and learn to fly – but not always. Sometimes it is simply to tick an item off a bucket list. At seventy-three Fred just wanted to go solo, that was enough for him. He embraced the theory with practice, and the day he went solo he achieved his goal, maybe never to fly again.

Whatever the goal, by creating an engaging, motivating and stimulating learning experience, the instructor can ensure the outcome is achieved with better competence and sooner through mutual enthusiasm.

IT HAS TO BE MEANINGFUL

It is essential students perceive the learning exercise as being worth something. If they don't consider the lesson to be worthy of their time and effort, they won't engage in a satisfactory way. Activities should be modified for each student, taking into account their previous knowledge and experiences (and acquired competency), and highlighting the value of the assigned exercise in a way which speaks to that knowledge and experience.

The instructor must develop a sense in the student of the importance of competence.

Emphasise the importance, relevance and integration of the theory with the exercise and ensure the knowledge and practice is developed with real world references.

In the post flight briefing go through the student's record and the exercise. If they didn't progress as well as planned, share your plan about how that is going to be addressed at the next lesson. It will strengthen the students' sense of competence in mastering the activity.

PROVIDE AUTONOMY SUPPORT

We may understand autonomy support as nurturing the students' sense of control over their behaviour and goals. During the training, the instructor will slowly transfer responsibility (without losing command) to the student. The process of training and developing competency is about relinquishing that control. Autonomy support can be developed by:

- Welcoming students' opinions and ideas into the briefing, discussion and exercise;
- Giving the student time to understand and absorb the activity.

Even in early stages, make the student responsible for something specific, creating an environment of responsibility early on

Allow the student to set the pace – but:

- Ensure the flying exercise is managed alongside the progression of the theory;
- Give the student choices, but don't allow their enthusiasm to be the task setter get the better of them – there may be eight or more flying hours in a day, but can the student competently absorb more than a couple of hours in the cockpit? Likely not.

TEAM/GROUP LEARNING

Collaborative learning is another powerful way to engage students, especially for the theory.

It has limitations in ab initio training because it is only applicable to theory and general briefing discussions. When students work effectively with others, their engagement may be increased, mostly because they experience a sense of connection to others during the activities.

There are no required educational standards to be a student pilot, therefore it is important for the instructor to establish some understanding as to the student's level of literacy and mathematical skill. Ensure the student always knows they can come to the instructor for clarifications.

ESTABLISH A POSITIVE RELATIONSHIP

High quality instructor-student engagement is critical, especially in the case of students experiencing difficulties. These relationships may include:

- Displaying positive attitudes and enthusiasm;
- Treating the student fairly;
- Avoiding deception or promise-breaking;
- Enhancing engagement and learning through the RAAus training structure and assessment strategies.

PROMOTING MASTERY

The students' perspective of the learning will also determine the level of engagement. When students pursue an activity because they want to learn and understand (i.e. mastery orientations), their engagement is more likely to be full and thorough. To encourage this mindset, consider various approaches such as framing success in terms of the learning (e.g. criterion-referenced) rather than performing (e.g. obtaining a good grade). You can also place the emphasis on individual progress by reducing social comparison (e.g. making grades private) and recognising student improvement and effort – report accordingly in the student record.

At the RAAus level, most students can be expected to have aspirations as a recreational flyer, but some will be using it as a stepping stone to a career in commercial or military aviation. By becoming familiar with the student's goals you will have established the first basis of getting to know the student. The student's maturity will also influence how you manage the learning environment dependent on long term goals.

Make sure the student is fit for each lesson – apply IMSAFE, and remember the instructing PEA principle: Purpose / Exercise / Assessment.

Finally ensure the exercise is a fun and enjoyable learning experience. 🧡





The glacier pilot

Reader, Kym Roach, came across an article recently in a magazine at a second hand shop dated 1956 and felt it would be of interest to everyone.

HIS name was Hermann Geiger who flew a Piper Cub PA 18 and became well known for his heroic feats on the Swiss alps. He operated out of Sion field.

A friend of Hermann's from the Swiss Alpine Club wanted to build a cabin at 9,500ft on the Mutthorn, but was having trouble getting the necessary 50 tons of cement up the slope. Herman fitted skis to his cub and flew over the summit. He circled a few times just above the snow and found a relatively smooth stretch, then let down and dragged his skis, planning to take off if they started to sink. They didn't so he made a couple of landings and take offs then went back to accept the contract.

In the next three months, he made 620 landings on the Mutthorn, loaded to capacity.

