SPORTPILOT

RECREATIONAL AVIATION AUSTRALIA / JULY 2015 VOL 47 [7]

SPECIAL **SUBCRIPTION** OFFER INSIDE

BRUMBY

EVOLUTION TO A T

RRP $8.80 inc GST

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JABIRU RESTRICTIONS LATEST ✖ MICROLIGHT TAKE-OFF TECHNIQUE ✖ NEW RECORD FOR GYFTS SCHOLARSHIPS

The Brumby 610T Evolution
Photo: Brumby Aircraft

ON THE COVER

"We all know students can be hard on aircraft"

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

STAMPILS PUBLISHING
All Enquiries 1300 838 416
7/1 Grandview St, East Ballina
NSW 2478

EDITOR
Brian Bigg
editor@sportpilot.net.au

ADVERTISING SALES
sales@stampils.com.au

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REGULARS

COLUMNISTS

NEWS

READER STORIES

FEATURES

FLY-INS

ONE MAGAZINE TWO FORMATS

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

MAGAZINE SUBSCRIPTIONS

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Email RA-Aus headquarters at admin@raa.asn.au.

HEAD OFFICE
PO Box 1265 Fyshwick
ACT 2609 Australia
Unit 3, 1 Pirie Street
Fyshwick ACT 2609
international:
+61 (2) 6280 4700
national: (02) 6280 4700
fax: +61 (2) 6280 4775
Email: admin@raa.asn.au
www.raa.asn.au

ENQUIRIES
Memberships:
members@raa.asn.au
Members Market:
membersmarket@raa.asn.au
ARBN 070 931 645
ABN 40 070 931 645

NATIONAL FINANCE AND ADMINISTRATION MANAGER
Maxine Milera
admin@raa.asn.au

CEO
Michael Linke
ceo@raa.asn.au

NATIONAL OPERATIONS MANAGER
Jill Bailey
ops@raa.asn.au
0400 280 087

ASSISTANT OPERATIONS MANAGER
Neil Schaefer
ops@raa.asn.au
0428 282 870

NATIONAL TECHNICAL MANAGER
Darren Barnfield
techmgr@raa.asn.au
0417 942 977

ASSISTANT TECHNICAL MANAGER
Jared Smith
jared.smith@raa.asn.au
0418 125 393

NATIONAL SAFETY, RISK AND COMPLIANCE MANAGER
Katie Jenkins
safety@raa.asn.au
0418 445 652

RA-AUS BOARD ELECTED STATE REPRESENTATIVES

TASMANIA
Eugene Reid
0428 824 700
tas1@raa.asn.au

NEW SOUTH WALES
Michael Apps
0412 435 198
nsw2@raa.asn.au

Michael Monck
(President)
0419 244 794
nsw3@raa.asn.au

NORTHERN TERRITORY
Mark Christie
0412 345 111
nt@raa.asn.au

SOUTH AUSTRALIA
Ed Herring
0408 787 018
sa1@raa.asn.au

NORTH QUEENSLAND
Ross Millard
0422 119 051
nqld@raa.asn.au

SOUTH QUEENSLAND
Trevor Bange
0429 378 370
sqld1@raa.asn.au

Mike Smith
0418 735 785
sqld@raa.asn.au

Tony King
(Secretary)
0400 226 275
sqld2@raa.asn.au

VICTORIA
Rod Birrell
(03) 9744 1305
vic1@raa.asn.au

Jim Tatlock
(Treasurer)
0403 228 986
vic@raa.asn.au

WESTERN AUSTRALIA
Ed Smith
0409 962 050
wa1@raa.asn.au

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Lessons for all

BY MICHAEL MONCK

AS I sat down to write this, I learned about an accident in South Australia in which one of our members was seriously injured. It pains me to say it, but I get way too many calls like this and we need to do something about it. We are getting a bad image in the public eye, CASA is applying more scrutiny to our activities and, most importantly, some of our pilots are not returning home to their families.

As an organisation, we struggle to publicise the lessons of accidents in a way which doesn't expose us legally. In the past, we have been sued by pilots and families after publishing accident findings. And while I maintain my position in the organisation, I will be doing everything to avoid more legal exposure and risk. So we need to tread carefully.

We do not have the same indemnities afforded to certain government agencies, despite the role we play in investigating accidents and promoting safety. In fact, when we investigate an accident we do so at the pleasure of the state police or the coroner. We have no legal authority whatsoever to investigate accidents, develop findings and promulgate safety issues to members. This leaves us in a quandary.

On one hand we are responsible for protecting the flying privileges of members and to do this we have a significant role to play in terms of improving safety. But on the other, we are constrained by legal bureaucracy which threatens to shut us down if we do too much. While our paid professionals work on the legal issues and work towards solving those issues we, as members, need to be more transparent and share our lessons freely. After all, we can't sue ourselves for sharing our own experiences!

I'll go first. One year I flew to Narromine for the Easter weekend fly-in and there were a lot of things which happened over the course of the weekend. We took off from Canberra in cloudy but otherwise fine conditions and, as we departed the control zone, the weather improved and we could see blue sky. We crossed the ranges, turned toward Holbrook and a few minutes later we made a decision to divert and fly directly to Narromine. At that point we had around 40nm to run and noticed there was a thick band of dark grey cloud some 30nm ahead, so the diversion seemed like the smart thing to do.

The flight to Narromine was fairly uneventful until we got to within 20nm of the destination. At this point it became clear there was low cloud between us and where we wanted to be, so we gave Narromine a wide berth. The closest we could get was about 15nm. Any closer and we risked getting caught in cloud. We tried from the south, the west, the north and everywhere in between but with no luck. We did a second diversion to Tottenham, landed and waited for the weather to pass. An hour later and after a coincidental visit from the RFDS, we were on our way again. The flight from Tottenham to Narromine was short and uneventful.

There were lots of things to learn from this about decision making and I'm comfortable the choices we made along the way were the correct and safe ones. But that's not what I really learned. The true lesson came the next day.

There was a small crowd when we departed and I had a lot of people talking to me and asking questions while I was busy doing my preflight. I was looking over the engine, checking tyres, inspecting control surfaces and so forth, all while being distracted by chatter.

It all seemed to be a non-event until about 15 minutes into the flight when I noticed my electronic fuel gauge was reading empty. I have a visual fuel gauge in the plane, which I used to double check the reading from the instruments, and it told me I had plenty of fuel. Being able to visually confirm we had plenty of fuel meant I could ignore the electronic gauge.

What had happened was simple. The electronic gauge is set manually when you refill. It calculates the remaining fuel based on fuel burn during the flight. Due to all the distractions, I had forgotten the manual reset.

So what was the lesson? It's simple really – I should have asked those around me to give me a few minutes while I did my checks. I'm sure they would have understood and it would have avoided the mistake. It was an inconsequential one, but what if I had missed something more sinister? That's what I learnt that day.

While this story might not seem so important, I hope it resonates with others on two levels. Firstly, a simple error on the ground, or in the air for that matter, might lead to a serious event in flight so let's remember the lessons we learned about human factors. We need to do everything we can to eliminate distractions at important phases of the flight, including pre-flight preparations.

Secondly, we need to share events like this. I'm lucky because I haven't had a serious accident, so I can't share stories beyond the type I have written about here, but there are many of us who can. I'd love to hear from you and see you write these up for the magazine, website, newsletter, etc.

They will be published anonymously and I'll ensure no name calling occurs in the Letters to the Editor. Sharing stories is how we become better aviators. And we need to listen to other aviators in a non-judgemental way so we can learn.

FREE SUBSCRIPTION

Write to us with stories about accidents, incidents or just plain old lessons you have learned from your flying experiences. If your letter is published, you will receive a free gift and a free 12 month subscription to the printed edition of *Sport Pilot* (if you have an existing subscription, it will be extended). Your identity will not be revealed.

CALENDAR OF EVENTS

A. 11 JULY
SHOW 'N' SHINE DAY

The Great Jack Flyer Gate Crash will be held at Murray Bridge (On Sunday July 12 if rain affects July 11). Lots of prizes for great looking aircraft, including the Jack Flyer Trophy. BBQ lunch. Aerobatic and skydive displays. Battle of the Biplanes air display. 3 course meal in the evening. For more information, Jeremy Simpson (08) 8531 1411.

B. 31 JULY - 2 AUGUST
INGHAM FLY-IN

In the beautiful Ingham Valley in North Queensland. Held at the same time as the internationally renowned Australian Ingham Italian Festival. Ample parking on the grass (Bring tie downs). Tent camping or undercover camping on carpet. If you plan to stay in town (walking distance), book early due to the festival. Tea and coffee. Sunday morning BBQ breakfast. Avgas and transport to Mogas available. For more information Ross 0422 119 051 or rossm3370@optusnet.com.au.

C. 22-23 AUGUST
BIG BOYS TOYS EXPO

Exhibition Park in Canberra. The first of its kind on the east coast. The two-day interactive expo will create the ultimate playground for Canberra and the region's big boys to see, touch, experience and buy all the toys, tools, gizmos, gadgets, sports and hobbies they've always dreamed of. 10-5pm daily. $15 entry. Kids under 15yrs – gold coin. For more information www.bigboystoyscanberra.com.au.

CANBERRA BIG BOYS TOYS EXPO

D. 16 AUGUST
GRAFTON WINGS AND WHEELS

At South Grafton airstrip. Vintage, classics, sports, touring cars, motorcycles, caravans, boats, go-karts, race cars, engines. Food and drink available. Free entry, free parking. For more information, www.graftonaeroclub.com.

E. 29-30 AUGUST
GATHERING OF EAGLES

Watts Bridge Memorial Airfield Inc. invites all aviation enthusiasts to be a part of the annual fly-in. The theme this year is 'Remembering Gallipoli'. Overnight camping on the field encouraged. Expect to see a huge variety of aircraft types as well as vintage cars, military vehicles and WW1 and WW2 military re-enactors. On-field catering, three course dinner Saturday evening (booking essential) and breakfast Sunday morning. Coffee and cold drinks available all day. 100LL Avgas available. Admission for pilots and aircrew free with no landing fees. For more information, www.wattsbridge.com.au.

F. 4-6 SEPTEMBER
AUSFLY

Australia's recreational and sport aviators return to Narromine for another big weekend. Workshops, seminars, air displays, entertainment and more. For more information ausfly.com.au.

G. 12 SEPTEMBER
WINGS OVER WARWICK

Queensland Recreational Aircraft Assn incorporating Warwick Aero Club (www.qraa.info) invites pilots and enthusiasts to Warwick Aerodrome (YWCK). The strip is 1600m all bitumen with no landing fees (www.warwickaerodrome.com). Includes model plane display. Food and drink available. For more information, Graham Hawthorne 0427 377 603, Kelvin Hutchinson 0407 733 836 or Phil Goyne 0417 761 584.

H. 5-6 MARCH 2016
AEROFEST

Busselton Aero Club in WA. Big family day with everything aviation, skydiving, food and drink. Saturday evening BBQ. Busselton Regional Airport is the gateway to the Margaret River wine region. For more information, Ken Manton 0429 967 172 or ken.manton@bigpond.com.

LETTERS TO THE EDITOR

SP CHANGES 1

I feel compelled to weigh in on the current controversy regarding our magazine. I have a bit of a personal bugbear when it comes to inaccurate reporting. Time and again people make comments and statements which, at face value, are based on fact but when you take out the emotion and, sometimes, the personal agenda, it would seem the facts have either been misrepresented or inaccurately portrayed.

In his President's report, Michael Monk states "for many years the magazine has been provided to members at a cost of around $400k a year". Let's look at those figures.

Our website states we have around 10,000 members. We each receive 11 copies per year. That equates to 110,000 units annually. So that brings the unit price down to just $3.63 each. That by any standards is an incredibly cheap professional mag.

Now this is where things get messy. What hasn't been revealed in this incredibly simple statement, are issues such as advertising revenue, postage costs, or how many extra magazines are being printed to put on newsagent shelves which are then returned i.e. cost inefficient.

I also notice on the inside front cover, it states that Non-Members pay $110.00 per annum ($9.16 per mag). And that overseas subscribers are asked to pay $500 per annum ($41.66 per mag). I don't know how many of these last two we have but it would appear, at face value, to be making an excellent return on costs.

The article doesn't advise how large the average download would be to receive electronically. I'm quite sure it would be rather large and possibly use up a lot of data which would pose an obvious problem for people like myself who live in bad internet speed zones, or simply have a small monthly download allowance.

I, for one, demand that this situation be reassessed and I vote to keep the magazine.

I move that the current executive body continue to produce the magazine and that this matter be raised for a formal vote at our next AGM.

Can I have a seconder?

Finally, on a more personal level, my father collected aircraft magazines, some dating back to the 1950's. One complete collection he had professionally bound which runs from the 1970's until his passing in the 2000's. Nearly 40 years of preserved aviation history. I have a similar collection dating back to the early 1990's when I first joined the AUF through to this date.

DIETER HITCHINS

FROM THE EDITOR */ As well as the high resolution version of each magazine now available on ISSUU, there is also a low-res version on the website, which is less than 10megs to download, which should be within everyone's internet speed zone.*

SP CHANGES 2

Having read the latest edition of *Sport Pilot*, it seems I am not alone with my concerns about the magazine going digital.

In fact, I have greater concerns about the future of RA-Aus, as I feel it is losing its member ownership with very little consultative processes taking place.

I cannot recall having received a financial report for the organisation, nor can I remember receiving an agenda prior to the AGM. I also have not been provided with a breakdown of revenue for advertising in the magazine - in fact all I have received is a bleat from the board and CEO that it is costing $400,000 to produce and distribute 11 copies of the magazine each year. As members we should, at the very least, be provided with a statement of profit and loss - revenue and costs - for the magazine prior to a democratic vote by the members on whether to go digital or not.

As members, surely we should receive this information prior to answering half a dozen loaded questions in the *Sport Pilot* survey which, incidentally, took place after the decision had already been made by the CEO and board to go digital - and yes, the greater percentage of respondents wanted to retain hard copy magazines, according to the limited survey. So why are members being ignored?

If the magazine is produced 11 times a year and it goes to 10,000 members, this equates to $3.64 per copy. Why, then, are we being asked to pay such a vast sum (up to $8.60) for a copy?

RA-Aus seemed to experience problems after Lee Ungermann and Mick Poole defected to CASA. Is there any co-incidence CASA now has an RPL and is inviting us to fly with them instead?

The latest proposed changes to the organisation structure also ring alarm bells, as these will give greater powers to the CEO and the board of directors. Members need to be wary of these changes or they will lose their member ownership.

In latest emails from RA-Aus I note that office staff are being heavily profiled. Do members really care who is looking after their driver's licence, social security cards or banking? This is totally irrelevant information to the general running of the organisation. And as for the orange emails - isn't orange a safety colour? Maybe we are being told to beware the future perils!

MARGARET HOWES

FROM THE CEO */ A full audited financial report, together with historic reports, is available on the website as they have always been (https://www.raa.asn.au/members/financial-reports/). On page 49 of the most recent six monthly report, under the heading Expenses – Printing and Manufacture - RA-Aus Publications, clearly shows the monthly cost of the magazine. Our most recent AGM was in October last year. An agenda appeared in Sport Pilot in August and September as well as online and in our electronic newsletter. The recent General Meeting was notified to members in the March and April Sport Pilot magazines, as well as electronic newsletters leading up to the meeting. Additionally the General Meeting was live webcast and is still available on YouTube (https://www.youtube.com/channel/UC9uoVIUeTwNC6FiD4_QIzQA?view_as=public).*

Since putting a couple of magazines onto the digital platform, which you can view at (http://issuu.com/sportpilotmagazine), we had almost 20,000 views, equivalent to double our entire membership base, in just eight weeks.

The cost to members for an annual printed copy subscription (which will be 12 magazines not 11) will be $90 including GST. That's $7.50 per copy, or $6.81 ex GST. Subscribe early and get an extra six copies for free, bringing the cost per issue down to $5.

