

# SPORT

For recreational pilots DECEMBER 2013 VOL 30 (12)



RECREATIONAL AVIATION AUSTRALIA

# PILOT



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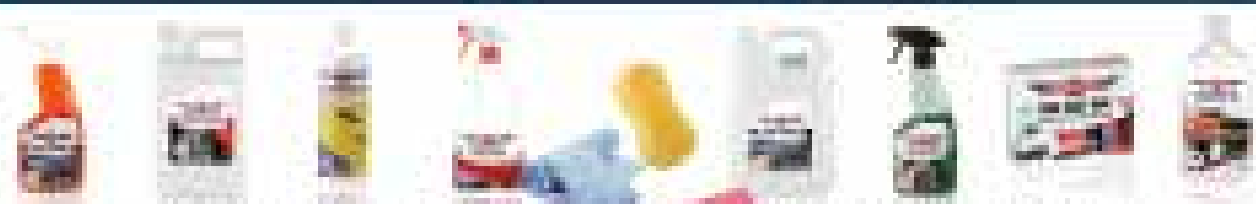
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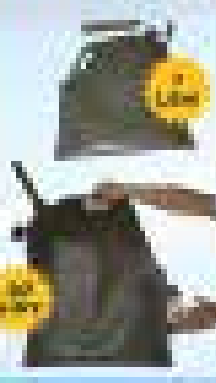
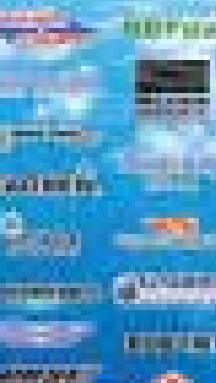
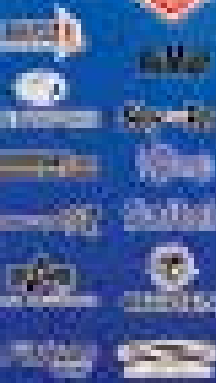
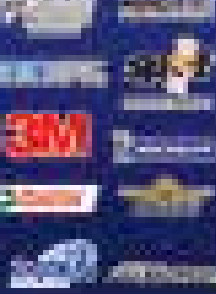
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>> Supercat arriving at Watts Bridge  
Photo: Scott Richardson



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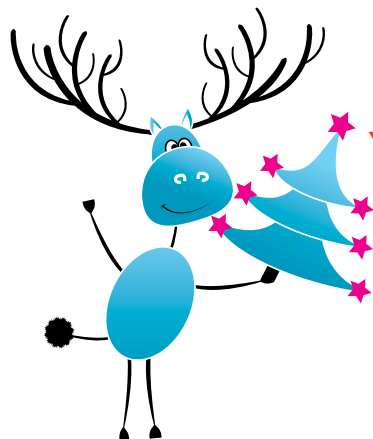
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*Understanding how your brain works is more important than understanding how the engine works*



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# SPORT PILOT

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## STAMPILS PUBLISHING

All Enquiries Ph: 1300 838 416  
7/1 Grandview St, East Ballina NSW 2478

## EDITOR

**Brian Bigg** [editor@sportpilot.net.au](mailto:editor@sportpilot.net.au)

**ADVERTISING SALES** [admin@stampils.com.au](mailto:admin@stampils.com.au)

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## 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](mailto:admin@raa.asn.au)  
[www.raa.asn.au](http://www.raa.asn.au)

ARBN 070 931 645  
ABN 40 070 931 645

## General Manager

**Mark Clayton**  
(02) 6280 4700  
[gm@raa.asn.au](mailto:gm@raa.asn.au)

## Administration Coordinator

**Maxine Picker**  
[admin@raa.asn.au](mailto:admin@raa.asn.au)

## Operations Manager

**Zane Tully** 0428 282 870  
[ops@raa.asn.au](mailto:ops@raa.asn.au)

## Assistant Operations Manager

**Jill Bailey** 0400 280 087  
[ops@raa.asn.au](mailto:ops@raa.asn.au)

## A/G Technical Manager

**Darren Barnfield** 0417 942 977  
[techmgr@raa.asn.au](mailto:techmgr@raa.asn.au)

## Assistant Technical Manager

**Dean Tompkins** 0428 868 418  
[techa@raa.asn.au](mailto:techa@raa.asn.au)

## RA-AUS BOARD ELECTED STATE REPRESENTATIVES

### TASMANIA

**Eugene Reid**  
0428 824 700  
[tas1@raa.asn.au](mailto:tas1@raa.asn.au)

### NORTH QUEENSLAND

**Ross Millard** 0422 119 051  
[nqld@raa.asn.au](mailto:nqld@raa.asn.au)

### NEW SOUTH WALES

**Paul Middleton**  
0428 625 818  
[nsw1@raa.asn.au](mailto:nsw1@raa.asn.au)

### SOUTH QUEENSLAND

**Trevor Bange** 0429 378 370  
[sqld1@raa.asn.au](mailto:sqld1@raa.asn.au)  
**Mike Smith** 0418 735 785  
[sqld@raa.asn.au](mailto:sqld@raa.asn.au)

**Michael Apps** 0412 435 198  
[nsw2@raa.asn.au](mailto:nsw2@raa.asn.au)

**Tony King** 0400 226 275  
[sqld2@raa.asn.au](mailto:sqld2@raa.asn.au)

**Michael Monck** 0419 244 794  
[nsw3@raa.asn.au](mailto:nsw3@raa.asn.au)

### NORTHERN TERRITORY

**Cliff McCann** 0418 897 036  
[nt@raa.asn.au](mailto:nt@raa.asn.au)

### VICTORIA

**Rod Birrell** (President)  
(03) 9744 1305 [vic1@raa.asn.au](mailto:vic1@raa.asn.au)

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### SOUTH AUSTRALIA

**Ed Herring** 0408 787 018  
[sa1@raa.asn.au](mailto:sa1@raa.asn.au)

### WESTERN AUSTRALIA

**Ed Smith**  
0409 962 050 [wa@raa.asn.au](mailto:wa@raa.asn.au)

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# President's Report

**ROD BIRRELL**

## It's that time of year

It is time to enjoy your flying, the weather is on the improve and for many there is the prospect of a holiday break.

Please remember, though, the old rules still apply. There is nothing more useless than fuel left back in the shed, runway behind you and altitude above you. To maintain our flying privileges there is no question about it, we must keep our accident rate low.

Start planning that trip to NATFLY next Easter. The dates in 2014 will be April 17-20. It was great this year. It's shaping up to be bigger and better than ever next year.

As usual there will be no January issue of *Sport Pilot* in 2014. For future years the Board will consider printing a January issue. Tell us what you think about that idea.

RA-Aus office closing hours are listed here, and we will keep in touch with you through the holiday period via the website and if needed by email (if we have your current email address).

So on behalf of the board and staff of RA-Aus, a warm festive greeting to all RA-Aus pilots and aircraft owners. 🐦



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at 12pm and re-open  
on Thursday January 2,  
2014 at 9am.**



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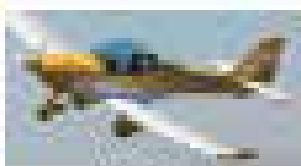
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# CALENDAR OF EVENTS

## 11-12 January

### Great Eastern Fly-In

The fly-in at Evans Head Memorial Aerodrome in Northern New South Wales will be bigger and better than ever. The Great Eastern will celebrate its 22nd year with a refurbished Bellman Hangar and a display of an RAAF F-111 A8-147 and other warbirds. There will also be the usual aerial displays, events, catering and camping on site.

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Email [gaitaylor@exemail.com.au](mailto:gaitaylor@exemail.com.au). Facebook or  
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## 15-16 February

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Warren 0428 024 633 or  
Email: [cobdenaeroclub@gmail.com](mailto:cobdenaeroclub@gmail.com)

## 2 March

### Busselton Aero Club Aerofest

Arrivals Sat March 1 and Sunday March 2 (Sun before 10am preferred)

Sat evening BBQ and live music.