Not long after, he made 420 landings on the soaring Dent Blanche transporting another 35 tons of cement.

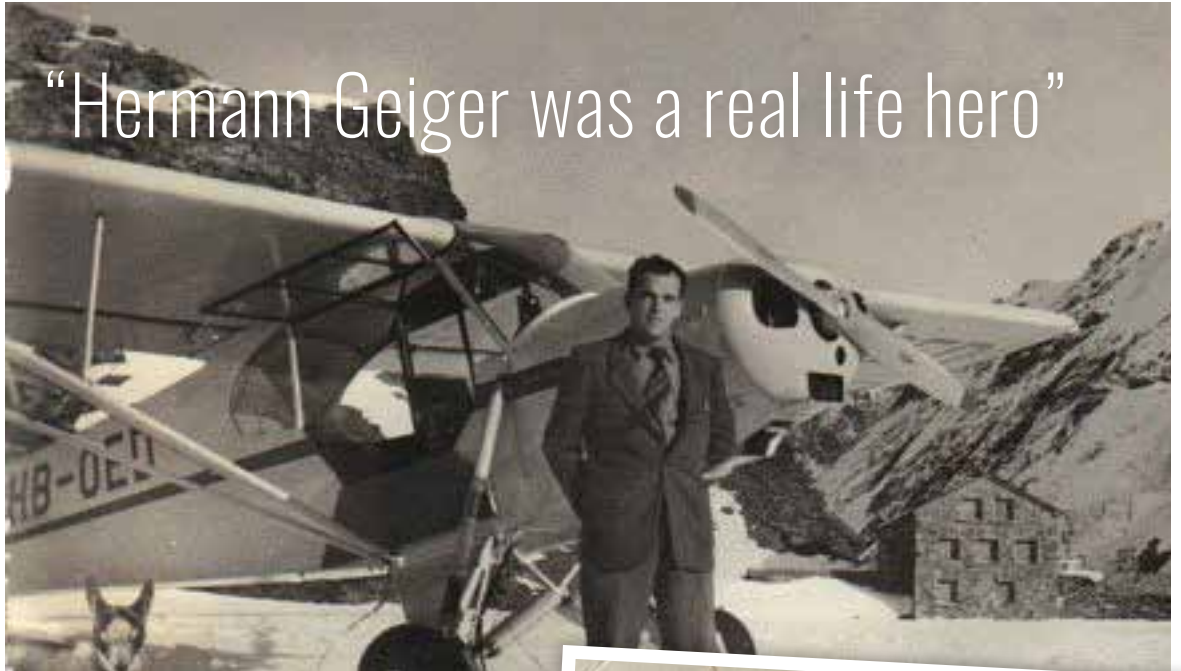
That winter a Swiss Army captain was climbing with a companion on the 11,742ft Tschingelhorn, was swept off his feet by an avalanche. With a broken leg and shoulder and serious head injuries, he was unable to move.

His companion, who knew of Hermann's glacier freight lifts, made his way to a telephone and called him. Hermann took the extra seat out of his cub and put in a stretcher. The captain's friend had covered him in his own bright jacket, so Herman was able to locate him.

He found a smooth stretch about 50 yards away and let down. Two hours later the captain was in the Sion Hospital.



“Hermann Geiger was a real life hero”



Word of Hermann’s feat spread through the alps and he would go on to make many more such rescues.

The most exciting day he ever had was in 1954. Twelve Swiss villagers were climbing on the Rosablanche, just above 10,000ft when an avalanche buried the lot. Two of them were covered only to their chests.

They managed to dig themselves out and ski down the mountain for two hours to a phone. Hermann took off as soon as he got the call. As he circled low above the fresh avalanche, he saw a single ski sticking out of the snow. He landed and got that man out and in the plane, but there was no sign of the others.

They flew back and decided to get his neighbour’s avalanche dog (a dog trained to find peo-

ple trapped under the snow).

He took the dog back and in three hours they had located every one of the victims and dug them out. Two were dead, but all the others recovered. He made a total of 10 trips that day.

Hermann Geiger was a real life hero, performing over 600 rescue missions. Unfortunately, in 1966 he was flying with a student at Sion airport when they collided with a glider. He died in the accident. ☹️



The future of FLYING

BY BRIAN BIGG

TO see where aeroplanes are heading, you need look no further than your own car. My new Hyundai i30, for example, which I bought in July, is so advanced it has to remind me to stay awake at the wheel.