SP CHANGES 3

Each month when opening the Letters to the Editor section, one finds a mixture of well-reasoned comment on various issues, not-so-well reasoned thoughts and the expressions of disappointment/outrage/vitriol associated with such things as RA-Aus board performance, CASA and digital magazines.

My letter is about the latter category - and here's my input. If you have a grievance, keep it objective and impersonal. Life's too short to get your blood pressure in a tizz over trivia. In the scheme of things, this nonsense about the printed magazine is just white noise. Whinging about it does no-one justice. The finances need fixing and the board is taking measures to do just that – let's just crack on and continue to enjoy the privileges of our certificates.

If any of you still feel outraged or disappointed about the magazine going digital, just pop over to Temora and I'll put the kettle on and make you a nice hot cup of harden up!

Mr Editor – I don't particularly care whether I read this in a magazine or on my computer machine.

JIM LEWIS

FROM THE ED */ Love your work, Jim.*

SP CHANGES 4

I'm still disappointed ... and for good reason. The latest edition of *Sport Pilot* shows on page

16 a hurry-up for subscriptions. Yet I cannot find anywhere in the magazine advising how one can formalise a subscription. So I logged onto the RA-Aus website and searched for *Sport Pilot* only to be led to a page that states "Sport Pilot February 2012 on sale now". 2012? Come on guys get with it.

I think if you're going to warn readers that time's running out for subscriptions, you should make an effort to provide a way for them to take action.

Also, I believe you should provide at least one online edition prior to the hard copy subscription deadline to give members an opportunity to suck-n-see if they can be content with the free e-version, or feel they must pay the extra to continue with the printed version.

What about it?

PAUL NOSSITER

***FROM THE CEO** / Everyone should have received a form and a self-addressed envelope in the June edition to help them subscribe. If not, contact the office and we'll get one out to you. We've been busy working in the background making sure everything is ready to go. And sorry about the outdated website. That's been corrected and you can now subscribe online. Since I started in the job, I haven't spent any time reviewing our existing website, which is horribly out of date. We will be completely rebuilding the website over the coming three months.*

SP CHANGES 5

Wow. Just wow. Look at all the letters demonstrating disquiet about an electronic edition of this magazine. Yeah, I too will miss a paper copy. What I won't miss is receiving the monthly edition at random points throughout the month.

That issue never did get sorted out properly, however I notice I am now receiving utilities bills after their due dates too - let's just blame a link in the postal chain, eh?

Back to electronic viewing. This is big opportunity. Why are we seeking to have paid access to non-members?

Think about it. We already pay for the magazine. The cost will be much less than now and we could make it free to all, electronically.

If anyone in a decision-making role is unclear on why this would help the organisation and what the logistics could look like, a quick phone call will have you brought up to speed. In fact, I'm more than a little curious as to how the e-edition is going to work.

The marketer in me sees massive opportunity - genuine flow-on and a long-term focus would have to be a better idea than reaping a few extra dollars by charging people to read the e-edition merely because they aren't RA-Aus members.

To those worried about not being able to share articles with mates, perhaps instead focus your energy on demanding the magazine is delivered in a way that allows social media and SMS sharing. Insist you can email whole articles to mates and dictate to the executive that you see no better way forward than to ensure the publication comes in a varied format so it's as easy to view on mobile devices as on desktop computers.

And, you know, why not, just for the giggle, ask that editions be provided in a print-friendly format so you can run off a dozen copies for all your friends who have yet to embrace all the connectivity gadgetry.

I may be in the minority, but I believe the electronic delivery of the magazine is possibly the best idea anyone has put forward for the RA-Aus since some clever bloke (or blokette) realised wings and propellers could be combined to create aircraft weighing less than 601kg.

Enough naysaying. Let's look at how this could be a stroke of genius instead.

ADAM BYATT

***FROM THE ED** / All these things Adam is suggesting are being explored and will be rolled out over time.*

***FROM THE CEO** / The magazine is enjoying tremendous success on ISSUU (www.issuu.com). Plus this service allows articles to be clipped and shared. We have also started using Facebook, we now have over 6,500 followers. in January we had just 150!*

SP CHANGES 6

I read with interest the letter lamenting what is effectively a migration of *Sport Pilot* from hardcopy to softcopy.

Personally, I welcome it. I hate waste and, while paper can be recycled quite effectively these days, electrons can be recycled even more effectively. Often I didn't have time to read the magazine, which is then paper wasted.

However, I did reserve my two magazine subscriptions for reading while the seatbelt sign was on when flying commercially. It was the only time I was free from phone or laptop, but sadly even that has now been legislated away, so I can now read it on my iPad.

However - one thing I will miss is the magazine for short-haul naps. I used to roll it up tightly, then prop it under my lower back for lumbar support. I presume there's a cushioned case for the iPad somewhere that will serve the same purpose.

DAMIAN SKEELES

***FROM THE ED** / Fair dinkum, that has to be most imaginative reason ever put forward for getting a magazine. Well done. Perhaps you and I should establish a new monthly publication, Australian Lumbar Support. Subscriptions anyone?*

SP CHANGES 7

I'm writing given the news about the proposed changes to the distribution of the *Sport Pilot* magazine to members. Firstly I wish to state that I think this is a great publication and I read it cover to cover when it arrives. It is a great vehicle to inform and share information among all RA-Aus members and pilots.

I agree with many other members that I don't support the move of this great publication to a digital version and being charged an extra fee to get a printed copy home delivered.

I use to be an avid reader of the CASA Flight Safety Magazine when it was printed on paper, but, since it has gone to a online digital version, I haven't been able to read it. Like most people I hate reading long articles or large amounts of text on a computer or tablet screen.

From my research going digital only seems to benefit the publishers, by cutting their printing costs and giving them more profit and offers no real advantages to the readers. Yes, it is true that by going to an online digital environment you can include multimedia features like video clips or flash animations, but I can't see any of these being any advantage to the members of RA-Aus, given these extra features just add further to the cost of the publication. I can't see many members producing high quality videos or animations to support their articles they contribute to the magazine for free.

Rather that slugging the poor RA-Aus members extra fees to get a printed version of *Sport Pilot*, surely we should be looking at why it is costing RA-Aus approx $400,000 per year to produce this magazine.

This seems a huge sum of money for a simple 11 publications per year with a print run of 10,000 or so copies.

How often is the publication tender for this magazine been put out to the open market for tender?

How many companies have put in for the tender of this publication over the past few years?

How long has the current publisher being producing the magazine for RA-Aus?

Why was the current publisher given the tender if they charge us so much?

Have they been asked to cut their costs, (other than going to an online digital environment) given the financial problems facing RA-Aus?

Do we need to use such high quality glossy paper? Do we need a colour publication? Or will a simple black and white version do as well?

What are the advertising rates for this publication? It would seem they may be too low if it is costing RA-Aus members so much to produce this publication.

Given the current developments in digital desktop publishing and the ease of which

publications can now be produced on PCs, once a look and design layout have been established, it would seem outrageous that this publication is costing RA-Aus so much.

I'm seeking to have the move to charge members an extra fee to obtain a printed version to be put on hold until the above issues can be resolved and sorted out to suit the members rather than the profits of the publisher.

MARK B.HARRIS

***FROM THE ED** / Up until the end of last year, 14,500 magazines were printed each month, not 10,000 (we put 4,500 into newsagents – sold about 1,000 on average). The cost of printing that many magazines and mailing one to each member here and overseas (Australia Post prices go up twice a year with monotonous regularity), took up 100% of the fee paid by RA-Aus each month. So the entire cost of writing, designing and editing the magazine was subsidised by the advertising revenue, which broke even about half the year. That situation improved after the decision to withdraw the magazine from the newsagents.*

When I put my original proposal to the board four years ago, I did so because I was embarrassed at the poor magazine then being produced and was horrified at its cost to the organisation. I promised the board then, as I have done every year since, that I will provide a world class publication at the absolute lowest price. I have saved RA-Aus an estimated $400,000 in the past four years. With the changes now underway, RA-Aus could save up to $1.6 million more in the four years ahead (depending on how many members subscribe to the hardcopy version).

When I first took over the magazine, the board insisted the advertising rates remain well below market levels to encourage the recreational aircraft industry and to provide support to the companies which provide goods and services to RA-Aus pilots. The rates have not risen in all that time and there are no plans to change the board's philosophy, which I strongly support. So when advertising revenues rise and fall, I just loosen and tighten my belt.

The CEO informed me earlier this year he had gone into the marketplace to find out for himself that we were providing the best possible product for the best price. He has since renewed the contract for another 12 months (this will be our fifth year), both to provide consistency during the digital changeover and because he found out we are, indeed, providing a world class product at a very competitive price.

But no, I have no plans to save more money by lowering the quality of the paper or making the magazine just black and white. Those days are gone.

***FROM THE CEO** / I can confirm I did go to market and explore options. It is pleasing to know Brian continues to offer a world class product at a competitive price. Subscribing now for $90 for 18 issues is a bargain, plus it helps RA-Aus ensure our sustainability for all members.*

PILOT NOTES?

Where are the Pilot Notes? I look forward to reading Pilot Notes as soon as the magazine arrives. One time a CFI and I received our copies at the same time. What was interesting was that we both rapidly flicked through the pages to get to Pilot Notes first. I like to see if anything has happened to any of the aircraft types I fly so I can gain an awareness to prevent the same thing happening to me. It's the main reason I read the magazine and the first thing I look for.

After that, I'll look at the pictures of aircraft for sale, the new turbo engine I would love to have and the ads for new aircraft. Followed by a cross country story (if it doesn't waffle on too much about stuff we all do, like checking the plane over, taxiing out, climbed to 4000, the wind was from the north west blah, blah, blah). I want to know the interesting stuff like where you went, where you stayed, who you met and what you saw.

Maybe I've missed an explanation in a previous edition. If so, it was probably an edition which didn't contain Pilot Notes, so I looked no further and put the magazine aside.

I will subscribe, unlike the CASA safety magazine which I haven't seen since 2012. It's a free download CASA says. Try it they say. Everyone has an iPad they say. I've got an iPad but it's too old to download the new format, so I'll have to buy a new $800 one with the latest operating system and storage so I can read it, then spend $30 a month for data usage (if I don't use it much or more like $60 if I do) and muck around with the brightness so I can see it if I'm outside. And that's if I've got coverage in the first place and it hasn't shut down in the heat. I'm getting computer eyes. I'd prefer the magazine. It's something I can lend out, leave on the dash of the truck or on the coffee table. CASA doesn't understand that.

And why can't I find out what was the cause of RA-Aus fatal accidents like the ATSB? I've looked everywhere and all I can find is a few less serious incidents. If a wing has fallen off or the pilot suffered a heart attack or whatever, I'd like to know, instead of the media scaring everybody with their headline grabbing ultralight crashes, after which we hear nothing about the cause. That's useless to me and it's probably why everyone has a boat and a 4WD instead of a plane.

WILL

***FROM THE ED** / Pilot Notes has been available on the RA-Aus website for quite a while. There are no plans to put it back into the magazine. Regarding publishing reports of serious and fatal crashes – RA-Aus cannot report on them until all legal issues are finalised by the police and/or coroner. Unlike the ATSB, which investigates GA accidents, RA-Aus is not indemnified if it reports on ultralight accidents. Although it should be, because there are obvious safety and educational benefits. All going well, we do have plans to introduce accident reports into the magazine later this year (dealing with accidents where the legal issues are done and dusted).*

GOOD WORK

As one of the silent majority, I want to express my support to the board and staff of RA-Aus for their tireless work to making a great organisation.

Sure, you've had your problems and I've been personally inconvenienced by aircraft registration issues in the past. Having just wound up and sold a machinery business due to excessive Worksafe and load restraint laws, I can appreciate the pressure RA-Aus is under from both members and the regulator.

You have my support and I know there are many others of the silent majority who would agree with me.

Keep up the good work.

DAVID MACK

***FROM THE CEO** - On behalf of everyone working hard at RA-Aus, thanks.*

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).

SUBSCRIPTIONS POPULAR

BY MICHAEL LINKE **CEO**

MEMBERS are rushing to take up subscriptions to a printed copy of *Sport Pilot*. Since paid subscriptions were made available, more than 900 members have signed up with dozens of members subscribing each day.

Now that *Sport Pilot* is not automatically being sent to your letterbox as it has in the past, you have the choice of two formats.

The free low resolution version of *Sport Pilot* is available on the RA-Aus website about the 10th of each month for download and off line viewing. This file is less than 10megs in size so should be easy enough to get, even for those with small download limits or slow internet speeds.

The high resolution version of *Sport Pilot* is also on ISSUU, a leading magazine website. Why not create an account at www.issuu.com (it's free) and explore the great features for online viewing and sharing. All members will receive an email alert telling them when it is available.

Don't forget *Sport Pilot* is now being published 12 times a year.

The release of the digital version each month will coincide approximately with the delivery of the hard copies to those members who choose to continue to receive a printed version and who have subscribed.

Printed copies are still being delivered to flight training schools and aero club members as a marketing and promotion tool to students and potential new members.

Subscribing is easy. Log into your member's account on the Recreational Aviation Australia website (www.raa.asn.au) and pay online, print a form or call the office on (02) 6280 4700.

Otherwise make sure the RA-Aus office knows your email address so you can continue to enjoy Australia's most popular and informative aviation magazine every month for free.

NEW AIRPARK FOR MARYBOROUGH

A NEW airpark is to be established at Maryborough Airport.

The Fraser Coast Regional Council, which owns the land, has signed a Joint Venture agreement with a consortium of local businesses called the Fraser Coast Residential Airpark Pty Ltd.

The consortium will develop the airpark in at least five stages. Each will have a combination of blocks suitable for a house and aircraft hangar and single residential lots with access to common hangar space.

"Aviation will become a bigger player in the Fraser Coast economy," says Mayor Gerard O'Connell. "The boost in aircraft numbers will help our existing aviation industries and attract new industries, especially in maintenance."

A director of the development company, Brad Tallis, is also the developer of a 40-lot residential airpark at Nikenbah on the outskirts of Hervey Bay.

Brad hopes the project will be as successful as the airpark at Temora in NSW.

Airpark director Brad Tallis (right) with Mayor Gerard O'Connell. Photo: Alistair Brightman.

POWERED PARACHUTE TRAINING

BY JILL BAILEY **OPERATIONS MANAGER**

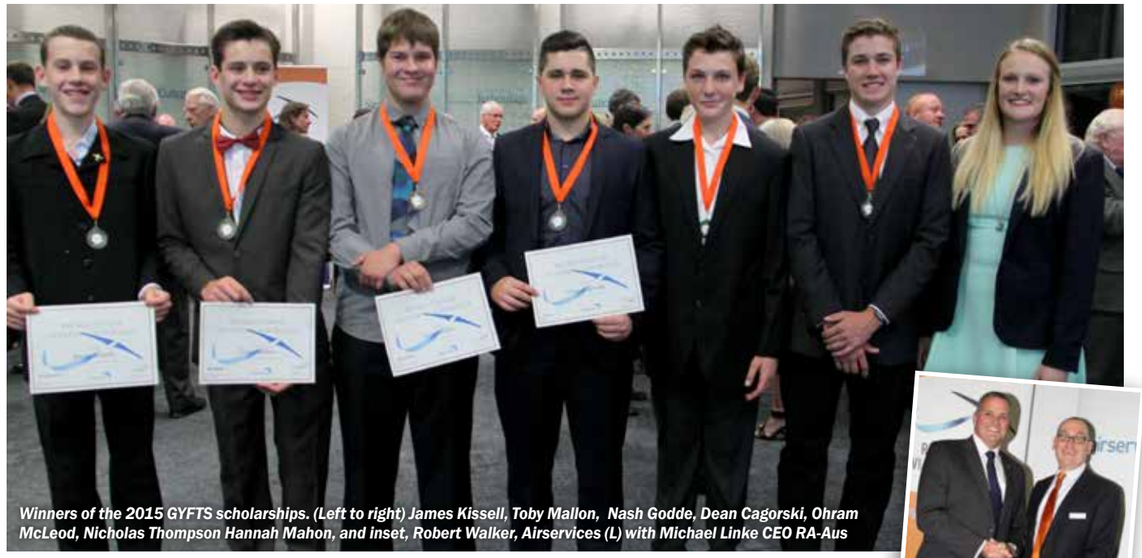
OUR consultation process with CFIs and Instructors is now complete and our new proposal concerning Powered Parachutes training is available on the website for comment and suggestions.