Big family day with aircraft on show. Inspection of emergency services aircraft and helicopters, hangar displays, model aircraft, classic cars, food and drinks. Supporting Royal Flying Doctor and local groups.

For more information, Will Owen  
0429 098 032 or Ken Manton 0429 967  
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our online registration centre [www.busselton-aeroclub.com.au/aerofest2.html](http://www.busselton-aeroclub.com.au/aerofest2.html)



## 9 March Clifton Fly-In

Darling Downs Sport Aircraft Assn. Inc. Annual Clifton Fly-In at Clifton Airfield (Bange's). This fly-in has become an iconic event in the region and is the premier attraction for all types of aviation in Southern Queensland. See various recreational, ultralight and homebuilt aircraft. Come late pm Saturday 8 for BBQ and drinks. On-field camping, bring your swag. Advise for catering. For more information, Trevor Bange 0429 378 370 or (07) 4695 8541. Email [trevorbange@bigpond.com](mailto:trevorbange@bigpond.com)

## CASA experience

I attended NATFLY at Temora this year as a passenger and enjoyed the experience.

I note your comments on CASA involvement. The large number of pilots wanting information about ramp checks certainly indicates apprehension about the process and from our experience, deservedly so. Our aircraft was ramp checked on arrival. We were trying to be parked by ground personnel and exit the aircraft when two CASA people accosted the pilot, wanting documentation and information.

After what amounted to a third degree and not finding any major problems, the pilot was questioned as to where we came from, how much fuel we had and the amount of baggage we carried. We worked out the CASA man was trying to calculate if we had departed over our maximum weight. The CASA representative filled out a form on the information he had received from the pilot and took this with him. I later had the opportunity to ask the CASA person what he did with the data on the form and was told it went into their files. I asked for a blank form so pilots could get an idea how to prepare their aircraft for a ramp check, but was told it was a confidential document and that if I wanted to know what to do, I should read the AIP manual (which, incidentally, is 900+ pages long).

I have flown for many years in the US and the FAA would often be present at fly-ins. They would set up a stand and invite pilots to have private inspections of their aircraft. The inspector would go over all requirements and discuss any deficiencies in their aircraft and how to rectify them. The pilot would then be given the check sheet to take away for their reference. I personally participated in several of these inspections, which were always done in a positive manner.

If CASA wants to be accepted more into the aviation community it needs to be less punitive and accept that the vast majority of pilots want to do the right thing. Being threatened with fines and sanctions rather than providing positive assistance will cause pilots to stay away from fly-ins and shows, because it is not worth being hassled by CASA people and spoiling what always is intended to be a social gathering.

**Barry Thomson**

## New licence debate

I read with great interest the President's report (*Sport Pilot* September 2013). Mr Birrell raised a range of issues in relation to the new suite of regulations introduced by CASA covering flight crew licensing.

This suite includes Part 61 of the Civil Aviation Safety Regulations which sets out the requirements and standards for flight crew licences, ratings and endorsements.

Part 61 consolidates and replaces the existing

rules for flight crew licences set out in Part 5 of the Civil Aviation Regulations and a number of the Civil Aviation Orders.

For the first time, all licensing regulations are located in one set of rules instead of being spread across regulations, orders and exemptions. This package of new rules, which takes effect from December 4, should be welcomed by all pilots.

Mr Birrell focuses on one aspect of Part 61, the newly created Recreational Pilot Licence. It applies to the operation of small single engine aircraft during the day in visual flight conditions. The medical standards for this licence are the Driver's Licence Medical (Aviation). These standards are less stringent than those applicable to other types of licences such as the private pilot licence or commercial pilot licence. This allows pilots with certain medical conditions to continue to fly, but in a restricted environment. The Driver's Licence Medical (Aviation) standard is higher than the medical standard currently required for a RA-Aus pilot certificate holder.

In his report Mr Birrell stated the new recreational pilot licence had 'evolved into a de facto replacement for the private pilot licence'. A quick look at the requirements and conditions for each licence shows this is not the case. A recreational pilot licence requires 25 hours flight time, while a private pilot licence requires up to 40 hours. The holder of a recreational pilot licence is restricted to day VFR operations in a single engine aircraft 25nm from where the flight began. The medical standard is higher.

Mr Birrell also stated the recreational pilot licence would mean CASA was competing with RA-Aus for pilots and aircraft registrations. CASA sees no reason why the recreational pilot licence should be a threat to the RA-Aus PILOT CERTIFICATE or the activities administered by RA-Aus. Pilots who seek to move from their RA-Aus PILOT CERTIFICATE to a CASA Recreational Pilot licence will need to attend a CASA approved flying school to upgrade their skills to meet the competencies required for the issue of a recreational pilot licence.

Any aircraft operated by a holder of a recreational pilot licence will have to be VH registered. The aircraft will require a certificate of airworthiness, subjecting it to CASA-approved maintenance scheduling and an annual inspection. In most cases, the aircraft will have to be maintained by a Licensed Aircraft Maintenance Engineer.

Compare this to owning and operating an RA-Aus-registered aircraft, with the current privileges of pilot maintenance. Clearly RA-Aus will remain as a less costly option for people happy to fly in the RA-Aus environment. All CASA is doing by offering the recreational pilot licence is providing a choice for people flying privately in the VH registered environment.

**Peter Boyd**  
**CASA Executive Manager**  
**Standards Division**

## RA-Aus President Rod Birrell replies

*I thank Peter for his RPL explanation, which is welcomed. May I make the following points, currently: A RPL holder is not expected to pay annual pilot renewal fee; A CASA student pilot may not even need a student pilot licence; A CASA aircraft is not expected to pay an annual aircraft registration fee; the cost of managing the new RPL will be paid for from public funding.*

*For RA-Aus, our members pay almost all the cost of the administration of our organisation, including our flight operations, our licensing and registration, our technical department and our member notification systems (the website and the magazine). While we greatly appreciate the assistance CASA gives us both financially and with good advice, the majority of our funding, about 95% of it comes from our members. For RA-Aus to continue as a viable organisation we need to do so with a level playing field. At the moment it appears we will be competing with the safety regulator for new pilots. While we are happy to continue to do the work that is required, it will be more difficult with such a significant difference in funding available for each organisation.*

## Pure as snow

You have asked 'Can we agree?' (Editor's Choice *Sport Pilot* October 2013) My answers are, in order, NO, NO and NO! It is not our fault if you can't keep track of hours in your log book. None of us care.

You should be fighting against, not actively encouraging, CASA's crazy effort to record the number of landings performed by individual aircraft. Do you really believe pilots don't wish to keep secrets and knowledge from CASA and RA-Aus? Really? It is nice to hear you are as pure as the driven snow. Most of us aren't and your quasi-religious fervour to encourage us to suck up to and fully report to authority is not appreciated. Flight plans? There are very few circumstances where an RA-Aus or private VFR OCTA GA pilot would submit a flight plan. In fact, some time back, the regulator removed the requirement to submit a flight plan for a flight of more than 50nm. Pilots were actively encouraged not to waste government resources and to just leave details with a responsible person. You don't seem to have gotten the message. Your efforts to subvert the freedoms owned by pilots will, I hope, see you roundly condemned.

**Fred D Burke**

*Ed- I'm sorry Fred, but what do you mean you aren't as pure as the driven snow? What sort of regulations are you breaking? And do I really want to share the sky with you if you are breaking them? And it's not CASA tracking your hours, it's a requirement by RA-Aus. Still haven't received a sensible reason why online logbooks aren't a good idea.*



# LETTERS TO THE EDITOR



## Calculated response

Having just read Brian Biggs' article in the mag (Editor's Choice *Sport Pilot* October 2013) I am compelled to respond.

I have rarely heard a more stupid idea than his, I have to say. Just because he is too dumb to add a couple of numbers together, he now wants us all to be forced to get online every time we fly and enter all details on the website.