It actually doesn't need me to be awake. It is quite capable of driving itself along the highway at 110kmph safely in traffic without any input from me, not even steering. I have done it a few times (it was scary as hell the first few times, but I have learned to trust it now).

The car has even slammed on the brakes itself a few times when the computers didn't believe I was capable of braking in time to avoid a crash (I could have – but the computers didn't think so and didn't bother to consult me about it). Thankfully no one has been behind me each time the brakes have slammed themselves on.

If someone rams me from behind because of it, how will I explain to the cops that I didn't do it. The car has sensors all around the body and cameras which allow me to drive backwards quite easily, park perfectly every time and not change lanes into someone else.

Hyundai HQ even monitors my progress 24/7 through satellites and will know before I do, if there is something wrong with the car.

I've been told that when I book it in for a service, the mechanics will examine the computer readout the car has already sent in and they will know what has to be done to repair it even before I get there, saving me time and money.

I'm told the next generation will link the car to the satellite navigation to automatically take me where I want to go. I might as well sit back and read the paper.

Don't forget this is a small hatch worth about \$30,000 too, not some hyper sports car from Germany.

The point is that, I now believe my new Hyundai i30 will be the last car I own which allows me to drive. And I can't wait.

When researching the story 'Here Kitty' for the July edition of *Sport Pilot*, I was surprised at the just how many people are putting similar innovative products into the field of personal aviation. It is astonishing to learn about the work being done around the world to change the way people move from place to place in the air.

At the 'Future of Transportation' world conference held in Cologne, Germany, in July all the companies, both big and small, developing aviation products, got together to show off their latest wares. Some of these are not strictly speaking in the field of RAAus, but all will have an impact on us, as early as 2030 by some estimates.

Most of these innovative aircraft are being developed to solve a big problem, not just to give us neat new playthings. The traffic situation in the world's megacities is heading towards gridlock and questions are being asked about how congestion and emissions can be reduced. Most experts agree the answer lies not just in one solution. To get people around cities safely and more efficiently, requires a new concept of mobility, according to the conference, a solution that is "modular, multi-modal, sharable, sustainable and high-tech, involving a whole new landscape, a new idea of transportation implying new infrastructures, new regulations and a new approach to mobility".



AIRCRAFT FEATURE



“Computers will run things and they won’t want us anywhere near them”

The changes are being brought about by the same changes taking place in cars - the speedy advancement of technology bringing down costs at the same time as it is exponentially increasing the capability of the machines and the computers which drive them, such as in my Hyundai.

One thing is clear, there’s a new industry emerging rapidly. The drones we see in the skies above our parks are just the first visible wave. That same technology can be just as easily used for people-carrying aircraft. A German company, E-Volo, believes the answer to moving people around cities more efficiently lies not with building more and bigger roads (the studies all show when you build bigger roads you get more traffic) but with on-demand air taxi services. Its working on developing defined point-to-point connections, which will gradually be expanded into full air taxi networks – first piloted, later on-demand and fully autonomous.

Its own product, the Volocopter, is what it thinks is a simple yet revolutionary solution. Most innovators believe the aircraft of the future has to be Vertical Take-Off and Land. Almost no city wants the noise and danger of a helicopter anywhere near where the kids are playing, but advances in batteries, electric motors and computerised autonomy are finally making VTOLs feasible for use in enclosed spaces. Uber’s idea to develop autonomous VTOL hire cars is also being touted as the forerunner to big changes in the ways airports work. There’s talk of creating sub-regional airfields, which will link Uber style cars to other transport networks, including regional airfields. The city of Sao Paolo in Brazil already operates a sort of air taxi service for the rich. 500 helicopters carry executives into the city

along an air corridor in the morning and back at night. That city is looking at introducing an aircraft like the Cormorant Fancraft to replace them. The Cormorant’s autopilot relies primarily on inertial and ground reference, which is more complex than flying through open, unobstructed airspace. Its already done more than 200 successful test flights.