It has come about after a number of members who fly powered parachutes provided proposals for changes to the requirements for training for a RA-Aus Powered Parachute Pilot Certificate.

Operations reviewed the proposals and consulted with the CFIs responsible for training pilots for the Powered Parachute Pilot Certificate. We also reviewed overseas documentation and processes.

As a result of all this, a consultation document on the issues has been created and is available for review and feedback. Go to www.raa.asn.au. Under the members section you will find a link for the PPC Consultation document.

Please provide feedback to ops@raa.asn.au on these specific proposals by July 31. Submissions will be assessed and reviewed for inclusion in the Operations Manual Review.



Winners of the 2015 GYFTS scholarships. (Left to right) James Kissell, Toby Mallon, Nash Godde, Dean Cagorski, Ohram McLeod, Nicholas Thompson Hannah Mahon, and inset, Robert Walker, Airservices (L) with Michael Linke CEO RA-Aus

GYFTS SETS A RECORD

THE GYFTS Scholarship fund has set a new record.

Close to $50,000 has been awarded to 24 candidates – that's twice as much as last year to a field of candidates much larger than ever before.

CEO Michael Linke said "We received a record number of applications (64) this year and, working with our scholarship partner Airservices, we were able to award 24 scholarships and grant almost $50,000 to the next generation of aviators."

The GYFTS scholarship program has formed an important part of RA-Aus development of young flyers for many years. The program is tremendously successful. Its future is assured given the ongoing generous support from members and the sponsorship from Airservices.

A number of award winners attended a cocktail function in Canberra in May where the awards were presented. RA-Aus members, CFIs, representatives from Airservices, CASA, industry and government also attended.

At the function, RA-Aus recognised the wonderful support of Max Brown and Kevin McCloskey, two tireless volunteers who have supported recreational aviation in Australia for many years.

Overall the evening was a resounding success. If you'd like to support future aviators, you can donate to the GYFTS Scholarship program at any time by contacting the RA-Aus office.

INSURANCE DEAL

RA-AUS is pleased to announce that our insurance broking partner, Willis, is now able to offer members and aircraft owners insurance for their aircraft.

This new policy, available from July 1, is the first of its type for RA-Aus and signals the first in a suite of offerings coming to members over the next twelve months.

See the full page advertisement in this month's magazine for more details or contact Willis directly.

Other products being looked at include insurance for maintainers, other forms of personal insurance, flight training school insurance and more.

RA-Aus is committed to adding benefits to our membership and this new scheme is just one of the new ones being delivered.

Willis

AVGAS AT WENTWORTH

INSTALLATION of a new automated Avgas refuelling facility at the Wentworth Aerodrome is now complete.

The Wentworth Airport is three kilometres from the town of Wentworth on the Old Renmark Road and is owned and operated by Wentworth Shire Council.

"The previous local swipe card operating system at the aerodrome had been in place since 2005," says Mayor Don McKinnon.

"The move to a credit card based system provides self-service access and means local and visiting aviators can refuel when they need to.

Holders of local swipe cards and keys for the old refuelling system have been asked to return them to the Wentworth Shire Council Offices or by mail to PO Box 81, Wentworth 2648.

TRAINING PLANS

BY MICHAEL LINKE **CEO**

RA-Aus is to appoint a training co-ordinator. As part of a new commitment to training, a recruitment process is underway to find someone to oversee a strategic approach to training delivery.

For many years RA-Aus has dabbled at the edges with training. We delivered a safety first program some years ago, began offering human factors training and provided an online testing tool for L1 assessment.

Over the coming 12 months, our focus will be on our maintainers at the L1 and L2 level and human factors will again come into the spotlight.

We will also work with flight training schools to tap into training needs and deliver training to our members in areas of the greatest need. Keep an eye on *Sport Pilot* and our e-news for more.


This Kitfox was a credit to its owner

Raglan Rocks!

STORY AND PICTURES BY ALAN BETTERIDGE

THEY arrived in droves (others came by car and plane) to the Old Station Fly-In and Heritage show held in May at Raglan in Queensland.

Hundreds of people took advantage of near perfect conditions to camp over the weekend and enjoy what was on offer. And there was an awful lot on offer.

By Saturday it was estimated over 175 aircraft had arrived and the camping area was full to capacity.

Indeed, so many people arrived to camp, extra ground had to be hastily slashed to accommodate them all.

The weekend got off to a bang - literally - when a loud explosion rocked the air around 6.15am on Saturday morning. Show organiser, Leonie Creed, said the explosion was a tradition started by her late husband George in 1989.

"Back in those days George, who was a real larrikin, used a stick of gelignite to give the grandkids a bit of a scare," she said.

"Since then the explosion has become a part of the show. We can't use gelignite any more but the end result is still the same."


Savannahs may not come in all shapes and sizes but they do come in a wide range of colours


Camping Jabiru style


Aeroprakt A22LS Foxbat taxiing


Ken Hulse flew up from Watts Bridge in his pride and joy, a Sky Ranger Nynja


Bell Sioux (BH47) flew in and was on static display over the weekend


The DH104 Dove drew a lot of attention


Well turned out Savage Cruiser

The Raglan fly-in can trace its history back to the first event in 1989 and every year until 2007.

"The show in 2007 was huge. We had Dick Smith, the Deputy Prime Minister, Mark Vale and even Ian MacNamara (Macca) from the ABC, broadcast his radio show (Australia All Over) on the Sunday morning," Leonie said.

"It was so much work, we felt we were neglecting our business, running our cattle property, so we decided to run every second year instead.

"However in 2009 the world economy slump hit everyone, no one had any money, it was all gloom and doom, so we decided to wait another year and try for 2010.

"Then on Christmas Eve, 2009, George was diagnosed with lung cancer. We lost him at the end of November 2010.

"Because George had been the founder of the flying event, everyone urged me and my family to put on a scaled down event in his memory.

"So we changed the date and the format and included a truck show and tractor pulling. May 2011 was the first of these annual events."

One RA-Aus member who made the trip was Ken Hulse, who flew up to the show from Watts Bridge in his Nynja.

"The trip took us around 2hrs 45min and with the weather being absolutely beautiful, it was a great flight," Ken said.

Although a little apprehensive of the CASA presence, Ken understood why they needed to be there.

"I know they are just doing their job, but really do they have to be so officious about the way they do it?" he asked.

"There was an awful lot on offer"

This may have been a good question to ask RA-Aus president, Mick Monck, or CEO Michael Linke who were in attendance to meet RA-Aus members and answer questions at an open question and answer session on the Sunday morning.

Many members took advantage of the meeting and all left impressed by the direction RA-Aus is taking. The Old Station Fly-in is different in many ways to other fly-in/ airshows because it involves a tractor pull contest, displays of vintage machinery and equipment as well as displays of more modern cars and trucks.

The two hour flying display was well organised. It included a PC9 from the RAAF Roulettes, Paul Bennet in his Pitts special, Matt Hall, T28s, an Avenger, Yak 52s, crop dusting by a Turbo Thrush Commander plus much more - but disappointingly, no demonstrations by any RA-Aus registered aircraft. Maybe there is a CASA ruling against it, I don't know. But it would have been great to see one of our aircraft put through its paces. Maybe next year.

One aircraft which did get a lot of attention both during the aerial display and on the ground was the DH104 Dove Series 5, VH-DHI.

The aircraft is owned by Ron Ennis from Redcliffe (Qld) and is a tribute to his dedication in keeping it flying.

Built in 1955 and first put on the Australian register in 1990, it really was very impressive.

The aircraft types attending over the weekend would be impossible to list here but needless to say there was something for everyone.

This was my first visit to Raglan but it won't be the last – only next time I won't fall out of bed when the explosion happens!


Dova Skylark E24-5123 made the pilgrimage


Savannah on final for runway 06


Paul Bennet puts his Pitts Special through its paces


Turbo Thrush Commander put on an impressive aerial ag display


Formation flying at its best


The end result of an 'attack' by an Avenger

Jabiru restrictions continue

BY BRIAN BIGG

TALKS have been going on in recent months to address the issues which led to CASA imposing operational limitations on some Jabiru powered aircraft last December.

Those limitations were due to expire at the end of June and all sides report progress is being made. But Jabiru engine owners aren't out of the woods yet. Part of the difficulty in finding a solution has been nailing down just what are the problems (and there appears to be several, so one solution may not be enough). As this edition went to print CASA told *Sport Pilot* most of the restrictions would continue to apply, at least for the time being. But a spokesman said CASA was confident some easing would soon be possible.

According to RA-Aus President, Michael Monck, there has been an issue getting access to information on the failures which led to the CASA decision.

"Our information has differed from the statements of CASA", says Michael. "We have been trying to reconcile those differences. To date we have not been able to achieve this, but recently we had productive discussions with CASA, Jabiru and our colleagues at the SAAA.

According to CASA's Director of Aviation Safety, Mark Skidmore, those discussions have been positive.

"We have been heartened by the collaborative and mutually respectful approach everyone has taken", says Mark. "Considering how challenging the situation is".

At those discussions Chief Engineer of Aeronautical Design (and CASA Authorised Person for Design Approval), Alan Kerr, who acts as a consultant to Jabiru, made a presentation summarising the many detailed technical reports Jabiru had provided to CASA over the years.

According to those present, Alan's presentation focussed on the work being done by Jabiru on through-bolt and valve train developments. He also explained just how Jabiru had addressed those issues using service bulletins and letters, design changes, maintenance requirements and instrumentation.

> "The discussions have been positive"

VALVES

The figures presented to CASA reveal that, since 2006, Jabiru had received about 30 Service Difficulty Reports relating to valves, springs or spring washers.

Of these, several were failures of the valve (where the head broke off the stem), some were caused by sticking of the valve in the guide and others by failures of the valve spring or spring washer. In other instances failures were caused by a combination of factors.

According to Alan, in some cases the exhaust valve overheated, causing stress corrosion. The overheating could have been from induction system air leaks, wrong jets, blockages in the carburettor or poor valve seating.

Valve sealing was another issue. According to Alan, changes made to the mechanical system dating back to 2011 – such as the 0.02mm change to the outside of the valve guide to reduce the chances of it being pinched by the head under thermal cycling – had seen fewer reports to Jabiru about valves sticking in the guide.

THROUGH-BOLTS

The next most common issue in the SDRs since 2006 was broken through-bolts. According to Jabiru, the initial failures came after the introduction of engines with hydraulic lifters.

What caused some confusion at the time was a simultaneous change in the type of nuts Jabiru used in its engines. Jabiru's own research showed its through-bolt configurations had far more strength than was needed to carry the normal loads of the engine, so the engineers knew they needed to look at factors other than brute strength.

They first looked at the stress in the threads. For the same load, the stress is much higher in a fastener with only a few threads than it is for one with a long thread. But the stress peak aligned with the typical fracture location in the through-bolts, so they knew it was a factor. The issue was solved by a change to longer through-bolts and longer 12 point nuts.

Even so, the engineers also knew the stresses should have been too low to cause a failure. They turned their attention to bolt tension.

According to Alan, the tension in the bolt can vary wildly for a given nut torque – and that's after eliminating all variables like wrench calibrations or incorrect use of crowsfoot adaptors.

The tension is important because it acts as a kind of foundation

load. In general, if the foundation tension is high enough and the structure stiff enough, the bolt should be almost immune to the stress fluctuations which cause fatigue failure. The testing showed that, in certain extreme cases, the foundation load was potentially low enough to reduce the life of the bolt.

So Jabiru changed to the system it now uses of a higher torque setting, plus hardened steel nuts and washers without lubrication on the thread, which they say has resulted in very consistent tension on the bolt and a good foundation load.

According to Alan these measures appear to have successfully reduced the frequency and severity of through-bolt issues.

He told CASA that so far production 2200 engines with the 7/16" through-bolt configuration had recorded over 25,300 hours (nine engines have achieved 1,000 hours) with no through-bolt failures.

HYDRAULIC LIFTERS

Jabiru was also able to report to CASA that its current production engines were configured with Roller Hydraulic Lifters.

The company, according to Alan, had been endurance testing two engines used in service in flying school operations. It had monitored the engines carefully, but not given them preferential treatment. The engines were maintained merely in accordance with the requirements of the manual.

The engines were operated to 1,300 hours and then returned to Jabiru for a teardown inspection. Alan told CASA that, in both cases, the condition of the engines was such that Jabiru felt it could have reassembled them and returned them to service without any major component replacement. These results, he said, provided positive proof Roller Hydraulic Lifters with the 268 degree camshaft made a durable engine configuration.

(Note: Both engines were older engines upgraded to roller cam during overhaul and fitted with 3/8" through-bolts for the test).

OUT OF THE WOODS?

While news of the discussions and the work being done by Jabiru to relieve the concerns of the regulator will be welcome to Jabiru engine owners, they still faced the prospect of at least some of the restrictions continuing after the expiry date of the original CASA instrument on June 30.

CASA says while heading in the right direction, the company is not there yet.

"CASA recognises the factors may include a combination of maintenance and operational issues, as well as problems related to design or manufacturing", says Mark Skidmore. "The existence of these different factors complicates causal analyses, but provides a wider range of potential solutions."

"But in any case, until effective longer-term solutions can be identified, CASA must ensure those people less able to fully appreciate the nature of the risks to which they may be exposed are provided with additional information about the risks, so they can make a better informed choice about exposing themselves. We must also ensure a sufficient level of protection for those people not in a position to make any choice at all.

"CASA sincerely regrets the inconvenience and expense the limitations continue to cause. However, until longer-term solutions can be implemented, we believe these relatively modest precautionary measures are the most appropriate and least intrusive available.

"CASA will continue to consider alternative mitigating approaches. With the helpful suggestions of stakeholders, CASA has already given timely advice about how the limitations would be adjusted in the near

term with a view to providing as much relief to owners and operators of Jabiru-powered aircraft as possible, without compromising our primary safety-related obligations", says Mark.

AND FOR JABIRU?

A company spokesperson told *Sport Pilot* "R & D with our airframe and engine are always ongoing. We continue to improve our manuals and we encourage owners to visit the website frequently to make sure they have the current versions. They should also check compliance with the Service Bulletins and Letters. We'll soon introduce a support forum to the website to allow faster and more transparent communication.

"Jabiru always set out to make the best product we can and get it to people at as affordable as possible. While the past months have been very tough, we still love our flying and want to get as many people as possible involved – in a country as vast as ours, learning to fly and flying for recreation makes plenty of sense."

VIEW FROM RA-AUS

MICHAEL MONCK **PRESIDENT**

IT IS important to understand the position of each party in relation to the challenges faced with this issue.

Jabiru is the manufacturer of the engine and is responsible for ensuring each engine complies with the standards required by the regulator. For the most part, these standards relate to requirements set down by the American Society for Testing and Materials (ASTM). This organisation has designed a set of obligations manufacturers must comply with in order for their aircraft to be compliant with the LSA system.

CASA is responsible for ensuring compliance with the standards through a set of audits and other assurance mechanisms. They have a broad set of authorities in relation to airworthiness, restrictions on the operation of aircraft and oversight of bodies such as RA-Aus and the SAAA.

RA-Aus is responsible for setting standards relating to pilot training, ensuring members meet their obligations under the rules of the organisation and so forth. We have been granted a range of exemptions, based on a set of alternative means of compliance which, for the most part, consist of our operations and technical manuals.

It means we are not responsible for ensuring Jabiru meets the engineering requirements of the ASTM standards or auditing them against those standards. We are only responsible for ensuring that, once an aircraft is entered onto our register, it complies with the requirements of our technical manual. We are obviously also very interested in the safe operation of the aircraft.

We will continue to work with the manufacturer and the regulator to ensure our aircraft can continue to provide the assurances CASA requires.

To address CASA's safety concerns, Jabiru has proposed a set of modifications and a maintenance regime. Once a set of conditions has been agreed upon, it will be our role to ensure aircraft on our register comply with these requirements and are operated in accordance with the technical and operations manuals, together with any other regulatory requirements.