I have news for you mate. I never, ever get online, have never been on RA-Aus website and chances are I never will. I shall strenuously object, in fact flat refuse such inane activity, should the powers that be wish to bring it in. Brian, get a calculator mate.

**Tim Barker**

**Ed -** Never been online? Really? Yet you sent your letter to the magazine on email? Hmm. And Tim, sending in three suspiciously similar letters under different names, from similar anonymous email addresses, means you must be more computer literate than you pretend. Next time have the courage to lay the boot into the editor in your own name. You'll find it much more satisfying.

## Little inspiration

The little plane on your front cover and again in the NATFLY article on pages 28, 29 is great to see (*Sport Pilot* May 2013).



My uncle reads the mag each month and enjoys it and is inspired to make one of the little planes.

Do you know if there is a way to get some plans for this plane? Can you put me in touch with someone who can help please?

**Robert Kuffer**

**Ed -** The contact details are *The Craft Company*, 67 New North Rocks Road, North Rocks, NSW 2151. Ph (02) 9872 5742. Email [skybird@craftcompany.com](mailto:skybird@craftcompany.com) and [www.craftcompany.com.au](http://www.craftcompany.com.au)

## Flying online

What next? Reading Editor's Choice (*Sport Pilot* October 2013) a cold shiver went up my spine. Is Brian Biggs working for CASA, AFP or CIA? Isn't it enough we get filmed when we go shopping, go to the bank, get photographed by police every time we pass them in our car, or just drive through traffic lights that track our phones as we go about our business?

We have to pay ridiculous amounts of money for our ASIC card (which is a scam) that only lasts two years, where a passport lasts for 10 for the same money. Come on Brian this is Australia. It used to be the land of the free, now you're suggesting that we give that away. Not impressed.

**Anonymous (So you can't tell them where I'll be this weekend)**

**Ed -** We tell RA-Aus most of this information already, Anonymous. So it would just be making it more convenient. And we already know where you'll be this weekend. We have one of the RA-Aus geostationary satellites tracking you right now.

## Pitch vs Power

Ah yes. the old pitch and power debate (*Sport Pilot* Professor Avius August 2013). On approach, do you hold airspeed with pitch and glide path with power, or vice versa?

Here's my take on the issue.

Any accomplished pilot will automatically use both pitch and power simultaneously to control the aircraft. If the plane is a bit low, the pilot should raise the nose and, with an eye on the airspeed, increase power. If the plane is a little high, pitch is decreased and again checking the airspeed, power may simultaneously be reduced.

The pitch/power debate is really a debate about instruction techniques and both techniques are correct and appropriate. The choice of which to use depends entirely on the inertia and drag characteristics of the aircraft.

If one is instructing in a low inertia / high drag machine, by far the best technique is to teach airspeed control with pitch. The needle on the ASI might as well be bolted to the stick. If you raise the nose without adding any power your speed will vanish.

Another advantage here is that when the engine fails (not if...when) the new pilot will still be able to control his or her airspeed without thinking about it, i.e. by lowering the nose rapidly and dramatically.

However, if one is instructing in a low drag / high inertia aircraft, a perfectly reasonable technique is to control your descent path with pitch and if the speed starts to wander, alter the power setting accordingly.

Currently I instruct in a Foxbat and I use the first technique, but I explain to the student that once they get the hang of it, the process is really a continual combination of both. The debate is the result of an attempt to break down the process into simple bite-size pieces for the poor overloaded student brain.

What keeps an aeroplane in the air? If lift is your answer, consider: if we cruise along and run out of gas, do we still have lift? Yes. Are we going to stay in the air? Not for long. The real answer is power. So, all other things being equal, namely airspeed, your rate of descent and even your rate of climb will depend, in very large part, on your power setting.

**James Gresham**

## Got something to say?



*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.**

**[editor@sportpilot.net.au](mailto:editor@sportpilot.net.au)**

(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).

## NQ (GROUP A) BY-ELECTION RESULT



The successful candidate for the N.Q. (Group A) by-election was Ross Millard. There were 109 valid ballot papers and 37 invalid papers.

<b>ROSS MILLARD</b>	<b>67</b>
<b>DAVID MARTENEE</b>	<b>42</b>

Janelle Wayling witnessed the counting and Chris Holdsworth (non-member) was the scrutineer.

**Sian Rees**  
Returning Officer

## NT (GROUP A) BY-ELECTION

Owing to the early resignation of the incumbent, nominations are invited for the election of a replacement Northern Territory Board representative.

Section 16(ii) of the Association's Constitution provides that: In the event of:

- a) a vacancy occurring in the Board between group elections; or
- b) any vacancy occurring as a result of the failure to nominate sufficient members of the Board to permit filling of the vacancy as specified in Rule 13 (iv),

the Region entitled to elect a member to such vacant position, shall elect a financial member, subject to the provisions of Rule 16 (ii). That member shall hold office from the date of their election until the beginning of the annual gener-

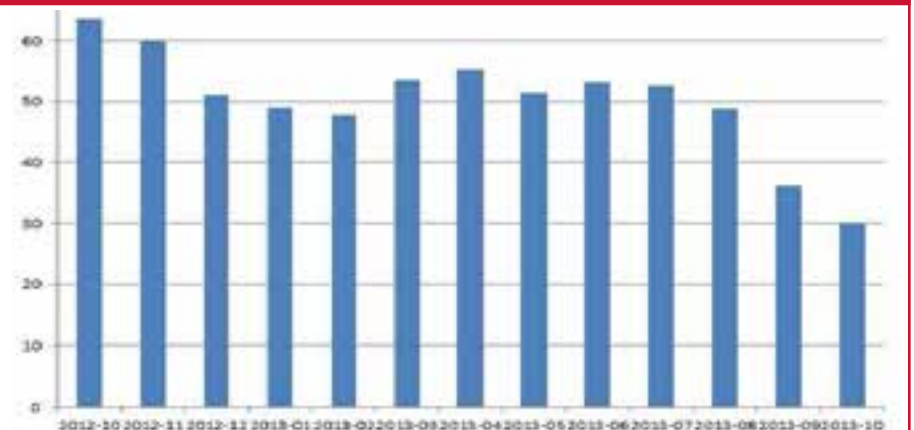
al meeting of the Association following the next group elections pertaining to that office.

Completed nomination forms and statements should be forwarded by email with the candidates nomination paper to [sian@raa.asn.au](mailto:sian@raa.asn.au) prior to the nomination close at 4pm EST - 21st February 2014. Supporting statements should specifically address the nominee's expertise and experience of policy and strategy development, implementation and review. Nominees are also asked to provide a recent digital portrait image suitable for online publication.

The nomination form can be downloaded from [http://www.raa.asn.au/?attachment\\_id=4763](http://www.raa.asn.au/?attachment_id=4763)

**Mark Clayton**  
General Manager  
Recreational Aviation Australia Inc.

## AIRCRAFT REGISTRATION



This chart records the average number of days (y axis) taken to process those aircraft registrations which became due for renewal (i.e. expired) in any particular month. The data excludes instances of ownership change and cancellations. Averages will however be somewhat over-stated, since they include Saturdays and Sundays.

# SPORT PILOT

The Editor and staff of *Sport Pilot Magazine* would like to wish all our readers a **Happy Christmas and a safe and prosperous New Year.**

Thank you for your support and encouragement through 2013. The magazine is yours after all and we constantly strive to make it better and brighter each month, so it reflects our growing and vibrant recreational aviation community. Please keep that support coming in 2014.

If you have a fly-in planned for 2014 please let us know at least two months in advance so we can let everyone know. And on the day, don't forget to take lots of pictures so we can show everyone how good a day or weekend it turned out to be. Keep writing your personal stories for us. Whether it's an awe inspiring holiday or a

scary experience, we are all in this together and we need more stories from you. Good or bad, they are all important.

As in previous years, there will be no *Sport Pilot* magazine printed in January. Expect to see the next edition in your letterbox or in the newstands in the first week of February.