At the ‘Future of Transportation’ conference a lot of time was spent discussing the regulatory framework and legal aspects of allowing fleets of UAVs to criss cross the cities. The Europeans are already drawing up guidelines, including air traffic control systems, qualification standards and technical requirements. Traffic management will undoubtedly impact recreational aviation, both there, and eventually, here. It’s easy to picture a future where our segment of the aviation world is seen as archaic and we are squeezed into smaller and smaller corridors as more airspace is set aside for the hordes of UAVs carrying people instead of along the ground. As with airlines now, computers will run things and they won’t want us anywhere near them. Current regulations require that the human must not be removed from the control loop of an air vehicle. That will change. The idiots killing themselves behind the wheel can’t be allowed to do that in the air. So it’s likely that the future of flying will be a mixed bag for our segment of the aviation world. Even as we get more and more advanced vehicles to enjoy – with ever more sophisticated control and communications– there’s a growing likelihood, our freedoms will be curtailed. We probably will lose the right to go where and when we want under our own steam. Just like what’s about to happen with our cars. 🚗

TEN LEADING CONTENDERS

1. Aeromobil Flying Car

This futuristic design was unveiled to the world a couple of years ago at an air show in Vienna. The latest version went on display at this year's Paris Air Show. The Slovakian based company is attracting the attention of deep pocket investors and promises 500 customers who shell out the USD\$1.2m purchase price will start taking delivery of their car in 2020.

According to the company, transition from driving to flight modes takes just three minutes, it will travel at 160kmph along the ground and 180kts in the air, have a useful load of 240kgs and a take-off roll of about 600m.

For more information, www.aeromobil.com.



2. Kitty Hawk Flyer

The Kitty Hawk Flyer is not so much a car as it is a fancy hoverboard. It looks perfect as a beach or lake recreational vehicle.

There's no information yet on how fast or how high the Flyer will operate. The company says only that it has been designed for operation over fresh water. It has one-seat, is electrically powered, propeller driven and no doubt will find a place in the RAAus register at some point if one of them finds their way to this country. It has been designed as an ultralight in the US.

Good luck, CASA, coming up with rules for it. There can be no doubt we'll not be allowed to traipse over the countryside without some sort of special licence and a completely new set of restrictions to govern its operation. This vehicle has the obvious potential to take out swimmers' heads along any number of shorelines. But it might be nice for beach patrols, marine research or even, at a pinch, as a cheap alternative to a helicopter for stock mustering.

The Flyer is backed by Google boss Larry Page so you know it's serious. Let's hope the Flyer goes on sale as scheduled.

For more information, www.kittyhawk.aero.



3. Neva AirQuadOne

The AirQuadOne is a fully-electrical vehicle expected to weigh around 500kgs and carry payloads of up to 100kgs. It is expected to be certified under Light Aircraft certification within the US(FAA) and EU (EASA). It is being designed for a flight time of 20-30 minutes, at 80kmph up to altitudes of 3,000ft.

The 100kgs battery pack is anticipated to be compatible with electric cars' recharging stations, via direct wire connection, induction or a battery pack switch.

The unmanned version is also being discussed as a replacement for cranes, helicopters or use as an emergency vehicle.

For more information, www.neva-aero.com.



FOR THE FUTURE OF FLYING

4. Airbus Pop Up

The Pop Up is Airbus' futuristic take on urban mobility. It's what the company calls a "a multimodal passenger transport concept that makes full use of the urban transportation space".

Airbus says in Los Angeles, people spend 104 hours a year in traffic, less than 65 per cent of it at speed. It says traffic congestion is projected to cost USD\$350 billion a year in the EU and the US by 2030. So it asked its engineers and designers to come up with a solution, which is the Pop Up.

It's an emission-free, multimodal and modular concept to get from A to B in cities. It would have a carbon-fibre passenger capsule, a battery-powered ground module and an air module electrically propelled by eight counter-rotating rotors. Passengers would plan their journey and book their trip via an app. When roads are congested, the capsule would disconnect from the ground module and be carried by the air module, becoming a self-piloted urban air vehicle which avoids roads altogether.

It won't be anytime soon though. The concept still requires future technology such as battery propulsion and see-and-avoid systems to be developed.

For more information, www.airbus.com



5. Airbus Vahana

Another innovative design by the smart people at Airbus. The Vahana is designed as a single-passenger self-piloted electric VTOL vehicle also aimed at the air taxi market.

It was launched late last year at the Geneva Motor show and there are plans for test flights early next year. Like similar designs by other manufacturers, the Vahana wings are able to tilt so the aircraft can take-off VTOL and fly normally. Its powered by eight rotors on the wings. There's room for one or two people inside and the canopy will be retractable.

Airbus says the Vahana design is a way to start a dialogue about the future of urban transportation. "In 10 years, ground transportation will move to the next level. It will be shared, connected, autonomous, multimodal and, most

importantly, make use of the third dimension."