To do this we will ask for the cooperation of aircraft owners and operators. We're not yet sure what this will involve but, over time, as the path forward becomes clearer, we will communicate with owners to tell them what we need.

It is also important to note we are concerned the regulatory instrument put in place has affected all aircraft, regardless of whether they are LSA, certified or home built. Each of these is governed by different rules and we need to be aware of these differences when we consider any appropriate course of action.

FLY-INS

"Discover what Casino has to offer"

Beefy turnout

BY DEBBIE KENNEDY
CASINO AERO CLUB

A SOLID number of pilots turned out to support the annual Beef Week Muster Fly-In in Casino in northern NSW in May.

Public attendance was estimated to be lower than in previous years, but it was encouraging to see the support from the aviation community.

Weather was conducive to flying and a great day was had by all. Joy flight operators reported a slow start in the morning but, by the late afternoon, it was great to see so many people enjoying an adventure flight in one of the warbirds.

For those who flew in on the Saturday, a pilot's dinner was put on by the Casino Aero Club, which consisted of a sumptuous camp oven roast beef (of course) followed by dessert.

The Casino Beef Week Fly-In Muster is focused on showcasing this part of NSW. Because of its success again, the event will continue to grow and prosper as more people discover what Casino and the region has to offer.

Fun to fly


Spring steel legs, secured by hefty bolts

"Pilots deserve the strongest aircraft"


Quick response control inputs

AIRCRAFT FEATURE

Benign stalling characteristics

{ BRUMBY 610T }

Evolution to a T

BY BRIAN BIGG

ONE of the legendary names in Australian recreational aviation, Brumby Aircraft, has launched the latest version of its popular 610 Evolution aircraft.

The 610T Evolution comes from the same stock as the 610 and 600 (low wing) models and shares many of their characteristics.

And just like the earlier Brumbys, The T model was developed, designed and built by legendary company owner, Phil Goard, in Brumby's factory in Cowra, NSW.

Son Paul, who runs the shop, reports the model T proved to be very stable in flight from the word go with the usual minor stall buffeting and 35kt stall speed which all Brumbys have.

There is an increasing number of Brumby aircraft being placed on the RA-Aus register already and Phil used the experiences of those owners to channel the new model T onto a path which should see it capture as much attention in the years ahead.

As with the previous model, the 610T has been designed specifically for the training market.

"We all know students can be hard on aircraft, especially during touch down", says Paul. "The 610T acknowledges that reality and is equipped with an undercarriage manufactured from heavy duty, high quality, and spring steel legs, secured to the chrome-moly vanadium airframe by particularly hefty attachment bolts."

And, as Paul points out, what makes the Brumby great in a training environment, also makes for a safe, easy to fly, personal commuter—with an added capacity for fast cross-country flights.

"Brumby's philosophy is that owners and pilots deserve the strongest aircraft practically possible under LSA certification."

However, Paul points out that just because Brumbys are built like a tank doesn't mean they fly like one.

"All Brumbys are fun to fly", he says. "The 610T is no different. Visibility is excellent and the big front windscreen and large side door windows give pilots and passengers the best possible view of the world."

"Another area of importance to students and instructors is the handling. Some instructors argue students need a challenging trainer, but schools run the risk that difficult-to-fly, aerodynamically unstable training aircraft can set the bar too high.

"The 610T is unapologetically easy to fly. The aircraft responds quickly to control input and is very stable in flight. It has one of the gentlest, most benign stalling characteristics of any aircraft. Students will actually need to work to make it stall and recovery can be achieved with a minimum loss of altitude. Our test pilot had to actually apply full back stick along with full rudder to even initiate the start of a spin and recovery was simple."

Even though it's a designed as a trainer, the model T has the usual Brumby 138 litre fuel tanks above each wing. With a cruise speed of 105 to 110kts and a burn rate of 18 to 20 litres per hour, it means your bladder will give out long before your petrol does.

It also has the usual Brumby inclusions - sliding seats forward and aft, trim wheel in the centre, dual control yokes, dual pedals, carburettor heat, four point safety harnesses and a Sensenich three blade ground adjustable propeller.

The other big news from Paul is that Brumby has a new deep pockets investor.

"What that means for us", says Paul "is where, in the past, a potential new owner would have had to wait at least a year for their aircraft, now we can afford to have stock on hand for quick delivery as of February next year."

Paul has issued an open invitation for pilots to go to Cowra to have a cup of tea and take the new model T for a flight.

The 610T is available from $125,000 fly away. For more information www.brumbyaircraft.com.au.

Picking up my new Savannah

BY NEIL SIDWELL

I HAVE just reached the grand old age of 60 and decided a new plane was the way to go. I have been flying a Skyfox Gazelle which I bought jointly with a friend when I learned to fly five years ago. Flying her has been brilliant fun but, now I'm retired, I have been flying more, which isn't fair for my friend who is still working.

After chatting to other pilots and looking at various planes in the Member's Market, I liked the look of the Savannah S. It has long range tanks (140 litres) and a 100hp Rotax which would give me 6.75 hours plus 45 minutes reserve at 18.5 litres an hour. I also liked its STOL capabilities (stall speed 26kts with full flap) which would allow a landing in a very small space should the fan ever stop.

The cruise speed of 90kts would be 15kts faster than the Gazelle, which may not sound like a lot, but when looking at a forecast with a headwind of 20kts it's psychologically quite a bit better.

Reg Brost from Aerokits in Queensland arranged for one of his customers based at Bendigo to fly to Penfield, my home base near Sunbury in Victoria, and take me up for a flight. It was great even though the 45kt approach speed seemed sooo slow compared to the 55-60kts of the Gazelle.

I placed my order and chose to have long range tanks, adjustable seats (I am vertically challenged), a Trig Mode S transponder, park brake, strobes, right side brakes (so the plane could be put online if I wanted) and a centre stick with manual flaps, which I had to have if the seats were to be adjustable. Finally I chose a panel mounted Garmin Aera 500 GPS and a standard set of round instruments.

When Reg told me my aircraft was ready to go, I faced an interesting problem. I had never flown such a long distance before (to NATFLY at Temora was the furthest) and Archerfield is a controlled airport, so I couldn't fly in there.

So I discussed my problem with Terry, the CFI at Penfield Flight School and Airport Manager. He put me onto Grahame Bateman, a new instructor at the school. Grahame has four aeroplanes, including a Beech Debonair and 1944 Auster and is building a Corby Starlet.

Grahame agreed to accompany me. I then began to plan and gather the items we would need for the trip, including a PLB, a fuel funnel (for Mogas), a fuel tester and some mini chocks. Fortunately the Savannah came with tie downs and straps so we would not need to include large, sharp metal objects in our baggage on the commercial flight from Melbourne to Brisbane. The Savannah has a baggage capacity of 20kgs, so we had to keep our baggage below that limit.

I had AvPlan and Grahame had OzRunways as backups. They made planning easy.

The jet flight up was on time and Reg picked us up in his ute.

We arrived at Archerfield, and I saw the sun reflecting off my Savannah's shiny paint for the first time. After initial checks, Grahame went up with Reg for some circuits, then it was my turn. Wow, the take-off and climb out was much steeper than I was used to! The next challenge was getting the nose attitude right for straight and level and then the attitude for landing. The Gazelle has no flaps, so the approach in the Savannah felt very different. Some of my landings were better than others, but I was frequently closer to the grass by the side of the runway than the centreline.

Grahame and me after arrival at Penfield

The Spitfire pictures in my room at Narromine

A proud owner at Archerfield

The next day Reg gave us a lift back to Archerfield. We topped up the tanks and did our pre-flight checks. The engine looked good with no visible leaks (in fact it was the cleanest engine I have ever seen). Reg found a litre of Shell Sport Plus 4 oil to take with us just in case and we loaded up our baggage behind the seat. It all fitted very well.

Grahame submitted a SARTIME via his iPad and we were good to go.

We had agreed Grahame would fly the plane until we were well on our way clear of controlled airspace. I took over at Boonah and we ended up at 6,500ft heading south west. She needed quite a bit more down trim than I was used to, probably due to the baggage.

After four hours (we had purposely not consumed too much coffee before setting off) I was tiring a little, so I handed control to Grahame for the last sector. Narromine was a bit gusty, but Grahame touched down nicely on 22. We had been in the air 4 hours 45 minutes and had used about 85 litres (17 litres per hour). Not bad for two up plus baggage.

A bloke in a very nice red RV6 told us if we went into one of the buildings just beyond the clubhouse, we would find somebody to give us a bed for the Savannah overnight. Sure enough a very friendly gentleman called Arnie shuffled the aircraft around in his hangar to make room for us. Thanks Arnie.

We walked to the Tourist Park and Motel, which everyone knows is the place for pilots to stay in Narromine. The cabins were all called after famous aeroplanes and I had the Spitfire room. Grahame had the Catalina room. But soon after we dumped our bags in our rooms the alarm went off on my phone. Oops! We had forgotten to cancel our SARTIME. Good thing I had set my alarm for 15 minutes before it expired.

Early the next morning the weather in Victoria looked dodgy. We decided on cautious optimism. We would set off and follow our proposed route from airfield to airfield, if necessary stopping to wait out the weather and reassess. Grahame and I are both believers in always having a Plan B.

The long range tanks on the Savannah gave us options.

> "Got to love those long range tanks"

The further south we went, the bumpier it became and the cloud base was not much higher than we were. At Lockhart we amended our track to skirt some heavy showers.

We maintained about 4,500ft for a while, but were gradually forced to go lower to keep under the increasing cloud and dodge more showers. As we neared Daysdale, heavy-looking showers were directly in front, so we flew round to the west, knowing the weather was coming from that direction and it was clearer there. But as we passed beyond Daysdale we could see over our shoulders it was now clear back towards the east, so we ended up doing a circle and got back near our original track.

We had been debating a stop at Yarrawonga and, after some rather poor weather reports from further south, we elected to stop for a coffee, a comfort break and to reassess. The showers arrived only a few minutes after we did.

After sitting around for an hour, we refuelled and set off for Shepparton. We did not get much above 2,000ft and, instead of heading to Mangalore as planned, we changed track to Bendigo where the weather was better and Grahame had a hangar. Plan B was to land and, if necessary, I would get a train home and come back to pick up the plane later.

But as we neared Bendigo we could see it was clear towards Kyneton, so we headed there in the knowledge we could always get back to Bendigo – got to love those long range tanks.

From there it was reasonably clear to the south and we headed for Penfield where it was blowing a strong, gusty nor-wester.

I flew until base leg for 33, but at that point handed control to Grahame. I did not want to risk bending my new acquisition. It was a good decision. I have never seen anybody working so hard on an approach. Grahame made a good landing and we taxied up to the hangars with some relief.

After 11 hours flying and around 200 litres of fuel (18 litres an hour) we had finally arrived.

I learned some very valuable lessons from Grahame about weather management and just how different the Savannah handles compared with the Gazelle. I now need to do a few circuits to improve my take-offs and landings. Grahame, are you available?

Taming the Caribou

BY CAPTAIN DOUG HAYWOOD

A FEW years ago the Historic Aircraft Restoration Society acquired two ex-RAAF DHC-4 Caribou aircraft. I helped with this process and was appointed manager of the project. But I wasn't going to stand back and watch my RAAF Caribou pilots have all the fun.

I had been in the Air Force myself and had flown BAC 1-11s, Hercules, HS-748s and CT-4s but never the 'Bou. We tended to regard them as old technology and not desirable. How wrong we were - as I soon discovered.

In my day job, I fly the latest technology Airbus A380. This aircraft is a marvel of automation, but with it comes a loss of any tactile feel and sense of man/machine interaction. The Caribou is a full time hands-on aircraft, even from the engine start.

An Airbus start involves rotating a selector switch to 'Eng Start' and simply putting each engine master lever to 'On'. When the computer is satisfied, I get a message 'Eng avail'.

To start the Caribou however requires the dexterity of a concert pianist and the assistance of a good co-pilot and flight engineer. Three spring loaded switches plus ignition switch, mixture lever and throttle must all be moved in exactly the right sequence for a successful engine start. Failure to do so results in anything from an over-primed start to severe backfiring, known affectionately as 'shooting ducks'!

The Caribou is equipped with nose wheel steering so ground manoeuvring is fairly easy. The take-off is surprisingly brisk too because the aircraft is a renowned STOL performer. You do need Marty Feldman-like eyes to maintain the centreline and ensure exactly the required manifold pressure is applied. If the engines on the Caribou are over-boosted it would require a double engine change. Pratt and Whitney R-2000s are as rare as hen's teeth so you may well have grounded the aircraft forever. On the Airbus I simply advance the thrust levers to the take-off detent, Ho-hum.

Once airborne, the Caribou is docile and a delight to fly. Quite responsive, but fairly large control inputs are required especially in gusty conditions. STOL landings are a challenge and an area where the aircraft can bite the unwary.

After a few months of intensive training I have become one of the few currently qualified Caribou pilots privileged to display the aircraft for the public at air shows around Australia.

HARS is the custodian of these rare birds and we fly them quite conservatively so we can continue to show them off. All the pilots at HARS consider themselves very fortunate to be involved with these historic veterans.

See a cockpit view of every minute of the Caribou display at the Avalon Air Show complete with pilot commentary – from engine start to engine shutdown. It's one of the special features on UNTOLD STORIES OF THE RAAF CARIBOU. The DVD is available at untoldstories.com.au.

Caption here

POSITION 1

Pre take-off checks done. Sitting comfortably, eyes focused on the end of the runway with the bar near to or gently touching the front pole, wings level, engine idle. Relax.

POSITION 2

Slowly advance the throttle to full power. Eyes focused at the end of the runway.

At the start of the run the wings will be level. Your feet will have full directional control.

As the wing starts to create lift, the front wheel will become lighter, bar pressure will increase, directional control with your feet will diminish and transfer to the control bar.

POSITION 3

The wing is now taking most of the load as the front wheel lifts off. The trike base unit swings forward and back pressure increases. This is the cue to begin to release the back pressure on the control bar by allowing it to move to a neutral position(trim) while you maintain directional control with the wings by focusing on the end of the runway (and beyond).

POSITION 4

The rear wheels leave the ground, the bar is allowed to come back to a neutral position (trim) and the aircraft accelerates. As you become airborne, move your focus down the extended runway centre line. Your flight path is kept at a shallow angle to the ground - height gain is not required yet, airspeed is.

POSITION 5

The aircraft now wants to climb out of ground effect (and possibly through a wind gradient). Continue to pull the bar in to a couple of inches/grams faster than trim. Focus your eyes on maintaining attitude and the ever changing view of the extended runway centre line. Input directional and attitude changes as required to keep the aircraft on a constant flight path.

POSITION 6

Approaching 200ft, allow the bar to move back to trim and focus on maintaining a constant attitude. Continue the climb out at trim and level out at your desired altitude, remembering Attitude, Power then Trim to achieve a smooth transition from climb to level flight. Relax.

Relax
My microlight take-off technique

BY GORDON MARSHALL

TRIKES are essentially a 'fly by feel' aircraft so a nice take-off is essentially a smooth transition from standing still to being safely airborne on your desired flight path.

To get there requires a good understanding of what is happening and how you, the pilot in command, control the events.

Each aircraft has its own specific method of control. Not just weight-shift versus powered parachute versus 3 axis. There are subtleties about each aircraft - the sounds you hear, the sensations you feel. Each aircraft has a unique way of telling you what is going on. Your job is to find a way to safely develop a feel of the situation for each aircraft and respond accordingly.

So what makes a good take-off?

Control, attitude, airspeed, visual and physical cues, a contingency plan and thrust.

The aim is to learn a technique which allows you to develop a feel for what the aircraft is doing, especially during the transitional stage when airflow around the wing is gradually taking effect and the wheels are losing their ability to control direction.

In weight shift microlights 'V' speeds such as Vsr (stall), Vne (never exceed), Vr, V2min, Vfto, etc are still very important, but so is the huge amount of feedback you get from the control bar.