### WHERE IS CAGIT?

Current location is at  
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Western Australia  
JANDAKOT

S32 30.505 E115 49.957  
S32 05.764 E115 51.763

Holder: James Murphy  
email: [murphyjuk@hotmail.com](mailto:murphyjuk@hotmail.com)



## THE SONEX CLUB



**The Sport Aircraft Club of South Australia is building a Sonex with the aim of providing hands on experience to a group of young people interested in a career in aviation.**

The club is now accepting applications to join the Sonex Build Team.

Sport Aircraft Club members enjoy all categories of sport and recreational flying and related social activities. We welcome owners, restorers, builders and potential builders as well as anyone with a love of flying and aeroplanes. The Sonex project is aimed at the 25 years and under group. The intention is to encourage new (and younger) people to join the club; provide hands on experience in airframe and engine construction mentored by experienced

members and to own an aircraft available for members to hire and fly.

The club has been busy finalising the build location; developing a detailed building plan; organising the mentor group; developing selection criteria for the 10 participants; and canvassing government and private organisations for sponsorship.

Considerable research has identified the Sonex as the most suitable contender for this project. The two final contenders were the RV 12 and the Sonex, with the Sonex selected because it was within the allocated budget.

**For more information,**  
<http://www.sportaircraft.org.au/>

## CHRISTMAS TRADING

**Please be advised that the Canberra office of RA-Aus will close on Christmas Eve, Tuesday December 24 at 12pm and not re-open until Thursday January 2, 2014 at 9am. The staff at RA-Aus would like to thank all members of the organisation for their help and co-operation through the year. They also wish everyone a safe and happy holiday period.**



## GREAT EASTERN FLY-IN JANUARY 11-12

**If you read November *Sport Pilot* magazine and thought the Great Eastern Fly-In had suddenly moved up the schedule a few months, you can relax. The Calendar of Events listing it as happening in November was a production error.**

Because, as usual, the best holiday aviation event in New South Wales is set to take off at Evans Head in January and this year it will have a bigger roster of flying fun than ever before.



The Great Eastern really hit the mark last year with its blend of high octane flying displays and laid back markets and camping. Great weather brought out the public in large numbers – an estimate of 7,000 people over the weekend – even if the number of pilots flying in was restricted by bad weather north and south of the region. Lets hope we can all get there this time.

Don't forget Evans Head is also now home to the Evans Head Memorial Aerodrome Heritage Aviation Association Museum where you can get up close to a retired F-111, take a look around the renovated Bellman Hanger and see lots of other aircraft displays.

**For more information**  
[www.greasternflyin.com](http://www.greasternflyin.com)



# JACARANDA

## *Fly-In*

by Arthur Marcel



>> Dave Skinner and his pocket rocket Starlet





>>Col Reddin and his latest Thruster

**The club's hospitality for the weekend was just as brilliant**



>>Darling Downs members with Bushmaster Koala and Sapphire

**The weather could not have been better early on the morning as Tony King and I took off from Forest Hill, Queensland and headed for New South Wales for the Grafton Jacaranda Festival fly-in in late October.**

We flew our single-seat, two-stroke aircraft down through the gap in the Border Ranges, south along the railway track over some of the world's most picturesque country. Upon arrival in the circuit at South Grafton, we met two other Darling Downs Club members, Rex and Betty Wardell in their prototype Whitney Bushmaster, forerunner of an equally commercially unviable project from the 80/90s era, the Whitney Boomerang. The weather at Grafton was even better than in Queensland and the grass on the airfield ten times greener.

Furthermore, the club's hospitality for the weekend was just as brilliant. Tony and I had packed our diminutive aircraft with camping gear but we were quickly invited to stay the night in the club's air-conditioned bunkhouse. The dinner on Saturday evening was five star and a BBQ was in operation on the front lawn for lunch and breakfast. I was even taken to a local dance after dinner.

Col Redding managed to re-arrange his collection of 95.10 Thrusters (three so far and looking for more) to allow us to park our aircraft overnight in his hangar. Col managed to squeeze

seven aircraft together with a back hoe tractor and a large camper bus side-by-side in the hangar by using a system of castor platforms that permit aircraft to be moved easily in all directions.

The Grafton Aero Club has one of the most enviable real estate arrangements in Australia. While the newer Regional Airport is situated ten nautical miles out of town, South Grafton is the original airfield for this Clarence River town and well within municipal boundaries. The local pub is 200m from the clubhouse door, premium mogas is available just 100m further on and the heart of the CBD is just a pleasant ten minute walk across the bridge.

Furthermore, the runway is sealed and nicely aligned with the afternoon sea breeze. For all this, the average hangar site is available on a twenty-year lease arrangement from the local council at less than \$1000 per year! The only downside is that parts of the airfield are occasionally subject to flooding but since recent augmentation of the town's levee banks, this has not been so bad. Most of the lessees have systems in their hangars to elevate their aircraft and an advantage of living downstream on such a big river system is that there is usually plenty of warning before the water rises.

One of the most interesting aircraft to turn up was Dave Skinner's newly acquired blue and white Stolp Starlet. This little parasol single seater is powered by a Lycoming O-235 with a

straight-through exhaust system. The aircraft sounds as impressive as it looks, but as Dave struggles to carry even a toothbrush in the plane's small glove box, he didn't stay the night. Turning heads were also three beautifully built, side-by-side RV speed machines with VH registration. Overall, though, the event could have been better attended and it was thought that conflicting with two other fly-ins that weekend may have been a factor. (On Saturday morning, Tony and I had passed a couple of aircraft heading in the opposite direction to Kilcoy). I counted thirty-six other people seated with me at dinner on Saturday night. 🍷







# MAKING IT SMALL

## Is making it big

By Brian Bigg

**M**odel aircraft making is becoming big business again. You see them at most fly-ins, people behind trestle tables selling the kits. Tony Clarke, who represents one of the bigger Australian model traders, Modelnerds explains it's not just pilots and their friends who like to put together tiny replicas of some of the world's most popular aircraft.

Tony's path to aviation was different to many of us. He got interested in model airplanes when he was just a child.

"I'd read lots of war comics and action/superhero comics and had an interest in planes and tanks from an early age," he explains.

"Back then model building was also a creative hobby and the big companies, (Airfix, Revell, Frog and Matchbox) were at the peak of their production. You could buy kits just about anywhere - supermarket, corner store and newsagent - for

pocket money prices. "I was given my first model kit (An Airfix 1/72 JS-3 Stalin Tank) when I was five years old and built it with my dad.

"I was told by everyone that one day I would grow out of it, but I'm still building models 40 years on."

So how big is the industry?

"It died off a bit at the end of the 1980's due to the computer game boom," says Tony. "But now there are more companies than ever. Just about every country has some modelling industry, produces kits/decals or other aftermarket accessories. Airfix, in particular, has made a huge revival and is back to being one of the dominant companies. Far Eastern and Asian companies dominate the market. In particular there is a huge manufacturing base in China. They release new product almost weekly."

Are all your customers related to pilots?

"No, some are ex-military, others have been modellers for many years like myself. Others

are builders or military historians and others are pure collectors, interested in specific boxings and kits."

Can they be valuable?

"Some kits are rare due to either a low production run or are collectable because of their age/boxing or time of production. Early Airfix kits from the 1960's are one example, but it's all in the eye of the beholder. One person's passion is another person's poison.

"We get people who want to sell to us what they think are rare kits which should be worth lots of money only to find we already have three or four of the same kits which we bought for around \$10-\$15.

"Condition of kits is also a factor. Some stuff we buy in is over 40 years old but looks like it wouldn't be out of place on the shelf at the local Toyworld.

"Modelnerds started a few years ago because there was no real alternative to Ebay for on-





# MALL



FEATURE



selling and recycling collections of second hand models.

"Sometime we deal with deceased estates where a modeller has passed on and left behind a vast collection of items the family has no real idea what to do with. We provide a one stop shop where owners can buy and sell these items as a collection rather than breaking them up and selling them off little bits at a time.