For more information, www.airbus.com



6. Lilium Jet

Lilium set out to design a transition aircraft with better performance in safety, noise, speed, range and payload than existing concepts, while cutting complexity to one third. The Jet consists of a rigid winged body with 12 flaps. Each carries three electric jet engines.

Depending on the flight mode, the flaps tilt from a vertical into a horizontal position. At take-off, all flaps are tilted vertical, so the engines can lift the aircraft. Once airborne, the flaps gradually tilt into a horizontal position, leading the aircraft to accelerate. When they have reached complete horizontal position, lift is provided by the wings as on a conventional airplane. The company says the jet requires no gearboxes, no foldable or variable pitch propellers, no water-cooling, and no aerodynamic steering flaps. Just tiltable electric engines.

It is forecasting the first manned flight will take place in 2019

For more information, www.lilium.com





AIRCRAFT FEATURE

7. Aurora Lightning Strike

Aurora Flight Sciences is a US based company which develops and manufactures advanced unmanned systems and aerospace vehicles.

The company says the Lightning Strike is designed to demonstrate distributed hybrid-electric propulsion ducted fans and an innovative synchronous electric-drive system,

Both tilt wing and canard for vertical take-off and landing and high efficiency in both hover and high-speed forward flight. It gets much of its funding from the US Defense Advanced Research Projects Agency (DARPA) people so you know its serious. The engineers hid 24 electric motors in the wings, make them swivel for VTOL then face backwards for horizontal flight.

For more information, www.aurora.aero.



8. e-volo's Volocopter

This machine is being pitched directly at the air taxi market in Europe but its not ruling out recreational flying. The company says you could be able to summon one as an air taxi using an app on your phone. It can be fully autonomous but is also controlled by joystick. The 18 electric powered rotors are driven by two batteries for up to 30 minutes and the company says the electric power keeps the noise to a minimum. These are undergoing trials in the UAE this year and will soon be on sale to the public for about USD\$350,000

For more information, www.volocopter.com.



9. Eviation Alice

This one is way out of our league but still very cool. It's a two-crew, nine-passenger electric jet. It will be unpressurised, have a flight service ceiling of 10,000ft and a cruise speed of 240kts. Its lithium ion batteries are forecast to power it for 600nm. It will use distributed propulsion with one main pusher propeller at the tail and two pusher propellers at the wingtips to both reduce drag and create redundancy. The batteries are expected to take up to 65 percent of the entire aircraft weight. It's been designed by an Israeli company which normally makes unmanned drones and the company says Alice will, as a result, be capable of full autonomy. No word yet about if and when test flying will begin.

For more information, www.eviation.co



10. Flike

The Flike was conceived in 2014 as the world's first manned tricopter after some Hungarian engineers read an article which claimed drones would never be strong enough to carry a person. They aren't silly engineers either. They can see the dangers in the concept so have electronically limited the Flike to 100kmph and 30m altitude. The machine is able to carry up to 100kgs and fly for about an hour. It uses an electric / hybrid powertrain.

On the company's web page it poses the question, "What prerequisites are foreseen for someone to hop on and ride Flike?" to which it answers "Courage, mostly. Due to its fly-by-wire concept, Flike does not need too much of talent to fly. The pilot's joystick commands are only intentions regarding the flight attitude and altitude. They are transformed into changes in the power of six individual engines by the flight management computer.

It is actually the computer flying the aircraft."There you have it, a crazy machine by some crazy Hungarians. They do say, however, that you'll probably need a pilot's licence to be allowed to fly one.

For more information, www.whatisflike.com.





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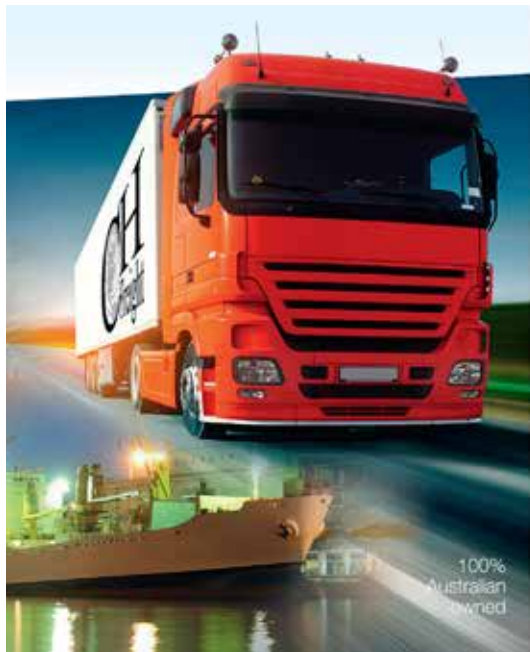
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A day unlike an average day

BY KEN NICHOLAS

THIS is the day all new flyers look forward to, although we all probably approach it differently. A lot of others before me have spoken about the experiences of their first solo flight.