With experience a weight shift pilot will learn to feel exactly what the wing is experiencing through all phases of flight and the Air Speed Indicator becomes little more than a reference gauge.

The diagrams above show a controlled take-off. They are not six individual steps but snapshots during the smooth transition through the six phases of a normal take-off.

One important thing to point out is that the Angle of Attack (or chord line) to the relative air flow/flight path remains constant during the early stages. It is never allowed to become larger - in fact it progressively deceases and stabilises - until you reach a safe altitude and you allow it to settle at a larger AoA.

This insurance policy of always having the correct airspeed through all of the phases gives you a healthy start on your contingency plan should the engine fail during the procedure.

Another point worth mentioning is that trying to twist the control bar or push it down will have very little effect on the flight path. You need to shift the Centre of Gravity for the aircraft to respond.

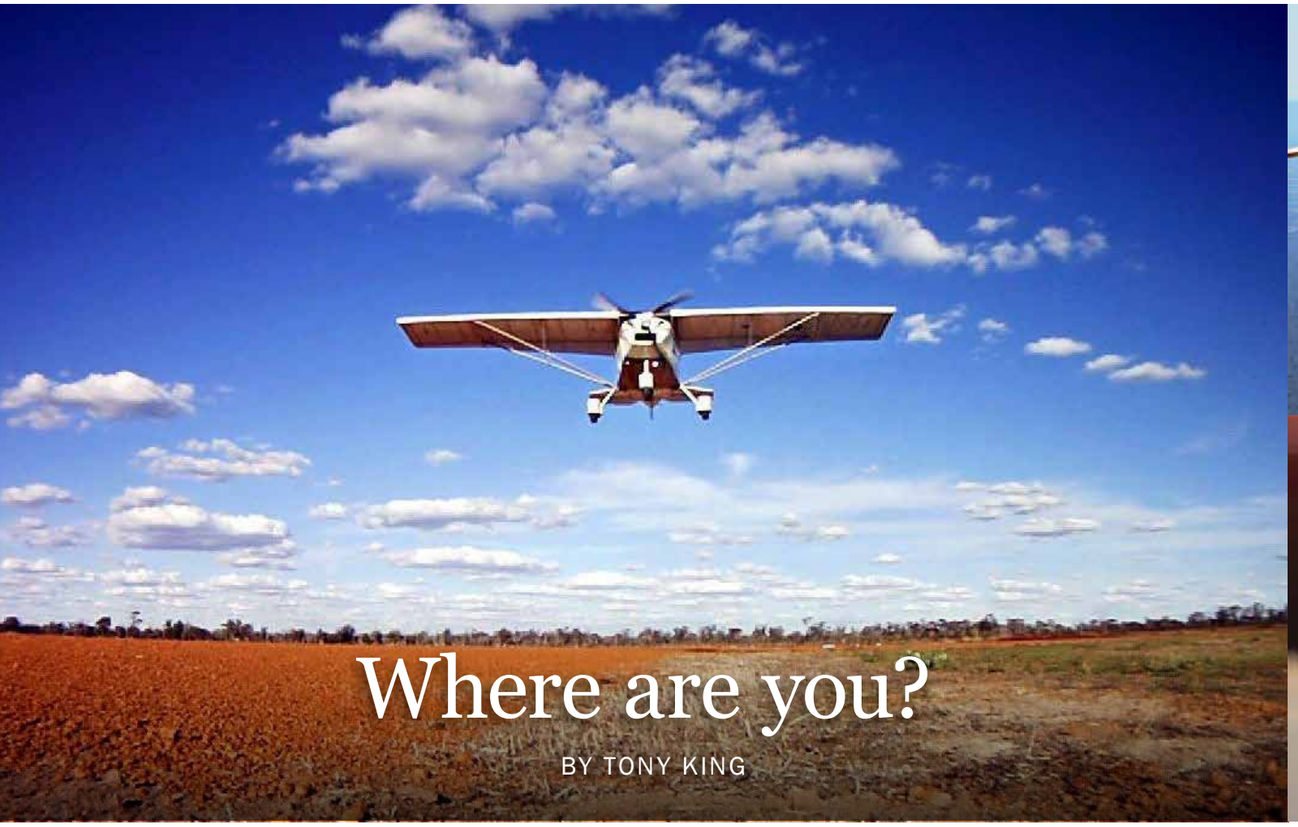
You will undoubtedly encounter turbulence. Often the pilot is the culprit by over controlling or putting in control inputs when they are not required, such as a yaw correction. Don't do it.

I have a couple of reminders—always 'pull the high wing down, never push the low wing up' and 'correct the roll, allow the yaw'.

If you find yourself over controlling, relax your control inputs. See where the aircraft is going then make specific corrective inputs, effectively hitting the reset button.

It can be hard to bring yourself to do it at first when the trike seems to have a mind of its own, but have a bit of faith in the stability of the aircraft and remember reefing the bar all over the place does not give you the required feedback to make positive and correct inputs. Relax.

> "If you find yourself over controlling, relax"



Where are you?

BY TONY KING

FEATURE STORY

"It can happen to you, so plan for it"

A NUMBER of recent incidents have highlighted the value of being easy to find in the event a flight doesn't go as planned.

As part of our cross country endorsement training, we all learn about notification, SARWATCH and the requirement to carry an emergency beacon if flying more than 50nm from the departure point. And many of us have an ELT fitted in our aircraft or, more commonly, carry a PLB or EPIRB. But I wonder how many of us consider the value of adopting these practices for all flights, not just flights over 50nm?

Recent incidents have demonstrated it is possible for a flight to end in an unplanned and tragic fashion and for no one to be aware of it for a considerable time, even if it happens just a few miles from the airfield. So what can we learn from these unfortunate events? Here are some suggestions.

IT CAN HAPPEN TO YOU

As pilots we all believe we have the skills to safely manage our chosen machine under the expected conditions during the flight. We wouldn't fly if we didn't have at least that level of confidence. But for far too many of us, that confidence morphs into a thought pattern which says 'it won't happen to me'.

The statistics say that every year, several of us are fatally wrong about that. The statistics also suggest a pilot's level of experience has very little bearing on the likelihood of being involved in an accident. Inexperienced pilots have accidents, highly experienced pilots have accidents and so do those in between. It can happen to you, so you'd be smart to plan for it.

ALWAYS TELL SOMEONE WHAT YOU'RE UP TO

This is SARWATCH 101 – leave a copy of your plan, including times, etc., with someone responsible. My own practice is to send a text while the engine is warming up, advising that I'm about to take-off, the destination for this leg and the ETA. If it's just a half hour round the area, the text says that – Ready for take-off local flight eta 0935. The text gets sent even if it's a test flight after maintenance. I used to send them to my wife – until I returned from a trip and discovered she hadn't read any of the five texts I'd sent her. I still send them to her, but now I also include the club CFI and one of my hangar mates. The conversation I've had with all of them is "if I'm 10 minutes late and you haven't heard from me scramble the jets (i.e. call AMSA)".

ALWAYS CARRY A BEACON (AND MAKE SURE IT'S REGISTERED)

As I mentioned, some sort of approved beacon (ELT, PLB, EPIRB) is a CASA requirement for flights over 50nm, but there are plenty of examples where a beacon has proved its worth well short of that mark too. A good example occurred near Sydney a few months ago where an aircraft experienced an engine failure soon after departure and the pilot landed in forest a few miles from the airfield. The occupants activated their PLB and were rescued within an hour.

PLBs are cheap (starting below $300), light and easy to operate. EPIRBS are similarly low cost and equally capable. A drawback of both EPIRBS and PLBs is that they are manually activated (although EPIRBS are designed to activate automatically if they land in water). Manual activation is not difficult, but you must be able to reach the device and manipulate the mechanism. And you must have time to do it. It only takes a couple of seconds once the device is in your hands, but don't leave it until after a forced landing unless you have no choice – you can't be sure you'll be in a condition to activate it after the aircraft reaches the ground (or water).

I hang my PLB around my neck at the start of every flight, straight after doing up the harness and before putting on my headset. At the end of the flight I hang it back on the compass above the panel. I can't forget about it there. And make sure you take it out of its jacket. If you do need to activate it you won't want to be fumbling with Velcro fasteners and tight fitting neoprene jackets. Every second counts in an emergency.

DON'T BE AFRAID TO ACTIVATE YOUR BEACON

A common misconception is that you'll be in some kind of trouble if you activate your beacon and it turns out the problem wasn't as bad as you thought. It's not true. If you believe you're in a life-threatening situation and haven't been able to raise the alarm by radio (121.5 MHz) or mobile phone, pull the trigger. Better to have help arrive and not be needed than to need help and it doesn't arrive.

It's also not true that there will be an invoice coming your way if resources are dispatched to find you. The excellent services coordinated by AMSA (the government body responsible for responding to emergency beacons) are provided at no charge to the user.

If you've activated your beacon and the emergency has passed (i.e. you no longer need rescue), or if you activated it by mistake, call AMSA Search and Rescue on 1800 815 257 as soon as possible and let them know it's a false alarm.

CONSIDER USING TRACKING TECHNOLOGY AS WELL

As good as they are, ELTs, PLBs and EPIRBs are not a silver bullet for the problem of being found in an emergency. ELTs permanently installed in aircraft frequently fail to activate when they should and, like all radio transmitters (including PLBs and EPIRBs), can only transmit if the antenna has an unobstructed view of the sky. If it's under wreckage or in more than a few mls of water, the signal isn't going to reach the satellites. And I've already mentioned the issue of manual activation of PLBs and EPIRBs. There are plenty of scenarios (none of them very good) where manual activation isn't possible.

A popular backup is the use of GPS tracking technology, combined with mobile or satellite data services. A growing number of devices and smartphone/tablet apps available on the market can perform this task. They all work basically the same way – the device (or app) takes a periodic GPS fix (typically every few minutes, but this is user adjustable with most products) and transmits that information, along with identifying data, to a central service using either the mobile phone network or a satellite data service. People who are interested in your whereabouts can access a website which shows your path as a trail of breadcrumbs on a map, thus giving them a very good idea of where you were and what direction you were headed when you last transmitted. This all happens without any action from you apart from starting the thing when you set off.

A key element of trackers is that they rely on being able to transmit digital data over commercial services. This requires being subscribed to some sort of mobile or satellite data plan. In the case of smartphone or tablet apps this usually is already covered as part of your phone plan. In the case of satellite based solutions there will be a monthly charge, typically starting around $20, for the data transmission and backend service.

A further consideration when relying on the mobile phone network is coverage (satellite coverage is 100% as long as your device can see the sky). Telstra coverage is pretty good over much of the country – although once you get out where the towns are more than 50nm apart it starts to get patchy. Coverage from the other carriers is less complete. Make sure you consider this when evaluating such options.

As a pilot you are responsible for the safety of yourself and any passenger(s) during all phases of flight. If you take that responsibility seriously you should consider measures to reduce risk in the event a flight doesn't end as planned. There's no magic solution for all situations that might result in you being unexpectedly on the ground (either with or without yourself and your aircraft intact), and as I hope I've shown, the following the regulations alone won't ensure you can be readily found in all situations. It can happen to you. Will you be ready? Will others be able to find you in time?

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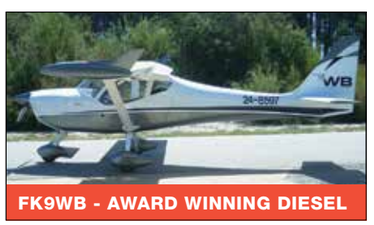
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All sun and fun at All-In Fly-In

STORY AND PICTURES BY ALAN BETTERIDGE

WATTS Bridge airfield, near Toogoolawah in South East Queensland, has a motto which reads: 'If it flies –its welcome at Watts Bridge' and in May it lived up to that motto.

Near perfect weather conditions set the scene for the All-In Fly-In and more than 150 aircraft made the pilgrimage. That's as many as attended recent NATFLYs.

It wasn't only the number of aircraft attending but the wide variety of types represented which made the fly-in what it was.

Everything from a scale replica of a Panther jet, to T28s to Drifters, all shared the circuit area and it was a credit to all pilots concerned the event ran smoothly. Not one problem was encountered during the day.

Airfield identity and long-time LAME Bruce Clarke, who has been instrumental in the construction of a number of aircraft including his own Acro Sport and Sopwith Pup, is currently in the process of building a Nieuport 27.

Originally designed by Gustave Delage in 1917, the type was the last of the 'V Strut' Nieuport fighter aircraft.

It is hoped the aircraft will be flying before the year's end and will be one of the feature aircraft in the upcoming Gathering of Eagles fly-in to be held over the weekend of August 29/30.

Another historical World War 1 fighter aircraft being built under Bruce's watchful eye is the Focker Tri-plane of Kevin and Lyn Walters.

"This aircraft will be a full sized replica of the aircraft flown by Lothar Von Richthofen, Manfred's brother", says Kevin. "We hope to have it flying by the end of the year."

Lothar learned to fly in 1916 and was posted to his brother's Jasta 11 squadron in March 1917. Despite his late entry into the air war, he was considered one of the most combat efficient and prolific flying aces of the war, perhaps even more so than his brother, the

A long line of Tiger Moths would have been common at Watts Bridge during the war years

Can they get any smaller? Bob Hynam's Teenie 2

A replica Grumman Panther jet about to touch down. This aircraft is based at Watts Bridge

A lovely little Corella for sale at just $12,500. A snip for an aircraft that was: "Just flown by a little old lady on Sundays" or so the sign said

The parking area was full

Looking like the love child of a Beech Bonanza V35 was this Sonex which was first registered in 2013

famous Red Baron.

Of his total of 40 confirmed victories, Lothar scored 33 in just three months: 15 in April 1917, eight in May 1917, and 10 in August 1918.

One of the more unusual aircraft at the fly-in had to be the Teenie 2 of Bob Hyam. Bob built this minuscule aircraft in 2011 and is happy with his choice of building projects.

"I would love to put a CAMit engine in it (see article *Sport Pilot* March 2015) because it would enhance its performance," said Bob.

"It is a bit lighter than the current VW engine, so I would need to move it forward a bit to maintain the correct balance but I think it would be a great project.

"Unfortunately, the cost is a bit much for me at the moment but you never know what the future holds," he said with a wry grin.

One of the great advantages of our category of aircraft is you don't need a lot of money to become involved.

This was obvious with a For Sale sign on a very well presented Corella. The going price of just $12,500 seems reasonable for an aircraft only ever flown "by a little old lady on Sundays", or so the sign claimed.

Watts Bridge has a long association with aviation and can trace its roots back to 1942 when it was established as a military airfield.

When the war ended all the buildings were removed and the land allowed to return to grazing land.

In the early 1980s a group of aviation enthusiasts re-discovered it and set about restoring what was a historical piece of Australian aviation history.

> "You don't need a lot of money"

By 1990 it was again up and running. It has continued to grow every year since and now is home to many significant types of aircraft.

Watts Bridge has gained a well-deserved and enviable reputation of being a great place to see and participate in all things aeronautical and the upcoming Gathering of Eagles fly-in looks set to continue this trend.

The event will celebrate 100 years since Gallipoli and will feature aircraft from both World Wars, along with what will undoubtedly be a huge range of all other things aviation.

Admission for all pilots and aircrew flying into the 'Gathering of Eagles' will be free with no landing fees.

The main day will be Saturday August 29 and onfield camping is encouraged.

To book a camping spot contact Liz Cook on 0419 369 963 or for more information wattsbridge.com.au or email info@wattsbridge.com.au.

If the All-In Fly-In was anything to go by, the Gathering of Eagles will be a must-attend event.

Stunning RV9A sporting an RA-Aus registration


Bob Hyham with the Teenie 2 he built four years ago

An Acro Sport, another of Bruce Clarke's creations


This S14 Airaile Valkyrie II looks like it can't wait to get airborne

There were aircraft of all types to be seen at this year's fly-in


Kevin and Lyn Walters hope to have their Focker Tri-plane flying by the end of the year

Freedom to fly and great weather

BY JOHN AND LINDA WALMSLEY


Coominya Airstrip

COOMINYA Airfield is nestled in the middle of a 100ha cattle property, one hour west of Brisbane along the Brisbane Valley Highway in the heart of the Lockyer Valley.