"Our other big drawcard is our webstore which sells kits that are in most cases 50% below retail prices."

What are the most popular models?

"Military aircraft have always been the biggest sellers and the latest trend is for really large scale planes in 1/32 and 1/24 or even bigger scales. Tanks, ships and cars are also popular."

How hard is it to do?

"Not hard at all. Basic kits might consist of only 20-30 parts and can be assembled by kids from the age of five and up. Kits vary hugely in complexity and the number of parts and there are types and styles of kits out there for all ages and skill levels.

"The same goes for the painting, finishing and weathering. All can be done to minimal levels or done in the style of the real masters. Painting can be done by hand with brushes (as I have done for 40 years) or with an airbrush as the real professionals do it. I have just bought myself an airbrush after being put off for many years by their complexity and the amount of clean up required, but these machines are now easy to use as well."

How does someone get started?

"Buy a simple kit, some paint and glue and build it. There are also many clubs out there which offer support, ideas, competition and social aspects of modelling for beginners to experts.

"Modelling competitions are held in each state and nationwide. The recent Queensland Model and Hobby Exhibition (QMHE) went for a full weekend and attracted thousands of visitors. Between 400 and 500 models were entered in the competition.

"Even larger expos are held overseas. Some people even earn a living building models

on commission."

Is there help available if I get stuck or break a piece?

"Yes, most parts can be repaired easily. Most companies offer a spare parts replacement service for a small fee. The other option is to ask other modellers through one of the very active on-line forums, such as Modelling Madness or Australia's own Hyperscale. More often than not another modeller will donate the missing or broken part from a junked model of his/her own. Modellers are generally a helpful and unselfish lot." For more information

<http://modelnerds.weblogde.net/>





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# TONY'S KOALA

by Arthur Marcel



**Not all  
95.10 aircraft  
are made of  
rag and  
tubes**

**This year, Tony King was elected to the RA-Aus Board. And just three days after taking up the job as the NATFLY Co-ordinator, he was in Temora making arrangements with the local council for the 2014 event.**

As the Board representative for South Queensland, Tony certainly hit the ground running.

Tony lives in Gatton and works as an Information Technology Manager with the Toowoomba City Council. He and his partner, Nat, have a small acreage in the Lockyer Valley, where they hope eventually to build a house.

Tony already has a small airstrip and shed on the property. The couple is very community minded, having fostered many state wards. Nat also regularly accepts animals in need of shelter. Tony tells me there are so many four-legged family members lately, he is wondering if he will have to give up some of the airstrip to them.

Tony started a KR2 project a couple of years back and is making slow but steady progress. It is still a

long way short of completion, however.

So late last year, in order to scratch the aviation itch, he bought himself a 95.10 Fisher Koala. I met Tony in November, when he brought this neat little red, white and blue high winger to Forest Hill airfield, where it is now hangared. At Easter, Tony flew the diminutive Koala to NATFLY (two days each way). He came home with the 95.10 trophy, thoroughly well deserved!

Koala 10-3736 is living proof that not all 95.10 aircraft are made from rags and tubes. It is conventionally built from timber and fabric, put together by Phil Bird in Sydney about 10 years ago. It is powered by a Rotax 447 with a Sweetapple wooden propeller giving it a cruise speed between 55 and 60kts. Phil did a great job. The quality of the construction and finish is impressive. Phil sold the Koala after six or seven years to the first of three owners in Tasmania, none of whom used it very much. Tony has used the plane a lot since he purchased it, putting over 100 hours on the clock in one year. Its total time is now about 250 hours 🇺🇸





# ACCIDENT AND INCIDENT REPORTING

By Steve Young

ATSB's Manager of Notifications and Confidential Reporting

**Every accident and incident which occurs in Australian aviation must be reported to the Australian Transport Safety Bureau (ATSB) under the requirements of the Transport Safety Investigation Act (2003) - Regulations**

These run the gamut from a bird strike, through to an engine failure resulting in a forced landing. If something reportable happens, a responsible person, which includes an aircraft owner or pilot, must let the ATSB know about it. Last year the ATSB fielded more than 15,000 notifications, processing them, analysing them, deciding whether they needed to be investigated and recording them in databases.

Even if they are not investigated, notifications still provide a vast, detailed portrait of aviation in Australia. They allow researchers, investigators and aviation stakeholders to examine trends, identify patterns and target problem areas. It's one of the most important tools transport safety can draw upon.

However there are concerns accidents and incidents involving recreational sport aircraft are going unreported. The number of aircraft registered with RA-Aus has increased rapidly - in fact activity in this entire section of the aviation industry is swiftly rising. But the rate of occurrence reporting appears quite low. Troublingly, it also appears existing data on occurrences does not provide a full and true picture.

## So why should you bother reporting to the ATSB?

To begin with, you are legally required to. But occurrence data also plays a valuable role for

the ATSB's research teams. They run quarterly trend analyses to identify potential trend and safety issues within the aviation industry. That can pay major safety dividends.

The ATSB reports cover a variety of subjects including ageing aircraft, performance, skills and experience and accident and investigation rates. The ATSB also uses the data to develop safety and education material.

Prof Avius mused (*Sport Pilot* February 2011) "how often do we disagree with the statements found in articles and the analysis of incidents and accidents".

**■** *If you're in doubt, report it*

Experience tells us that if we know a source is trustworthy and known to us, we are more prone to trust and understand what the data is delivering - we may even learn from it. However in order to understand what the data is telling us, a consistent and comprehensive level of reporting is required.

## Developing an open and mature reporting culture

As of 25th November 2013 there were 3104 aircraft with valid RA-Aus registration, which is approximately one fifth the size of the CASA VH register (14,300 aircraft).

However the difference in reporting levels between VH and non-VH (for registered aircraft

less than 2250kg MAUW) is staggeringly disproportionate.

The ATSB has received on average, 125 reports per year for the past four years for RA-Aus aircraft. This represents around 4% of the aircraft on the register. By comparison, the VH registered equivalent averages 2,450 reports, equating to slightly more than 17% for the same period. If RA-Aus occurrence rates are comparable to the VH equivalent the ATSB should expect to receive around 550 reports. If this seems unreasonable, think of it in terms of one report, once a year, for one in six aircraft on the RA-Aus register.

## What do I need to report?

If you're in doubt, then report it. The ATSB much prefers over-reporting of incidents to under-reporting. Over-reporting helps us provide a more meaningful basis for conducting trend analysis and research.

The aviation industry has a responsibility to report aviation safety matters as an 'Immediately Reportable' matter or a 'Routine Reportable' matter under the TSI Act/ Regulations. If you are unsure if you should report an incident, call the ATSB on 1800 011 034.

The ATSB is developing a more robust online form designed specifically for RA-Aus and should not take the user any longer than 10 to 15 minutes to complete. The online report can also be electronically submitted. For those without internet access, a hardcopy form will be made available through the RA-Aus or the ATSB.



# POSITION REPORT

MARK CLAYTON



**At a recent Regional Aviation Safety Forum in Sydney, the Chair, CASA's Director of Aviation Safety, John McCormick, foreshadowed that he'd be convening a meeting of all RAAOs (Recreation Aviation Administrative Organisations) in the coming months to consider the merits of the American EAA (Experimental Aircraft Association) model.**

The following weekend, at a regional fly-in, I was asked by a member what purpose RA-Aus might serve without its certification and registration functions? In other words, are our members captives in the sense that they have to belong to RA-Aus simply because there's no alternate means (i.e. parallel path) for gaining certification and registration.

Although the EAA has a homebuilt focus, in functional terms at least it is substantially similar to our own organisation, the principle difference being that we are also responsible for certification (a.k.a. licensing) and aircraft registration.