In the last edition, I spoke about having done weeks of flying circuits with simulated engine failures. All the emergency procedures thrown at me to make sure I could handle any problem that could pop up on my first flight on my own. I couldn't complain I didn't get plenty of practice before solo. My instructor, David had told me at the end of the previous day's lesson that, if the weather had been better, he would have sent me solo. That was when I had eight hours in my book. The story was the same after nine hours and then 10.

David said, "look I can't let you go because, if anything did go wrong the question would be asked, why did you let him go in poor weather conditions for his first solo?" I understood him and, while it would have been nice to say "I soloed after only eight hours", it didn't bother me because, in my mind, the more training I did the better.

Well, come the day when the weather was not too windy, not too cloudy, but just right, I wasn't even thinking about a solo flight. It was a relatively calm day and we set off in the Tecnam Eaglet, with nothing out of the ordinary in mind, just more circuits. But it started out wrong, right from the word go.

Taxiing out, I very nearly drove it like a billy cart, you know, left foot turns right and right foot turns left. I straightened the aircraft on the taxiway centre line, applied the brakes and said to David, "I don't appear to have my aviation head on today". I think it was the first time I'd ever done that.

We decided to keep going, but for some unknown reason, this day just seemed to be one of those where my co-ordination just didn't want to play the game.


After almost an hour of circuits, a series of poor landings to be honest, David turned to me as we touched down for the umpteenth time and told me "what are you doing? I'm trying to get out of here".

I decided to do one more before giving up the day as a lost cause. So, one more it was and at least that one was the only good one. Taxiing in, David said, "stop here. How do you feel about doing one by yourself?" I said fine.

I knew the day hadn't started out great, but I knew I could do it. He knew I could do it, I mean he had been going to send me solo three hours earlier but for the weather.


So David stepped out. I tied up the seat belt and fastened the hatch. With a thumbs up from David I made my back tracking call and headed down runway 28 for the first time on my own. While taxiing, I performed my pre-take off checks and reported to myself that it was all good.


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WE'RE ON YOUR SIDE





This is a memory very firmly fixed in my grey matter. If you could download a physical memory and play it back as a video, this is one that would come through loud and clear. I guess they'll figure out how to do that one day. Rolling over the piano keys at the end of 28, I turned the little Tecnam and lined her up down the middle.

One last glance over the instruments then I turned to the video camera mounted just above and behind my head and said to it "well this is where it all gets real".

With that, I made my rolling call and moved the throttle smoothly to full power. I made sure I kept the Tecnam in the middle, David would pick me on it if it wasn't. The airspeed climbed quickly and with a gentle nudge of back stick, it felt as though I'd only rolled a hundred metres and I was off.

While I hadn't really thought about it before then, I decided to talk the whole circuit through out loud, because as I was recording the cockpit video and audio. I thought I would give a copy to David so he would be able to, not only see how the flight went, but know exactly what I was thinking and doing as I did it.

As it turned out, this would be the first time anyone had given him a copy of their first solo or, for that matter, even shown him one. In all of his flying hours, the only other solo flight he could recall was his own. He said he was quite chuffed and I was pleased I could do it for him.

But back in the aeroplane, a gentle headwind down 28 meant the little

Tecnam climbed quite quickly with only one person on board and reduced fuel load.

She went up like a rocket, a small rocket anyway. As circuits go, it really was pretty uneventful. I'd had plenty of practice and everything just fell into place - circuit height, turns, radio calls, pre-landing checks and descent rate.

The picture out the window always looked right and the flare and touchdown were very smooth. I did let the nose wheel down a little too soon and didn't quite hold the centre line bang on, but all in all I think it was pretty good. While rolling out, I heard David's voice come over the radio "Well done". I replied "it looked pretty good from here".

I taxied to a stop on the grass where David signalled and went through my shut down. Then David reached in through the open door and shook my hand, offering his congratulations. He then laughed and looked over to another of the school's instructors and reported "sweaty palm".

I smiled as I thought, he'd have a sweaty palm too after an hour of circuits hanging onto that throttle. I climbed out and we got the ubiquitous pictures in front of the plane for the family album.