It's also the home of Coominya Flight Training. The airfield has a 1,000m level grass runway, which is well defined with white boundary markers. Aircraft can maneuver along taxiways which link the hangars and allow safe access to the runway.

Coominya Flight Training offers one-on-one pilot training and caters for all endorsements, conversions, advanced training and theory courses. You can always bring your own aircraft, but Coominya specialises in recreational aviation and its three Rotax powered LightWings go flying seven days a week.

The CFI at CFT has more than 7,000 hours experience on many aircraft types (He is also GA licenced with Low Level and Aerobatic endorsements).

Students at Coominya always comment on how great it is to learn in the unrestricted airspace, with clear and uncluttered skies away from high traffic flow areas. It builds their confidence and allows them time to relax and get ahead of the aircraft.

> "Uncluttered skies away from high traffic flow areas"

Of course, joy flights around the Lockyer Valley are always popular. There are quite a lot of lakes and dams scattered throughout the region, all with the possibility of water sports, fishing, picnicking, cafes and great camping.

Aviators and students can always overnight at Coominya. There are no landing fees and new modern accommodation and conference rooms.

We have put out the welcome mat for everyone. We want you to come and have a cuppa with us and perhaps take a Trial Introductory Flight in the peacefulness of the Lockyer Valley. We are always home.

For more information Coominya Flight Training coominyaflighttraining.com.au.


Conference room Amberley airspace

EDITOR'S CHOICE

It hurts when it's over

BY BRIAN BIGG

AFTER GIVING YOU A BREAK FROM MY OPINIONS FOR A COUPLE OF YEARS (I RAN OUT OF THINGS TO COMPLAIN ABOUT) I'M USING THE NEW ERA OF SPORT PILOT TO RESUME MY MUSINGS. I HAVE A WHOLE NEW LIST OF THINGS TO BLEAT ABOUT.

I WAS sitting in my aircraft the other day, far from home, at an airfield which is the perfect flying distance from my place. I've flown there so often I don't even need the map.

After I shut down the engine, I usually get out my notebook and write down the Hobbs Meter reading before I forget it. If truth be told, I also like just sitting there for a moment in the new quietness and think to myself 'My beautiful aeroplane is such a source of joy to me'. I wallow in a very smug feeling for a few moments before my logical mind tells me I have to climb out and go to the toilet before it's too late.

On this occasion, as I sat there wallowing, an old bloke came up and said hello. He's a regular at this field and we had spoken on a number of occasions over the years. You know the sort of bloke he is. You have them at your field. A million hours in the logbook, most on types you've never heard of. He'll bore you silly with stories about the days when ultralight flying was pushing hang gliders off hills with motor mower engines the only (dodgy) propulsion. And how instructors these days are hopeless compared to the legendary figures who taught them. But no matter the problem you're working on under the cowl, he always knows the fix because he's had it happen to him a hundred times over the years. He always reduces your repair time by a factor of one hundred, too, because he always has the exact tool you need to get it done and the time to show you how to do it.

I commented to him that I hadn't seen him around in a while. Where had he been? I expected him to tell me he'd been down with the flu or that he'd been visiting his granddaughter in the next town over. He ummed and ahhed a bit then admitted that a while back he'd failed the eye test for his driver's licence and they'd taken his licence from him. More painfully, no driver's licence meant no flying Certificate.

He explained that, when he was first grounded, it had been hard to accept it was forever. The logical part of his brain knew he would have to sell his aeroplane. That's a financial thing more than an emotional one. And that didn't even feel permanent anyway. He could always buy another one if, by some miracle, science found a treatment to repair his eyes.

At first, he'd hung around the field as he always had, but as the months passed it became increasingly painful to him to watch others go flying and realise that he could not and would not ever again. A major part of his life had gone and gone for good. That realisation made him feel he was on the downhill slide in life and the end was approaching too quickly.

Friends at the field offered him rides, but it only made him feel sadder, like he was sponging off them. He told me he had always known one day he'd get too old to do it, but he had the arrogance of most of us pilots and never believed it would ever happen to him. His grounding, he admitted, had affected him more than he could have ever predicted.

His entire life had been turned upside down. He'd been a regular at club BBQs, always willing to put his hand up for the committee and to volunteer to work at the fly-in. And in his spare time he just hung around the field because that's what he had always done for fun.

Only now it was not fun.

Sitting at home and looking up at a beautiful blue day was a dagger in his guts. Going to the field made him feel worse. Even reading *Sport Pilot* reminded him of what he'd lost. Dark thoughts filled the corners of his mind.

Then one day his grandson came to visit. He'd taken the boy for many joy flights over the years and the lad had always expressed an interest in one day learning to fly...maybe. He'd recently turned 15 and come to ask his grandfather for advice on the best way to start flying lessons (he suspects his daughter put the boy up to it). Anyway, one thing led to another and the young feller ended up going for an introductory flight. He was now on his third lesson and was hooked.

He pestered his grandfather with questions every day and the old feller found himself the source of authority on all aviation matters. He spent hours talking with the boy about the theory and he went to the airport whenever the lad had a lesson booked. The two of them had discovered the passion for aviation in each other and for the old bloke especially, it was like rediscovering the joy he'd thought he'd lost forever.

As we sat chatting in the shade of the hangar, a small Jabiru taxied around the corner and the teenager in the driver's seat waved wildly. The old feller waved back, a big smile on his dial.

It hurts like hell to think that one day I'll be too old to fly. But before that day comes I have to make sure I remember to take a moment in those quiet seconds after the engine is turned off and give thanks for all the joy it gives me. And hope like hell that I too get a reason to keep loving it when the time comes that I can't do it anymore.

5 years, 40 deaths - It's time to talk

BY THE OPS TEAM

This column provides information about a series of fatal accidents over the past five years which haven't been spoken about before. This is about to change. RA-Aus strongly believes in an open and fair reporting culture, built around transparent communication. The information provided is not intended to lay blame or find fault, but to remind everyone that accidents do happen.
However if we don't talk about them and the lessons learned from them, nobody benefits.
By talking about them, every member of the organisation gets an education. Over the next five years, we hope to share more stories like these, but stories with better outcomes.

SO LET'S TALK

Over the past five years, there have been 40 fatal accidents in RA-Aus aircraft. Our investigations and analyses have determined 34 of these were attributed directly to human factors and/or poor pilot decision making. That's 87%, which is significant.

In other words, if the pilot had applied basic threat and error management, risk reduction strategies or better decision making principles, the outcome may have been different. Alternative choices may have included electing not to fly that day, flying to a different location, delaying the flight or sufficiently changing the flight parameters. The accident could have been avoided.

CONTRIBUTING FACTORS?

Many of the fatal flights (20) included pilots operating outside the rules. These include flying into cloud, (either deliberately or from poor pre-flight planning), untrained pilots mustering, close proximity flying without a formation endorsement, flights at low level with no training (below 500ft) resulting in wire strikes, flights close to or after last light and other illegal flights which resulted in impact with terrain. More than half the deaths might not have happened if the pilot just followed the rules. More than half.

Lack of pilot currency, recency or familiarity with the aircraft also appeared to be significant factors in twelve of the fatal accidents. Poor fuel planning or fuel exhaustion resulted in four deaths. There were two fatalities related to possible medical factors and five mechanical failures including overstressing the airframe or poor maintenance.

These figures are clearly higher than the total number of fatalities, and this is because some of these accidents had multiple causal factors.

As we all know, there is nothing new in any of these contributing factors.

Pilots rarely find new ways to kill themselves.

Risk Assessment for this flight

Pilot	Score	Environment	Score
Less than 10 hours on type	2	Visibility <10K	2
Unfamiliar destination	1	Visibility <8K	4
Fatigued	2	Ceiling <5000'	2
Recent death of family member	4	Ceiling <2000'	4
Major domestic problems	4	Special VFR	10
Illness in family	1	Wind >15kt	2
		Wind >20kt	10
Alcohol in last 24 hours	2	X/W > 10kt	4
Alcohol in last 12 hours	4	X/W > 15kt	10
Over the counter medication	3	RWY 04/22 operations	2
Hungry	2	INTER showers or rain	2
Thirsty	2	TEMPO showers or rain	5
		Thunderstorm forecast <20nm	10
Second pilot rated and current	-2	Dewpoint split <2deg C	2
Dual instructional flight	-5	Forecast decoded	-2
Recency <7 days	-1	Actual weather verified from prev PIC	-2
Recency >21 days	3	Last light < 2hrs end of flight	2
Last flight different aircraft type	2	Last light < 1hr end of flight	4
Last 3 flights different aircraft type	4	ARR or DEP other than Eastern	2
		Aircraft	
Flight duration > 2 hours	2	Fuel Calcs completed & verified	-1
Flight at end of work day	2	Total fuel margin/ excess >1 hour	-2
Running late for departure	2	W&B calculated	-1
Carrying Pax	2	T/O or LDG dist >50% RWY Length*	2
Scheduled commitment after flight	2	Spare headset	-1
Traveling to an event	3	Spare Maps	-1
		First flight of day for aircraft	2
		Aircraft service <2 flight hours ago	1
Subtotal		Subtotal	

TOTAL SCORE

<6 Minimal Risk	GO
6 to 8 Low Risk	Consider alternate actions
9 to 14 Medium Risk	Consult Senior Instructor / CFI
>14 High Risk	Don't Go

VFR Preflight Risk Assessment Form

Before each flight, assess each of the following 'conditions' and assign, for each row, the appropriate numerical rating of 1 to 5 in the right-hand (Rating) column. Add up the entries in the rating column to obtain an overall risk rating for the flight. Apply this rating to the Green/Yellow/Red risk table to assess the risk involved for the flight.

'Condition'	MAX/MNM	1	2	3	4	5	Rating
Terrain — height/type/population		Low/Flat/Dense		Medium/Undulating/Sparse		High/Rugged/Remote	
Crew make-up		Self + Instructor	Self + Other pilot	Self (solo)			
Pilot rating		CFI/ATPL/CPL	PPL/CIR/RAA X/C	PPL/RAA	SPL GA/RAA		
Rest in last 24 hours		>7 hr	6 to 7 hr	5 to 6 hr	3 to 5 hr	<3 hr	
Visibility (below 10 000 ft AMSL)	5000 m	>20 km	15 to 20 km	10 to 15 km	5 to 10 km	<5 km	
Cloud ceiling (AGL) @ Departure	2000 ft	>5000 ft	4000 to 5000 ft	3000 to 4000 ft	2000 to 3000 ft	<2000 ft	
Cloud ceiling (AGL) @ Destination	2000 ft	>5000 ft	4000 to 5000 ft	3000 to 4000 ft	2000 to 3000 ft	<2000 ft	
Crosswind @ Departure	MAX spec	0 to 5 kt	6 to 10 kt	11 to 15 kt	16 to 20 kt	>20 kt	
Crosswind @ Destination	MAX spec	0 to 5 kt	6 to 10 kt	11 to 15 kt	16 to 20 kt	>20 kt	
Weather stability & changeability		Stable/no change		Less stable/slow deterioration		Unstable/rapid deterioration	
Destination aerodrome familiarity		Familiar		Not familiar			
Hours in aircraft type		>150	100 to 149	50 to 99	<50		
Hours flown in last 90 days		>15	10 to 15	5 to 9	<5		
Total hours flown		>2000	1000 to 2000	100 to 999	<100		
						Overall Risk Rating (total) >>	

Risk Assessment — No unusual hazards Use normal flight planning and established personal minimums and operating procedures.	14 to 30
Risk Assessment — Somewhat riskier than normal Conduct flight planning with extra care. Review personal minimums and operating procedures to ensure that all standards are being met. Consider using risk minimisation strategies to reduce the risk.	31 to 47 or a '5' in any row
Risk Assessment — 'Conditions' present a much higher-than-normal risk Conduct flight planning with extra care. Review all elements to identify those that could be modified to reduce risk. If available, consult with a more experienced pilot or flight instructor for guidance before flight commences. Plan alternate aerodromes and/or routes and develop contingency plans before flight to deal with high risk items. Brief other crew and passengers on the special precautions to be taken during the flight. Consider delaying the flight until conditions improve and the risk is reduced.	48 to 52 or a '5' in any two rows

CAN WE PREVENT THEM?

How can RA-Aus, as an organisation, prevent these accidents from recurring?

We could lay down more rules and require a load more training in human factors and decision making. But these measures would be met with resentment and would probably not achieve their purpose. Mandating more training for 9,500 flying members, in an effort to change the behaviour of a few, is not effective. Ultimately RA-Aus can only do so much. The responsibility, as it has always been, rests with the pilot.

If you choose to operate in high risk areas, with or without appropriate training, the outcome is boringly sadly predictable.

SEE AND AVOID

As well, we need to think about the responsibility on all pilots who see or hear about the risk takers and say nothing. You may have watched one of them taxi out and wondered if they were making a good decision. Could you, or should you, have tried to stop them?

A cultural change is required. A change in behaviour, with mates looking out for each other, with pilots feeling confident enough to discuss their mistakes openly so the lessons they learned can be passed on to others. Hangar talk is highly effective communication.

Remember, we won't live long enough to make all the mistakes possible, so we have to learn from others.

The risks have all been identified over many years and effective strategies already exist to minimise them. Take a look at the VFR pre-flight assessment guide printed here. If you use it to assess either yourself or another pilot before a flight, it can provide an easy way to work out if the flight is going to be risky.

THE EFFECTS OF A DEATH

We already know the immediate and tragic impacts. The pilot doesn't walk through the front door and greet his or her family. Then there's the potential loss of family income, the requirements for the grieving family to deal with emergency services, police, the Coroner and RA-Aus Accident Consultants. Not to mention the media which likes to put a negative focus on what we do. Everyone other pilot else faces higher insurance premiums, the probability of knee jerk responses by the regulator, including higher training requirements and potential loss of freedoms and privileges. The list goes on, but you get the idea.

The most frustrating phrase our Accident Consultants hear from witnesses or other pilots at the accident site is "I always knew he was going to kill himself".

SEE SOMETHING, SAY SOMETHING

Your organisation has the potential to be a leader in accident prevention but each of us can be an unsung hero by taking the first step - talking to our friends, other pilots and instructors about our concerns and leading by example.

You would not let a pilot taxi out with a tie down still attached, so why let them taxi out in bad weather, late in the day, or knowing they usually buzz their friend's house? Talk to each other and become responsible for each other's safety. See something, say something.

You can become an advocate for safe flying, talking about and thinking about how to assess each and every flight, not just your own, for risks.

To paraphrase Spiderman's Uncle Ben "With great freedom comes great responsibility".

The price of our freedom is eternal vigilance.

How many hours?

BY RON LAWFORD

THE question is "How many hours should it take for a student pilot to first fly solo?"

I was talking to an RA-Aus Pilot Examiner/Chief Flying Instructor a few years ago while doing my Biennial Flight Review. He suggested that the minimum time any student could take to go solo was 20 hours and that 25 hours was reasonable for most students.

This captured my attention. I consider that time to first solo is, or should be, an indicator of basic flying aptitude.

I have been flying since 1955, have been giving flying instruction since 1962 and brought the first ultralight into the Northern Territory – a Skycraft Scout in 1976. I have been instructing in AUF/RA-Aus aircraft since they were first made legal in 1986.

When I started, the benchmark for first solo was 8 – 9 hours and that included competency in recovering from fully developed spins. Anything over nine hours and you were looking at a less than favourable assessment as a pilot. That was in Tiger Moths, which are more difficult to fly than a modern nose wheel aircraft.

A few weeks ago, I got to fly with a PPL holder to check his current flying competence and, looking through the first page of his log book, I noted that in 2010 he took 5.5 hours to first solo in an RA-Aus aircraft. So obviously some instructors can get people up to solo standard in well under ten hours.

So, how many hours should it take? How did RA-Aus get to a point where it takes some people a minimum of 20 hours? Or why does it take some flying instructors a minimum of 20 hours to get even their best students to first

solo?