Though unrelated, these recent comments by Mr McCormick and the unnamed fly-in member, struck me as being profoundly important since they both appear to challenge our existing Association's relevance and effectiveness. And while I am not inclined to make hasty inferences, or read too much into passing comments, it would seem unwise – at the very least – to ignore the change inferences in Mr McCormick's remarks. Could it be perhaps that the blended model which has served us well for more than thirty years (viz. member services provider and regulatory administration) simply isn't going to be sustainable, desirable, or available for the next thirty years?

RA-Aus is in the somewhat unique position of being able to provide both certification and registration services on behalf of the government regulator, there being no perfect parallel for this among other RAAOs – that I'm aware of – or, in other English-speaking countries such as the US, the UK or New Zealand. Since we derive the bulk of our operating income from these functions alone, it's tempting to conclude (especially in these comparatively difficult times) that we'd begin forfeiting both members and influence should ever these delegated regulatory powers no longer be available.

Or would we? There are many membership-based umbrella organisations here – and offshore – which have only ever operated without these certification and registration income streams and yet, they operate sustainably by providing a broad range of training, information,

education, advocacy and co-ordination services. The EAA is an exemplar in this regard, its services being much the same as those offered by the British Microlight Aircraft Association (1981), the Recreational Aircraft Association of New Zealand and the Light Aircraft Association (UK). With aircraft and membership numbers not unlike our own (viz. 2,500 and 8,000 respectively), the latter has been operating continuously for almost 70 years. While certification and registration are provided by some (including our own SAAA) to varying degrees, our increased dependency on these twin income streams sets us apart.

These EAA-variant models appear ever more compelling the more closely – and carefully – they're examined. Even more so when you consider that most of our current pain derives largely from having to administer these regulatory and compliance functions (which also consume the bulk of our funds and staffing effort). Just imagine – if only for a moment – what RA-Aus could achieve, if it was relieved of these regulatory functions and, like it's European and American counterparts, could partly direct one or both of its resources (albeit, diminished) towards the improvement and provision of member services.

The fact that we appear to remain the only umbrella organisation performing this blended role is perhaps another good reason (the other being Mr McCormick's possibly portentous remarks) for us to at least begin questioning both the sustainability and desirability of our current roles. Are we at risk of becoming moribund, after having now occupied the same monopolised space for three decades?

If other recreational aviation organisations are flourishing (mostly) without these twin regulatory income streams, perhaps it's because they've been challenged at every turn to remain relevant and responsive. It is this message, I suspect, which was at the heart of that fly-in member's earlier question "what purpose might RA-Aus serve without its certification and registration functions?" Strip away these mandatory, income-generating compliance functions and you're left with the magazine and NATFLY some low-volume merchandising, a loss-making ASIC service, and the GYFTS scholarship. The Association has previously been effective in the advocacy role and of course we continue to provide some limited training services. Unlike other umbrella organisations however, we do not provide an information clearing house (i.e. online forum) service.

Collectively, these non-regulatory services are insufficient for sustaining the organisation

and may offer only limited incentive for the recruitment or retention of members.

RA-Aus is especially vulnerable on this last count, owing to the declining and ageing profile of its membership. Unlike the EAA, with its highly-successful Young Eagles program, our efforts at attracting and retaining younger members have been mostly unsuccessful.

What I've touched on here, are what I consider to be some of the big issues which demand intensive navel-gazing and blue-sky thinking, as would normally occur during strategic planning. It is only proper, of course, that this process should be initiated and led by the Board, with adequate provision for membership input. It's the Association that should be anticipating, influencing and – preferably – leading these discussions with CASA regarding its own future. In order to do this however, we firstly need to have a consensus view as to what that future state might be, and just how it's going to be sustained. 🇺🇸

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# EDITOR'S CHOICE

**BRIAN BIGG**

## *The real pilot skill*

I have a friend who, while driving, turns and looks at me whenever he speaks to me, regardless of how fast he is going or what the traffic is doing around us.

Whenever I am in the car with him I'm too terrified to speak, because I know it will cause him to turn his head. And, while he's looking at me, the car wanders all over the road.

You have to wonder when you consider how hard it is these days to get a driver's licence, how he managed to sneak through the net. He hasn't killed anyone, as far as I know.

The worst part is, there's no real way of telling the authorities my friend should be forced to catch the bus. Maybe there should be.

We all know people we are too scared to drive with.

Either they don't look at the road often enough, like my friend, they make bad decisions in emergency situations, or they drive in such a way as to demonstrate clearly they have an unrealistic view of their own ability.

How many people die in road accidents every year because the driver was operating a machine beyond his or her psychological ability to control it safely? How many of those drivers were honestly too stupid to have ever been allowed to get behind the wheel in the first place?

And would more rigorous training on the machine have weeded out those with dangerous tendencies?

Probably not.

A group of us was standing around the other day discussing the death of a fellow pilot in a crash. The newspaper story on the accident which took the pilot's life (and that of his passenger) told the usual story about what a great bloke he had been and how he had died 'doing what he loved'.



We all made the appropriate noises about how terrible the whole thing was for the man's family, and especially for the family of the passenger who died.

Then one member of our group muttered that the crash had not come as a surprise to him and that he would never have flown with the pilot. "That bloke was an accident waiting to happen," he said.

Others mumbled their agreement, obviously

reluctant to speak ill of the dead.

I hadn't known the pilot and pressed them for more information. Gradually, the members of the group who had known the dead pilot revealed more and more information about him. Apparently he had been warned several times by other pilots about his dangerous flying behaviour, and he'd been warned not to try to do aerobatic flying in an aircraft not suitable for it and warned not to do seat-of-your-pants flying with a passenger on board if he was not qualified.


Despite the warnings, he had continued to fly that way, obviously supremely confident of his own ability. He got away with it too, until that last time.

The dead pilot had received the same rigorous training as we all have, so common sense suggests merely insisting on more training would not have been a solution to preventing this accident.

The problem turned out to be in his mind, not in his hands.

Maybe pilots need a psychological test as well before they are handed their licence. We already have to pass a theory exam, a flight test and sometimes a physical.

Maybe the only way to bring down the road and sky toll and to weed out both dangerous drivers and pilots is to prevent people with bad attitudes from getting behind the wheel and yoke in the first place. 🙄



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# PILOT TALK

Zane Tully & Jill Bailey - RA-Aus Operations Team

## SAR Times

**A recent fatality involving an RA-Aus pilot has highlighted a critical aspect of flight which pilots often gloss over.**

The flight could almost have been considered local, not even requiring a weather forecast, because the destination was less than 50nm from the point of departure, so no SAR time or information was provided to anyone. It meant more than 24 hours passed before any alarms were raised.

The delay in this case may not have resulted in a different outcome for the pilot; however every pilot should consider advising a responsible person of their intended flight and estimated time of return, even for a local flight. If you intend to fly to Fred's farm for a coffee and a chat and expect to be back in two hours, tell a fellow hangar user, your partner or friend and make sure they know what to do if you don't come back by the expected time.

Just as critical as leaving a SAR time is ensuring the responsible person knows who to call if you are overdue. They need to know your aircraft registration number, what type (low wing/high wing) and what colour it is, along with how many people were on board and where you intended to fly. The Rescue Coordination Centre (RCC) is contactable on 1800 815 257 or the Australia Transport Safety Bureau (ATSB) is on 1800 011 034. Put these numbers in your phone right now and make sure your responsible person has them and is not too timid to call them.

The RCC would rather begin the Uncertainty phase of a search and rescue earlier and assure a positive outcome, than leave it until dark when a search for a pilot who hasn't returned will be hampered for 12 hours.

### Accident Consultant's course

A total of 14 RA-Aus members and six police detectives completed an RA-Aus Accident Consultant's course run by Operations in October.

Previously known as the Accident Investigator (AI) approval, the name change reflects a shift in philosophy regarding these accident analyses. The focus now is to assess information, record facts and report on accidents, fatal or otherwise, with the sole intention of preventing a similar occurrence. Reports produced by Operations as a result of these analyses have proven to be of tremendous benefit to investigating officers and Coroners as part of their investigations.