So what had started out as a bit of an average day when it came to demonstrating my flying skills to my instructor, turned out to be definitely one for the books. And one I'll not forget. ☺

"She went up like a rocket"



The ubiquitous photo with David (L) and Ken



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Trusting the instruments

THE BEST BITS ABOUT BUILDING YOUR OWN BY DAVE EDMUNDS



I've been catching up on my *Sport Pilot* magazines, and thought it important to make some gratuitous comments on some issues that have been raised.

There was an article in the June magazine about the CASA video series 'Outback'. It is a bit twee, but worth a look. It is available on line. In episode one, of the eight episode series, the team takes off from Bathurst bound for Birdsville. They have their maps marked up and the overly-excited narrator says how important it is to navigate by the map, even though the Cessna 172 has a GPS in the panel. The pilot says how important it is to have a calibrated compass and align the directional gyro with the compass.

You have to do this because the directional gyro will go off in its own direction every 100 miles or so and every time you stop the engine.

When I did my initial training, it was emphasised over and over again that you must believe your instruments. Apparently, this still holds, except for the GPS. We are told now we must not rely on the GPS, only all the other instruments, even though they may process and be guaranteed to be wrong by the end of a long leg. Even the magnetic compass can be effected by whatever it is you put in the plane for your trip. In my last 500 hours, I have had my altimeter and tachometer both fail, but not my GPS.

The narrator then makes the valid point that, as you travel to the north west, there are not much in the way of landmarks by which to navigate. In my experience there is such a maze of exploratory roads, that even using roads can lead to trouble.

The advice given here verges on silly. It is way past time CASA provided an integrated set of rule and advice which optimises the use of whatever technology can make your trip more enjoyable and safer. For example, most of us know the predicted winds aloft always vary from those predicted. A simple way of determining the actual wind is to read the compass heading when you are established on your GPS track. Then, if your GPS fails, you can simply follow your compass heading in the knowledge that all necessary compensation is already taken care of. There are numerous such simple techniques to increase your navigational awareness when using a GPS.

Consider this: You can obtain an instrument rating and then fly IFR. You can then hire a 40 year old Cessna 172 with dodgy old vacuum instruments and happily fly around, having been trained to rely entirely on those instruments.

And yet, to rely entirely on an extraordinarily reliable solid-state instrument just for navigation is considered unsafe.

General Disaster, also in the June edition, ran out of batteries in his GPS. My practice is to have both my GPS devices plugged into a USB charger, plugged into the auxiliary socket. I start my flight with my iPad and the phone I use for navigation both fully charged. I carry a spare charger in my flight bag along with a spare GPS, fresh batteries for it and a spare charging cable. My probability of losing GPS coverage due to problems with the devices is a great deal less than possible problems with the vacuum system in an aircraft, leading to the failure of a DG.



It does not mean I won't lose my GPS due to solar flares or some satellite problem, but it hasn't happened yet, and only in the most extreme and unlikely circumstances will that outage last for more than a few minutes.

CASA has a bit of a head in the sand attitude about this. A recent *Sport Pilot* article made the point that air traffic controllers are amused to see a VFR aircraft accurately follow the curved boundary of controlled airspace, apparently accomplishing this feat using just a VTC.

And now for the weather information. If the weather advice is for a blizzard with winds of 100mph, zero visibility and a freezing level of 20ft, this would be provided on the current weather in the usual unfriendly ICAO format, set out exactly like information which suggested the weather was absolutely perfect.

I might add that the bad weather was expected to happen between two places you have never heard of. If you are a user of OzRunways, it will present you with an option to overlay the coming weather onto a mudmap of your flight plan. You click on a hypertext link to display weather in relation to your planned route.

While obviously you need to decode the ICAO formatted weather, you should use whatever technology you can to add to your understanding of what is happening. OzRunways also has a plain text translation of the ICAO weather. I know that other GPS programs may have something similar, but I don't use them so can't comment. Perhaps a reader might like to.

I was going to write about engine upgrades in this edition, but haven't got there yet. It is a bit of a minefield. My aircraft is 13 years old, with a generation one engine. We are now up to generation four, with numerous upgrades in between.

I added a thermostat to my oil system because the oil otherwise never gets up to temperature in a Goulburn winter.

I don't know if this is strictly okay, but frankly I don't care, because it makes my operations safer. Like many Jabiru owners, I have played with my air ducting to control cylinder head temperatures, and there are probably other such changes I have made over the years.