I am aware of one student, who learned to fly in 1985, when there was no age limit on flying AUF aircraft under Air Navigation Order 95.10 (ANO 95.10), who was ready for solo with 2.5 hours flying time.

However, although it would have been quite legal for him to fly solo, he was just 11 years old and his parents decided he should delay going on his own. So he had 4.5 hours flying time when he flew solo for the first time, still aged 11. Incidentally, his first solo flight was his first legal flight as a pilot, because AUF aircraft could only have one person on board.

I am also aware that in the time before the Australian Ultralight Federation appeared on the scene and ANO 95.10 applied to all ultralight flying, a number of RA-Aus certificated pilots went solo with zero hours. Two people could not legally fly together in an ultralight, therefore dual instruction was not (legally) possible. A pilot's first flight in an ultralight was also their first solo. Pretty similar to what Orvil and Wilbur Wright did in December 1903 at Kittyhawk.

Some instructors, including myself, tried giving dual instruction in Warriors or Cessna 172s, flopping around at 50kts to try and replicate a Drifter or a Thruster. That was better than no dual instruction at all.

I believe a number of flying instructors, given a choice between being safe (which meant taking advantage of the opportunity to give and receive dual instruction) and being legal, (which meant launching a prospective pilot into the air with no dual instruction at all), opted to teach new pilots by flying with two people on board illegally.

Against the law, but much safer than first solos with no dual instruction. I never heard of CASA looking for people contravening ANO 95.10, so perhaps the regulator's Examiners of Airmen realised the benefits of safety overrode breaches of the regulations.

Dual flying instruction became legal when the Australian Ultralight Federation was incorporated, and by legislative action, given the authority to administer ultralight aircraft flying.

The minimum age to receive a Student Pilot Certificate was set at 15. The first AUF Operations Manager, Bill Dinsmore, called for expressions of interest from flying instructors to receive AUF Instructor Certificates. 39 people put their hands up, myself among them, and the first AUF pilot certificates were allocated.

Bill, being the Operations Manager, awarded himself Certificate number 1. The other 39 people from around Australia who had volunteered to be AUF instructors were allocated certificates by drawing names from a hat. I received, and still have, Pilot/Instructor/Senior Instructor Certificate number 36. The certificates were issued sight unseen, but Bill

progressively met all of the 39 newly created AUF instructors. I flew into Camden on October 4, 1986, met Bill, showed him my logbook and licence and got a tick of approval.

Once it was legal to give dual flying instruction, the question of what was a reasonable time for a student to fly his/her first solo became relevant and most students went solo in ten hours or less.

I am aware of some present day training organisations where most students take 30 to 40 hours to go solo.

Why?

I have seen logbook entries which indicate one instructor spent an hour devoted to turning, or to straight and level. I understand some instructors require students to demonstrate competence in each sequence on three occasions and three times one hour means three hours is spent on each subject.

"one student was ready for solo with 2.5 hours"

My students demonstrate competence in each sequence about 20 times – but I cover all sequences taught to date on each flying lesson and I usually have the student repeat each sequence six or seven times during each lesson.

I start the student on use of rudder within seconds of starting to taxi on the TIF. I start the demonstration of effects and further effects at about 700ft AGL as I leave the circuit. Once the student is competent on the basic handling, I have him/her fly the aircraft on finals down to 300ft, and then have him/her stay on the controls during the landing. My students fly the aircraft for 95 – 98% of their time in the aircraft.

Moody-Easy-Riser

The exception to demonstrating each sequence 20 or so times are take-offs and landings. Deciding when a student is ready for first solo becomes an intuitive, subjective thing for me and I know when a student is ready or not.

It requires a reasonable circuit and safe landing on at least three consecutive occasions in one session, but it also includes the weather, other traffic, how the student is reacting to the occasion, including his/her awareness of things other than the immediate flying of the aircraft and whether he/she has demonstrated the fine tuning of the approach, round out, hold off, touchdown and landing run, or whether the good landing could be due to luck rather than good management.

It will also vary depending on the aircraft used – a Drifter can do twice as many circuits in an hour as a Jabiru, for example.

So – what do RA-Aus instructors consider to be a reasonable time to allow a student to fly on their own for the first time?

Does anyone consider a first solo in five hours is not possible? Does anyone consider 20 hours is the absolute minimum?

Is there a right answer? This subject will be discussed at our second National CFI conference in Bundaberg on October 12-14.

Blowin in the wind

BY PROFESSOR AVIUS **AVIATION GURU**

AS recreational aviation has evolved over the years, so the decisions we as pilots need to make have also evolved.

How are instructors handling the decision aspect of a pilot's training?

Of course, during their training we do our best to explain the decisions we are making and involve them as much as possible. But a quick look through the RA-Aus incident and accident reports highlights a possible anomaly.

The stats point to decisions as being one of the biggest problem areas, in particular decisions surrounding aircraft performance.

When we think of performance, we think of things like speed, climb rate, fuel burn and usable load.

But there is far more to aircraft performance we need to consider.

Thanks to the growth in the numbers of light sports aircraft, we are blessed with a plethora of choices and, with this variety, comes massive differences in the performance and handling characteristics.

One of the more common and popular categories to emerge is aircraft which seem to defy conventional aerodynamics - incredibly low stalling speeds (low wing loading) combined with respectable cruising speeds and lifting ability.

What this boils down to is there is now, more than ever, a real need for performance to be considered before each flight, particularly when conditions are marginal.

The Foxbat is a perfect aeroplane to use as an example. This aircraft has an incredibly well designed wing and airfoil. I am sure most of us have been impressed watching the performance pilots get from these machines. However, sometimes on take-off, while the wing is working quite well at incredibly low airspeeds, the rest of the aeroplane (or the pilot) is not yet ready to fly. What can happen is that the aeroplane gets airborne quickly, either with a burst of throttle, or a puff of wind, but the primary controls may not be responsive enough yet to control any chop or other adverse conditions. The pilot might also be surprised by how much input is needed to just keep it straight.

So what can we do about it?

Do we do any type of performance calculations in recreational flying?

With some exceptions, I'm sure the answer is generally no. And while in most types runway length isn't usually a problem, there are other factors we need to consider before firewalling the throttle.

Fact. As altitude and or temperature increase, air density reduces. This means your engine, propeller, wings, flying surfaces and controls are interacting with less air. The engine will produce less power and the wing will need to travel faster through the (less dense air) to compensate. This means that during the take-off roll, the aeroplane will feel sluggish and take a greater distance/time to get all the science working. So a pilot can easily fall into the trap of trying to rotate too early on a take-off roll, which will only slow the acceleration further and could lead to an upset.

When operating at high elevations, or on hot days, as you line up on the runway, take a moment to consider how your aeroplane will behave. The take-off roll could be as much as 50% longer than at sea level or during a cold temperature take-off. So plan to be on the ground longer and be gentle when pulling your bird into the air.

Another thing to consider is gusty wind, in particular gusty crosswinds.

Your POH will list your aircraft's maximum crosswind limitation. Never attempt to take-off or land in conditions exceeding this limitation. A simple rule of thumb for determining the crosswind component is first estimate the wind strength using the wind sock (a standard windsock is 20kts when horizontal) then estimate the angle between the wind direction and the runway heading, or use the ATIS if available.

ANGLE BETWEEN WIND DIRECTION AND RUNWAY HEADING	CROSSWIND COMPONENT (% OF WIND STRENGTH)
30°	50%
50	75%
90	100%

This is a rule of thumb only and you should consider the gust strength and the maximum angle being encountered if the sock is flapping around and changing direction.

TAKE-OFF TECHNIQUE

Before take-off, as always, the pilot should give himself a safety brief, but in gusty conditions add extra considerations.

All aircraft list a TOSS (Take Off Safety Speed) in the POH. This speed is useful when considering a take-off in gusty winds, particularly in aircraft with a low wing loading. This can be considered as your Safe To Climb Speed after rotating.

If there is a strong crosswind, apply full into wind aileron during the take off roll, gradually bringing the stick back to neutral as speed increases.

Delay rotation slightly.

Once airborne, allow the nose to weathercock into the wind, achieve TOSS and climb out with the wings level. Let the aeroplane do most of the work, remembering every control input you make increases drag, so concentrate on doing as little as possible.

"There are factors we need to consider"

APPROACH TECHNIQUE

Approaches in gusty winds need to be handled with caution. Low inertia aircraft are very susceptible to wind shear and the pilot should prepare for the effects of this as part of his mental pre-landing checks.

If you know the gust speed, add 1/3 of it to your approach speed. Consider delaying flap, or using less flap. Coordinate rudder and aileron and always be prepared to go around if the approach doesn't look right. A go around is not a mistake or a failure, but continuing a bad approach is.

It's all about preparation. Consider how the conditions are likely to effect you before you hit the go button, not afterwards. And remember, we fly for fun. If conditions are horrible, it may be more fun to leave it in the hangar.

Just a trim

DESIGNING YOUR OWN AIRCRAFT BY DAVE DANIEL

FULLY accepting the risk of being scoffed at derisively by a small number of dyed-in-the-wool ultralight purists, I'm quite happy to declare that a trim system, or an elevator trim system at the very least, is an essential component of any ultralight design.

Yes, it's true you can fly around quite happily and safely without one and that your plane will be lighter for its absence, but do you really want to pull continuously on the stick for a couple of hours? Applying even the smallest amount of control pressure for an extended period is surprisingly tiring and, let's be honest, it's much easier to refold a chart if you can fly hands free for a couple of seconds without your aircraft departing from your chosen speed and altitude.

If you fly a two seater with side-by-side seating, aileron trim is a nice little luxury, allowing you to cancel out the weight imbalance when flying solo. I wonder how many Jabiru pilots have gone for a flight one-up only to discover after ten minutes they have been flying ever so slightly out-of-trim and half a tank of fuel has sneakily transferred from the right tank to the left (or is it only me that happens to)? Aileron trim can also be put to use trimming out propeller torque effects, but this is seldom a problem at ultralight power levels.

> "Do you really want to pull continuously on the stick?"

For completeness, I should also mention rudder trim. For a single engine tractor configuration, the helical component of the propwash exposes the vertical stabiliser/rudder to an angle-of-attack, causing a variable yawing force depending on power setting and speed. This yawing force is often approximately cancelled in the airframe design by slightly angling the vertical tail relative to the longitudinal axis of the fuselage. For more subtle adjustments a fixed trim tab can also be added, attached to the rudder's trailing edge.

PICKING UP THE TAB

But how does a trim system work? We have a few options. You can deflect the control surface, you can deflect the whole stabiliser or you can move the aircraft Centre of Gravity. The latter is popular for big jets because it doesn't involve an increase in aerodynamic drag from deflecting the control surfaces. Plus they have plenty of ballast in the form of fuel to move around. Famously, the only way Concorde could manage the huge trim change involved in breaking the sound barrier was by having a trim tank in the tail to which fuel was rapidly transferred as the plane passed through Mach 1.

Moveable ballast isn't practical for ultralights, so we are left looking for an aerodynamic solution. Simplest of all is the fixed trim tab. It's just a small piece of bent metal attached to the trailing edge of the control surface. For fixed amounts of trim it is a simple, cheap and reliable solution. It works like a miniature aerofoil deflecting the airflow at the trailing edge and providing a small amount of lift. Because it is positioned well back from the control surface hinge line, the tab has plenty of leverage and so deflects the control surface. This in turn generates a large trim force in the opposite direction. For a more refined approach, the trim tab can be hinged and a control mechanism provided allowing the trim force to be varied in-flight by the pilot as required.

Of course moveable tabs are not exclusively used for trim. Doing away with the direct connections to the control surface and connecting the control circuit to a tab instead, you end up with a 'servo tab' arrangement. The tab then provides the primary means of deflecting the control surface, which is otherwise free floating on its hinge. This control method was applied to a number of WWII bombers as a means of reducing the control forces, allowing a single pilot to deflect massive control surfaces without having to resort to a hydraulic boost system. The same principle works at the opposite end of the scale too. Anti-servo tabs can be used in conjunction with conventional controls with the tabs mechanically slaved to deflect in the same direction as the main control surface. This treatment artificially increases the control force and is an effective treatment for an aircraft with overly light control feel.

The next option is deflecting the whole control surface by adding a means of biasing the control circuit. This is relatively easily achieved by providing a spring or bungee system which can exert a pull on the control circuit on the pilot's behalf. This method is common in ultralights because it's simple. The only drawback is that it removes the redundancy provided by a completely separate trim system.

For elevator and rudder trim there is an extra option of trimming by changing the angle-of-attack of the entire stabilising surface. This method carries some minor aerodynamic advantages because it is less draggy than a tab. It also avoids the trim system using up any of the available control surface deflection - a useful consideration, for example, if the design has a risk of running out of elevator travel while flaring for landing. The drawback is that stabilisers have to bear considerable flight loads and so enabling them to pivot requires a robust bearing mechanism, which comes at a substantial weight penalty. The actuating assembly, which is usually a lead screw, is also heavy when compared to the push-pull cable typically used for a trim tab.

WHAT'S THE WORST THAT COULD HAPPEN?

Whatever trim mechanism used it is important to contemplate the potential failure of the system. Electrically operated trim systems can fail in a run-away condition, resulting in the maximum available trim being applied. Similarly bungees and springs can snap, so the aircraft must be designed to be controllable in all flight regimes even with the most adverse trim settings. Tabs also require close attention to flutter design and its worth considering the outcome if the control cable snaps or detaches. This is one of the rare occasions where friction in the system is actually a benefit; a tab which maintains its position even when disconnected could be a potential life saver.

NEXT MONTH The Cockpit

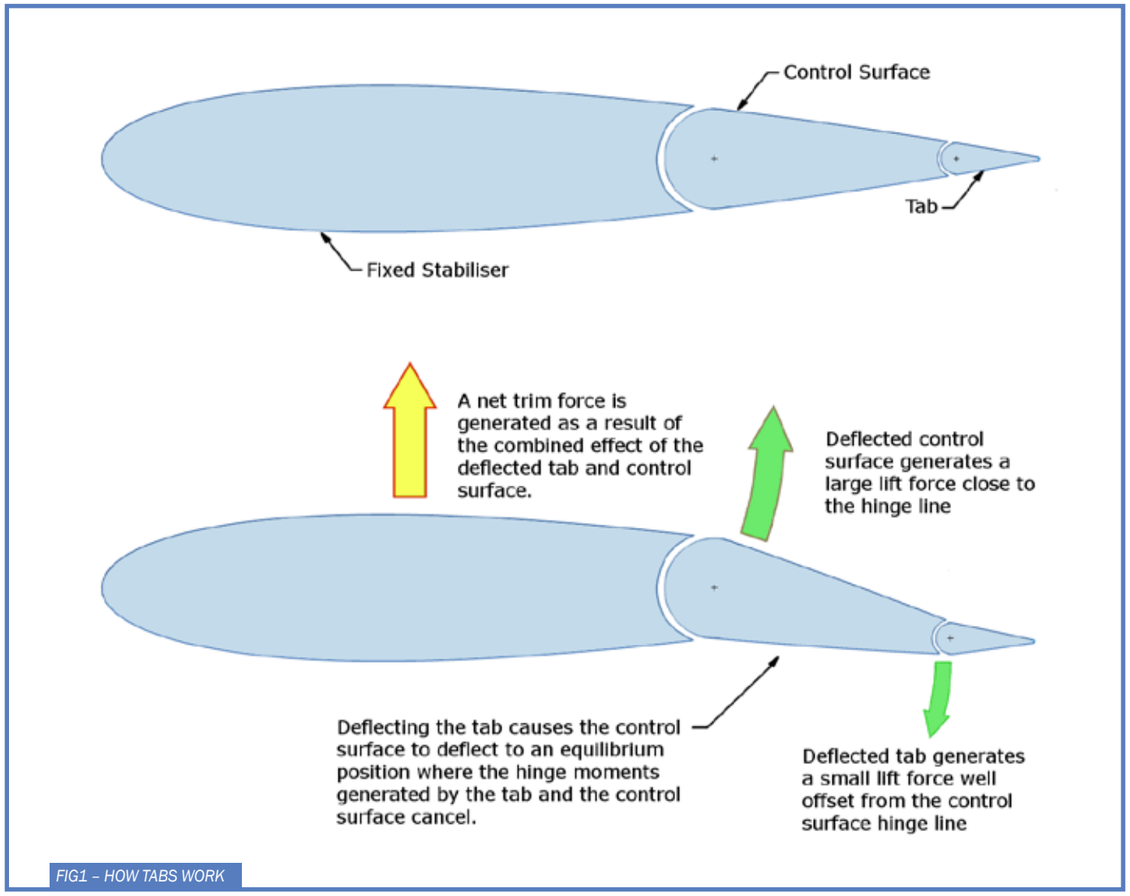


FIG1 – HOW TABS WORK

First RSO Conference

BY KATIE JENKINS **NATIONAL SAFETY MANAGER**

Back Row: Katie Jenkins, Bob Woodward, Jennifer Beck, Dieter Sedlbauer, Phil Evans, Dean Thompson, Larry Jones, Michael Linke (CEO), Adrian Richardson and Fred Nolan. Front Row: Jill Bailey (Operations Manager) and Janelle Wayling (Operations Administration)

RA-AUS has held its inaugural Regional Safety Officers conference in Canberra.