The attendees were drawn from across the country and a variety of backgrounds, ranging from maintenance, to CFIs and Pilot Certificate holders. Additionally, they also worked in various fields from airline level maintenance to engineering and police backgrounds.

Also attending the course (at no expense to RA-Aus and considerable investment from NSW Police) were six police detectives from across NSW as well as Detective Inspector John Hurley from POLAIR, based in Bankstown. These officers were chosen because they had previously attended RA-Aus fatal accidents. At the conclusion of the course, each expressed their appreciation for the value of it.

Attendees also toured the Australian Marine Safety Authority (AMSA) premises to find out what is involved when the RCC is tasked to coordinate rescue of pilots and /or sailors, aircraft and ships in distress.

The facility is responsible for an area which covers almost 10% of the earth's surface, from 200nm west of Perth, to waters outside Papua New Guinea and Indonesia and as far south as the South Pole.

AMSA also has an administrative section responsible for tracking and maintaining contact information for EPIRB and PLB devices. On learning that such a device has been activated, AMSA contacts the names registered for the device to learn if the activation was intentional. It then activates a response and tasks resources for the rescue.

Members are reminded all EPRIBs and PLBs must be registered with AMSA. This can be completed online at [www.amsa.gov.au](http://www.amsa.gov.au) every two years.

### Looking forward

An assessment has been undertaken of the L1 maintenance privileges, which currently allow our members to conduct maintenance on their own aircraft as part of their Pilot Certificate. The assessment identified that no formal training is provided by RA-Aus to pilots to demonstrate competency for such privileges. A new process is being developed, the first step of which is that no further L1 maintenance privileges will be automatically issued to new Pilot Certificate holders from November 27, 2013.

From this date any new Pilot Certificate holder who elects to conduct what is generally recognised as pilot level maintenance (including changing tyres, oil, spark plugs, etc.) will be required to complete an online exam to demonstrate knowledge of the required tasks.

Additionally, all current Pilot Certificate holders who elect to maintain an L1 approval will have until July 1, 2014 to complete the same exam.

Further to the creation of online exams for the L1 approval, Operations also intends to move to online exams for all Pilot Certificate subjects. In the first instance, the current exams will be made available for candidates at their flight training facility, supervised by an Instructor or CFI, which is the same as how written exams are conducted now. If the FTF does not have access to a computer with internet access, written exams will still be available.

Eventually the intention is to update and vary all Pilot Certificate exams with new questions. The online versions will also allow flexibility for questions other than multiple-choice, providing more interesting methods of assessing how much you know. Keep an eye on [www.raa.asn.au](http://www.raa.asn.au) for more information. 📺



>>RA-Aus Accident Analysis Course attendees visiting the Rescue Coordination Centre in Canberra



# FLIGHT INSTRUCTOR'S FORUM



Facilitated by the aviation guru **Professor Avius**

## More Threat and Error Management

This month we'll take a closer look at CAAP (Civil Aviation Advisory Publication) 5.59-1 (O) 2008 and at some effective and practical methods to ensure its contents are introduced, taught and assessed in both theory and during practical elements of flight training.

### Recapping the main points

•The CAAP was issued because there was little guidance material available to address the subject of teaching and assessing items of Human Factors and Threat and Error Management;

•Among its goals is to ensure consistency and standardisation during flight training;

•Human Factors and Threat and Error Management are to be assessed in both theory and practical areas of flight training. Structured training ensures students are assessed and meet the required competency standards;

•The advisory applies to all pilots, but in particular to instructors, ATOs (Approved Testing Officers) and FOIs (Flight Operation Inspectors);

•The CAAP is aimed at Single Pilot Operations.

Managing Flight is one area Human Factors needs to be a focus, especially in the early stages of instruction. Its inclusion is to ensure students develop the skills and knowledge to see and avoid potential conflicts.

### Example

#### Maintaining effective lookout

From the beginning of student training, effective look out is essential.

Suggested instruction - As a routine before turning, students should be introduced to these concepts.

If turning left (i.e. in the circuit) - stating out aloud "all clear right, all clear centre, all clear left; turning left."

Look, talk, then turn. (e.g in the circuit). The routine should be developed of looking for traffic, making the appropriate radio broadcast, then turning.

Introducing and developing effective scanning techniques to provide maximum opportunity to see traffic.

#### Suggested instruction:

a) During a climb, lowering the nose of the aircraft every 500ft;

b) Effective scanning techniques during the cruise should include moving the head 20-30 degrees at a time, pausing after each movement to allow the peripheral vision to detect any movement within the field of view;

c) The Alerted Scan: Detecting traffic is eight times greater with assistance of concise and accurate traffic information. Therefore it is important for students to learn to listen out for and understand broadcasted information; noting and recognising aircraft location, height and intentions. Equally important is the student's need to be given instruction, guidance and confidence in their ability to broadcast such information.

At times, when work load is high and many tasks are to be completed, guidance will be required to assist students to prioritise the tasks in a logical and efficient sequence. Demonstration and instruction in Decision Making Techniques is an important task to be learned.

Instruction in how and when to interpret received information, generate and analyse options then make and commit to a decision, will become important in any number of flight scenarios. These may range from determining weather related issues, judging wind velocity or visibility, to managing inflight maintenance issues, such as an engine failure.

#### Suggested instruction:

Practicing forced landing without power. This can be demonstrated and practiced often either out in the training area or in the circuit.

Students are required to demonstrate knowledge of issues of fatigue, drug and alcohol management and general health including functions of the eyes and ears.

#### Suggested instruction

Introduce and question often the concept of

**I** : illness - Are you physically well?

**M**: medication - Are you free from the effects of drugs?

**S** : stress - Are you free from significant stress?

**A** : alcohol - Are you free from the effects of alcohol?

**F** : fatigue - Are you adequately rested?

**E** : eating - Have you eaten properly to work effectively

The above are examples of instruction and learned skills that can be grouped together by the model of Threat and Error Management. The concepts of TEMs is to identify and avoid any potential threats and to detect and respond to/ or correct errors in a timely manner, before the flight deteriorates into an uncontrolled or unstable situation (known as an undesirable aircraft state).

#### CAAP definitions

A Threat is defined as an event or error made by others (beyond the control or influence of the pilot). Threats increase the operational complexity of the flight and reduce margins of safety.

#### Threats can be further classified as

**EXPECTED** → Weather forecast such as thunderstorms and windshear (to be anticipated and avoided). Intense traffic in the circuit or terminal area.

**UNEXPECTED** → aircraft malfunction or pilot illness.

**LATENT** → threats not immediately obvious or observable; such as equipment design issues or optical illusions.

Management is the ability of the pilot to detect and avoid, or respond to, threats in a timely manner.

An error is the action or inaction of the pilot which leads to the deviation from organisational or pilot intention or expectation.

Errors reduce safety margins and increase the probability of an adverse outcome.



**There are three main types of errors.**

**Aircraft Handling** - further classified as Manual Handling Errors (such as holding altitude/heading/ correct speeds/power setting) and Auto Handling (such as GPS or autopilot mode setting), incorrect radio frequencies and ground navigation (such as entering incorrect runway or taxiways or taxiing too fast).

**Procedural** - Incorrect documentation (such as maintenance release entry, weight and balance or fuel calculations), checklists (being incorrect or missing vital actions), Standard Operating Procedures.

**Communication** - Errors which can be classified as external: missed or misinterpreted instructions, e.g ATC or broadcasted calls; and internal: misunderstood instructions between pilots or between instructor and student.

Some examples of undesirable aircraft states (but no means limited to this list) could include:

**Aircraft handling:** attitude, heading or speed deviations (on landing or take off); unnecessary weather penetration; unauthorised airspace penetration; exceeding aircraft limitations; long, bounced or off-centre touchdowns.

**Ground navigation:** wrong taxi ways, excessive taxi speeds.

**Aircraft configurations:** power settings, fuel quantities (too much / too little), weight and balance, incorrect system – autopilot/ GPS/ nav aid or radio incorrect mode, setting or frequency.