So, when I do my major engine overhaul, the most logical thing to do is to use my common sense and follow at least some of the upgrade paths that Jabiru has mapped out over the years. For example, Jabiru increased the finning on the cylinder heads to improve cooling.

I am considering upgrading my cylinder heads. This change will improve cooling, but not anything else.

In trying to work my way through these issues, it is easy to blame someone for what seems like an administrative nightmare, but this is a bit unfair. Jabiru would go broke certifying every upgrade path for each of their aircraft models. CASA is presumably very wary of approving something over which they have no control, so requires voluminous documentation to approve any change.

RAAus has worked hard on its MARAP process, and this will provide a pathway to alleviate at least some of the problems, particularly those related to orphaned aircraft and components.

Electric aircraft watch: Google 'Eviation'. The company is planning to fly a six to nine passenger all-electric aircraft with a range of 800 miles in 2018. ☺

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A QUESTION OR TWO

TEST YOUR AVIATION KNOWLEDGE

1 If the aircraft heading is less than its track, the aircraft must be experiencing:

- a. Starboard drift.
- b. Port drift.
- c. A falling QNH.
- d. A and C are correct.

2 The inertia of a body is controlled by which of the following:

- a. The velocity of the body.
- b. The mass of the body.
- c. The momentum of the body.
- d. The formula $MV^2 \cdot Mo$.

3 Two aircraft of the same type but different weights are turning at the same altitude, IAS and bank angle. The heavier aircraft will have:

- a. A lower rate and greater radius of turn than the lighter one.
- b. A greater rate of turn than the lighter one.
- c. The same rate and radius of turn as the lighter one.
- d. A greater radius of turn than the lighter one.

4 The mixture on an aircraft engine is correctly set for best power. An increase in altitude with no adjustment to either throttle or mixture controls will produce:

- a. A richer mixture and less power.
- b. A leaner mixture and less power.
- c. No change in mixture and less power.
- d. A richer mixture and more power.

5 The maximum rate of climb possible at a given aircraft weight is primarily governed by:

- a. The minimum possible drag.
- b. The maximum possible lift.
- c. The maximum excess thrust.
- d. The maximum excess power.

Source: Brisbane Valley Flyer.

Are you an aviation quiz compiler? *Sport Pilot* is looking for someone with the time and patience to compile questions each month just like the ones listed above to test us all on our aviation knowledge. If you are interested in taking on this role, send an email to editor@sportpilot.net.au.

ANSWERS 1. D 2. B 3. C 4. A 5. D

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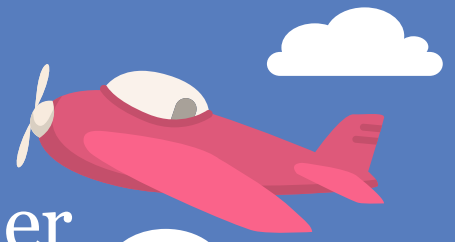
Against all the odds, the highly sought after Come and Get it Trophy remains firmly lodged in the west of the country. At the time this magazine went to the printers, John Reymond still retained possession of the trophy at Karakin (10nm east of Lancelin) in southern W.A.

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

For a full list of rules about how you can grab CAGIT for yourself, check out the RAAus website. ☒

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New Faeta heading downunder

BY DEXTER BURKILL

Australia's first 321 Faeta NG left the factory in the Czech Republic on August 21. It's due in Australia by the end of September.

The performance figures for the aircraft are setting it up as a game changer in LSA/ultralight aircraft in Australia and worldwide, just as ATEC's original ultralight, the Zephyr did back in the late 1990s with a design that is still not dated to this day (Yay!- ED).

The 321 Faeta NG shares the same basic appearance as the Zephyr, minus the T-Tail. It's been changed to a conventional stabiliser/elevator arrangement.

Raw figures from the factory show a 75% power cruise of 134kts with high power cruise being 150kts and Vne at 157kts. Stall is as low as 30kts (full flap) although at 600kg MTOW appears to be 37kts. This results in take-off and landing rolls of below 200m. All this from either the naturally aspirated Rotax 912ULS or the 912iS injected engines. Two 50 litre wing tanks will give it enormous travel distances.

As ATEC Aircraft Sales Australasia's principals, Sean Griffin and I look forward to the arrival of this demonstration aircraft and being able to confirm its performance figures first hand. And, of course, we will show and tell more with first hand demonstrations when it arrives. We are already committed to a number of demo's in Queensland and Victoria, as well as NSW (I bags one as well, please Dexter - ED).
For more information, www.atecplanes.com.au. ✪



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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