The event was funded by CASA and brought together for the first time all the volunteers selected by RA-Aus last year to be official RSOs for the organisation.

Their job is to identify hazards and help with risk assessments within RA-Aus.

During the conference it was emphasised that their role is not to police members but rather to report hazards and highlight potential risks as members go about conducting RA-Aus activities.

During the conference the RSOs were taken through a course in hazard identification, risk assessment and risk management. Their job in the field will be to build the RA-Aus Risk Hazard Register.

They will also help the RA-Aus Safety Manager conduct risk treatment plans of reported safety occurrences and to recommend risk mitigation measures to improve practices and procedures within RA-Aus.

The Australian Maritime Safety Authority addressed the conference about the benefits of using Personal Locator Beacons and Emergency Position Indictor Radio Beacons. The Australian Transport Safety Bureau gave presentations on human factors and the importance of reporting incidents.

CASA also gave an overview of how RA-Aus' Safety Management System fits within the ICAO SMS requirements.

I presented an analysis I did on the fatal accidents which have taken place over the past five years. Human Factors was, by far, a bigger contributing cause of the accidents than mechanical issues.

CEO Michael Linke explained to the new RSOs how RA-Aus has placed safety as a key focus in the organisation's strategic plan over the next three years.

The conference was given details about the Occurrence Management System being developed for more efficient online reporting. The OMS will make it easier to report accidents, incidents, defects and identified hazards to the organisation. Additionally, the OMS will allow direct reporting to the ATSB, removing the requirement for the two separate reports now required. A main element of the OMS will be transparency so everyone will be able to learn from the past to avoid the same hazards in the future.

> "The RSO's job in the field will be to build the Risk Hazard Register"

By the way, you can already report risks and hazards online at https://www.raa.asn.au/wp-content/uploads/2012/02/Hazard-form.pdf.

We still need more RSOs. If you think you can help, contact me at safety@raa.asn.au. A list of RSOs can be found on the website. They are always available to discuss hazards within the organisation.

Stalling is full on fun

BY SHANNON LEGLISE

AFTER waiting a couple of weeks for the weather to clear up, I was once again out at Jaspers Brush, ready for my next lesson. This one was to be all about stalling.

Not knowing exactly what I was getting into before the pre-flight briefing, I was a little anxious. Were we were going to purposefully stop the engine or not?

Once we got into the briefing it all became clear. A stall in an aeroplane is not like a stall in a car (something we should tell every journalist we meet – Ed). The engine wasn't going to stop at all. Liz explained to me that a stall was a condition of flight, brought about by the angle of attack exceeding the critical angle, resulting in a loss of lift. What it means is that a stall will only happen if the pilot increases the angle of attack past that critical angle.

Building on the previous lessons, Liz explained to me the symptoms of an impending stall and why they occur. Preparing for the flight I was told that the stalls we would be doing would be 1g, straight and level stalls. I would be pulling the power to idle and holding the nose above the horizon, increasing the angle of attack. The first thing I would notice was the higher than normal nose attitude. Due to that higher nose attitude I would see a low and decreasing airspeed, a secondary effect of increasing pitch. At low air speeds the controls would be less effective, so the next symptom of an impending stall would be sloppy controls. Due to the power being at idle and a low and decreasing airspeed, I would also notice low aerodynamic noise. Because I would be the one making the aircraft stall by increasing the angle of attack, another symptom of the impending stall would be the stick position. I was then told that some aircraft are fitted with a stall warning horn (which Pinky is) and that would buzz loudly in my ear. I was also told some aircraft experience an airframe buffet.

Once I understood the symptoms, Liz taught me how to recover. All I had to do was relax the back pressure and apply full power. By relaxing the back pressure I would reduce the angle of attack below the critical angle.

Liz told me that in some situations the aircraft could drop a wing and that this can happen quite suddenly. She asked me how I would recover from a wing drop, to which I answered I would use aileron to pick up the wing. I was wrong. The wing drops because one wing stalls before the other. If I used aileron, the angle of attack was further increased. To recover from a wing drop I had to use opposite rudder to counter the yaw associated with the excess drag on the down going wing, therefore preventing the secondary effect, which is roll. I could then recover from the stall.

Next I was told that, although an aircraft has a specified stall speed, it can actually stall at any speed. The posted stall speed is at full weight in the straight and level configuration. Liz further explained there were factors which could affect the speed at which the aircraft would stall. An increase in weight, turbulence, ice or debris on the wings, and extreme manoeuvres will all increase the stall speed. However, power and flaps will decrease it.

Finally, we talked about the safety checks we do before trying a stall. I had to do a HASEL check.

H- HEIGHT - Over 3,500ft to enter the stall and recovered by 3,000ft.
A- AREA - Not over a built up area.
S- SECURITY - Ensure everything is tied down, harnesses are done up and hatches are locked.
E- ENGINE - Check temperatures and pressures and make sure they're within operating range, ensure both magnetos are on.
L- LOOKOUT - Perform a 360 degree lookout.

> "I don't know what I was so worried about"

After all that sank in, it was time to go for a fly. Heading out over the Worrigee training area I started to perform the HASEL. On the climb out, we again went over the symptoms of an impending stall and the recovery procedure.

Once all the checks had been done, Liz demonstrated the first stall for me. It was quite benign. Not much happened at all, the symptoms were there and the recovery was simple.

Then it was my turn and once again not much happened. I recognised the symptoms and recovered with ease. Then Liz simulated a wing drop - that took some getting used to. My instinct was to use aileron, but after a few goes I got used to using the rudder instead.

Stalling was a full-on lesson, lots to remember, but it was also extremely fun. I don't know what I was so worried about.

Back on the ground, Liz prepared me for the next lesson. It's time to put all my training together in the circuit. RA-Aus reminds pilots that reliance on electronic devices to avoid adverse weather conditions is not recommended.

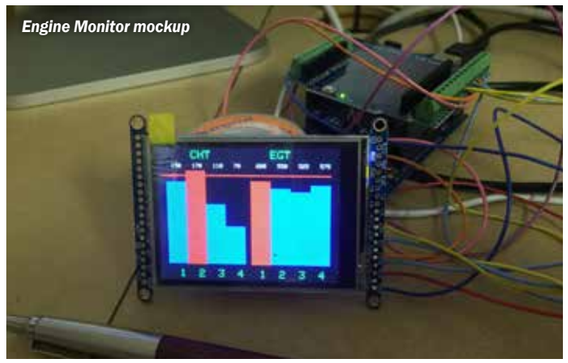
Bits and pieces

THE BEST BITS ABOUT BUILDING YOUR OWN BY DAVE EDMUNDS

FOR the past few years I have undertaken regular outback trips organised by my old friend, Rick Frith, who has written in these pages about planning such trips (Going Remote *Sport Pilot* Nov 2014-Feb 2015). His organisation is meticulous, detailed and I see it as a huge safety factor in such trips.

In one of my recent columns I wrote about the use of OzRunways on both a phone and tablet and our latest trip was my first chance to try it out. The combination worked perfectly. I still had my ancient Garmin in my flight bag and marked-up maps in a folder on my passenger's knee. I am still in awe of the precision navigation that is possible. We travelled in company, with me flying a mile or two left of track and Rick a mile or two right of track and a mile or two behind, communicating on 123.45. Our confidence in doing this is a testament to the accuracy of GPS navigation.

However, it did bring to my attention how much the rules and traditions of aviation navigation lag the reality. When I learned to fly, going on 30 years ago, the process for navigation was to receive a fax with the weather. This, of course, assumed you had a phone contact to get the weather. I marked up a map and, with a whizz wheel, calculated the heading necessary to offset any wind, then used my watch to mark my progress. When, as inevitably happened, the wind was not exactly as predicted, there was a series of arcane processes to be conducted in the air to calculate the required offset, based on observation of some ground feature I had not actually intended to fly over. I now view this in-air process as verging on dangerous, compared with the alternatives now available.



Engine Monitor mockup

My current process is to check the weather in order to get an idea of potential issues and likely ground speed and as a check on fuel. On take-off I establish my course via the GPS and note the compass heading. Periodically during the flight, I recheck the compass heading and I crosscheck ground features against the map. Should the GPS fail, which it never has, I simply fly the compass heading and use my paper maps as in the old days. The actual value of crosswind is not in itself relevant, only the heading and ground speed are of issue.

Readers might wish to comment, but I view this process to be far safer and more accurate and believe that some such process should be part of everyone's navigation training. To simply assert that the chart is the primary source of navigation, whatever that means, is not dealing with reality.

Some years ago I replaced my compass with a vertical card compass, one of the better changes I have made to my aircraft. These devices sell for about $400. They are a great substitute for a directional gyro (DG), as I am forever bamboozled by compasses which appear to move in the wrong direction as I turn. Vertical card compasses are particularly useful for visualising airfields because the orientation of runways is readily deduced. Of course, this is nowhere near as good as the runway information provided on my iPad navigation system.

On my trip with Rick, we came across a narrow rain band south of Longreach enroute to Windorah. I was at the point of thinking we would have to return to Longreach because, having weaved around a number of showers, I could not see a way through. But Rick was running AvPlan, which allowed him to overlay rain radar on his map. So he was able to determine that I was at the southern end of the rain band. So it proved to be and we got through safely. This feature, which I later discovered was also available on OzRunways, is dependent on mobile coverage, which was good at the time. I should add we had also checked the weather while on the ground in Longreach and knew we faced a potential problem.

One other thing. While in this particular instance navigation was easy, in general I only have the confidence to spear off course in sparse country such as this in the knowledge that the GPS will allow me to regain my track. I do not have intuitive map sense.

While obsessing about the features of these new navigation systems, I should mention the weather information provided in the OzRunways flight planning screen. This provides a mud map of my route with an interpretation of the NAIPS data. It provides hyperlinks to information which says something like 'SEVERE TURBULENCE S OF YCBA/YTOT' and overlays the line on the mud map. This is very helpful.

And one more thing. We had a young couple along with us on this trip. Their assessment, and I think it is probably correct, is that you simply could not buy such a trip for any amount of money. For them it was a lifetime experience. It is easy to get a bit blasé about outback touring, but it is an extraordinary privilege and we aviators are so lucky to be able to see this wonderful country in this way. There is simply no other way to understand our country other than flying over it low and slow. Our costs, including fuel, accommodation and food, came to $170 per day for each of us for the seven-day trip. I think that is pretty good value.

MONITORING

On my quest to develop a cheap engine monitoring system, I have now a screen I think will work well. The photo shows a mock-up to check resolution and readability. It looks better in real life because the banding is some photographic anomaly. So, I now have all of the elements in place to complete the device. In my last column I mentioned the $5 Arduino clone from China which does the data acquisition and drives the screen. I have now used it for this display and it works well.

ASIC ARSES

Because this column is composed of bits and pieces, I should again mention my ASIC. I applied for a renewal which was processed by RA-Aus and posted to me, but disappeared in the mail. I did not have time before we left on our trip to complete the statutory declaration required for a replacement. So I flew the trip without one, but with a letter of comfort from the RA-Aus office I never had to refer to. The office could not have been more helpful. However, it does again point out the complete uselessness of the ASIC for us recreational flyers. It appears to be nothing more than an arse-protecting exercise by people who believe that their arses are worth the few million dollars a year it costs us.

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Time needed to build an RV-12 to flying.
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600 HRS
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Time needed to build a Xenos (Complete airframe kit).
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For a full list of the rules about capturing the CAGIT visit raa.asn.au/events/cagit-trophy

ADVERTISERS INDEX

OFF THE SHELF

ENGINE MONITOR

THE Engibox from Italian avionics company, Avmap, describes itself as the EMS for ROTAX engines. Engibox updates five times per second and measures and displays the engine parameters to warn you instantly if any measurement exceeds the engine limits. Data is recorded and stored in the internal memory (up to 160 hours). Download the free Engibox mobile App to get support service. Engine data displayed in two alternative views. Graph page for each engine parameter. Clock page including flight time, total lifetime, time since overhaul. Suitable for 2 stroke air cooled Rotax 447 UL SCDI, Rotax 503 UL DCDI, 2 stroke liquid cooled Rotax 582 UL DCDI, Rotax 618 UL DCDI, 4 stroke liquid cooled Rotax 912 DCDI series, Rotax 912S DCDI series, Rotax 914 DCDI series.

- **PRICE** EUR$899.00
- **WEB** avionics.avmap.it

SUNSHADE

CANOPY sunshades reduce glare and block sunlight in aircraft with glass/bubble-canopies. These mount directly onto the canopy with heavy-duty suction cups and can be adjusted to suit the curvature of the canopy. They are fast and easy to fix and remove. The shields are light and weigh approximately 480gm.

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- **PRICE** AUD$199.00
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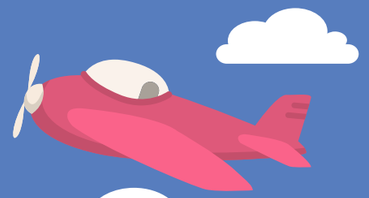
ELECTRONIC LOGBOOK

LOGTEN Pro X claims it is the world's most advanced pilot logbook platform. It provides quick flight logging, detailed analysis of your flight time and an analysis of your currency and limits at any moment in time, past or present. Sync all of your iOS and Mac devices via iCloud automatically. Enter a scheduled flight on your iPad, head to the airport and the flight will be ready to go on your iPhone. You can then log further details enroute and when you arrive home all the data will already be updated automatically on your Mac. Requires iOS 7 and Mac OS 10.9 or later, fully compatible with iOS 8, Yosemite, and iCloud Drive.

- **PRICE** USD$99.00 approx
- **WEB** Apple app store

Flike wow man!



PUT the jetski in the shed. Put the dust-cover over the flying car. Give up on ever getting a hoverboard. The future of personal flying transport has just taken off in Hungary.

The Flike is an all-electric coaxial, Y6-layout tricopter. Lift is generated by six rotors, grouped in counter-rotating pairs of three axes, equally located around the frame.

It has been the pet project of a few flight enthusiasts in Bay Zoltan, the largest applied research institute network in Hungary. From concept to leaving the ground took them only nine months.

Power is provided by Lithium Polymer batteries, allowing for around 15-20 minutes of hover flight, which extends towards 30-40 minutes in cruise.

The six fixed-pitch carbon composite rotors, directly driven by individual electric disc motors, are highly efficiency and have zero-emissions.

Flike is controlled by adjusting the rotation speed of individual rotors. Its airborne behaviour is comparable to a helicopter: it can hover, roll, bank, drift, spin, yaw, climb, turn, sidle, dive and, according the company, other flight manoeuvers yet to be named. Stability, lateral position and altitude are taken care of by a full-authority flight management computer, so the company says the Flike is as easy as riding a bicycle.

No information yet on how high they'll fly or how fast. Nor how much they'll cost and when we'll be able to buy one.

For more information and to watch the Flike stay in the air for a full minute for the first time http://whatisflike.com.

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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