And finally, the effects of Threats and Errors can be reduced or eliminated by the intervention of countermeasures.

**These can be:**

**Planned** - (eg pre-flight briefings, having contingency plans and practising scenarios, such as engine failures).

**Executed:** continually monitoring of the flight, (CLEAR OF checks) cross checking systems and workload – e.g time and distance checks/ using flight plans.

**And reviewed/** evaluating and modification of plans as the flight progresses to ensure any threats or errors are identified and addressed in a timely manner.

**NOTE:** if an UAS is recognised, the immediate priority becomes correcting and returning the

aircraft to normal flight rather than fixating on the error.

Overall, The Civil Aviation Advisory Publication CAAP 5.59- 1 (O) makes for informative and essential reading for all instructors.

It outlines a full range of skills and knowledge which must be imparted to ensure students become competent, skilful and confident pilots-in-command.

It is a theoretical framework which categorises major factors in the accident chain of events. It highlights relationships between external factors and human responses.

It offers guidance on teaching and assessing the internationally acknowledged need for instruction of Human Factors and Threat and Error Management.

**References**

**CAAP 5.59-1 (O) Teaching and Assessing Single Pilot Human Factors and Threat and Error Management (Available from the CASA website).**

**Human Performance and Limitations: Bob Tait.**

**Civil Aviation Reference Manual: Human Being-Pilot: David Robson.**

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# Tail Draggin'

**When we were all a lot younger, a banged up old Cessna was the only choice of aerial transport for most people on farms and remote properties.**

The workhorse could carry the weight and, if you were careful, get you off your dodgy strip before the trees at the end became an issue. Those old crates allowed many rural people the freedom to head into town shopping, no matter how far away they lived from the town sewer. But have you seen the hourly rates for operating an old GA aircraft nowadays?

The growing problem of ageing aircraft which CASA has been taking very seriously the past couple of years, along with increasingly regimented maintenance requirements and growing demands from banks and insurance companies has seen the cost of that Cessna trip into town blow out to as much as \$300 an hour. That's a lot of groceries. A tail dragger ultralight is an obvious alternative for many people – good short field performance, dirt cheap to run, but usually not really a great weight carrier.

And if you couldn't land the thing without

ground looping in front of the aero club on the Saturday morning, you weren't considered to be much of a pilot. And the aero club jury is unforgiving.

So Tecnam has come up with a design to try and attract the potentially lucrative market now that the drought is over in most of the country, easing in the rest and farmers might actually have a quid to spend on new equipment – introducing the Tecnam P92 TailDragger.

Tecnam's Australian distributor, Bruce Stark, says the TailDragger has the same frame as the company's very popular P92 Eaglet with additional strengthening for the tail wheel and the main gear moved forward for balance.

It weighs 352kgs empty and, being LSA certified, has a MTOW of 600kgs.

This particular TailDragger is one of only two in Australia. The other lives in Wagga.

The other thing you might notice about it is the great big belly on it.

That's an optional 40kg factory fitted cargo pod, big enough to cart your tent, camping equipment or your weekly groceries, but not quite big

enough for your golf clubs. The pod takes about 10kts off the cruise speed, but if your need to carry lots of stuff is greater than your need to get there sooner, the pod more than pays for itself.

And just in case you need to carry even more stuff than expected (and isn't that always?) there is a ton of room behind the seats for another 20kgs of baggage and still more capacity in the 6kg exterior side locker.

The TailDragger, like its Eaglet sibling, has been designed to attract as wide a field of buyers as possible, a surer guide to success in a tight market like we have had for the past 12 months. As well as the farmers and campers mentioned above who might find it useful, the fact it is factory built and certified LSA means it can also be used in flying schools or as a glider tower.

Climbing in requires some acrobatics but I can't point the finger. You have to do the same in mine. And just like mine, when I was seated comfortably, the cabin wrapped around me like a sports car.

There is a lot of kit in the panel of this aircraft including electric flaps and trim. The Dynon is





#### DEMEASIONS

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#### POWERPLANT

Engine	Rotax 912 ULS
Propeller	2 blade fixed pitch

# TECNAM

By Brian Bigg  
Photos: Doug Eaton

standard and allows for a lot of number crunching for those with a mind for that sort of thing.

Another unusual feature of this aircraft is the constant speed propeller which comes as standard because of the LSA category. The prop gets the TailDragger off the ground much more quickly and gives a better climb rate, but doesn't add anything to the cruise speed. Anyone operating off a dodgy farm strip is going to like that feature.

Bruce and I had the back wheel up in a matter of seconds and the bigger wheels off the ground just a few seconds after that. You won't wear out many tyres in this aircraft, even on the bitumen.

In the air, it certainly has the precise handling you need for a trainer. The day Bruce and I took it for a spin along the Pacific Coast, the weather was glorious and it allowed me to look like I was quite a good pilot, making steep turns accurately and flying precisely on the numbers. We circled the private strip of Eaglet owner to see if she was home and wanted a look at her aircraft's sibling, but there was no movement below so we kept going.

The view from all Tecnams is panoramic- this

is no exception - and an all-metal aircraft always feels sturdy and reliable in your hands. The controls are moved by push rods, instead of cables, so when you move the control column, the aircraft immediately moves with you.

*The view from all Tecnams is panoramic - this is no exception*

Stalls and slow flying are the same as in the Eaglet, not much to write home about, again another good feature for a trainer to have. It trims easily for slow flying and sits in the bucket just the way I like it. Bruce says the doors come off in seconds if you want to take the real estate photographer up for some aerial shots of your property. Might be nice on a hot day too, but the top speed with the doors off is a crawly 60kts.

On our return, the big windows make the approach and landing a cheerful spectator sport.

The big wheels cushioned the final blow and we were stopped in under 30m. Climbing out was the same yoga experience as climbing in.

So there is a lot of good to be said for the P92 TailDragger, especially if you want an all metal aircraft and a tail dragger where your passenger can sit right next to you, rather than behind you.

It provides the short field advantages a lot of people need with the comfortable cross country cruise possibilities of a heavier-than-this-is aircraft - and it can carry a useful load.

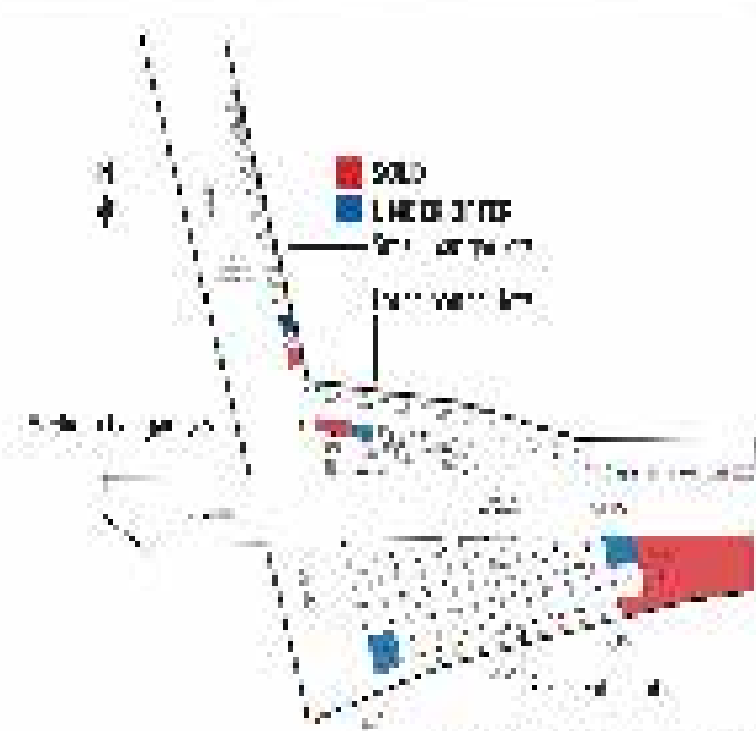
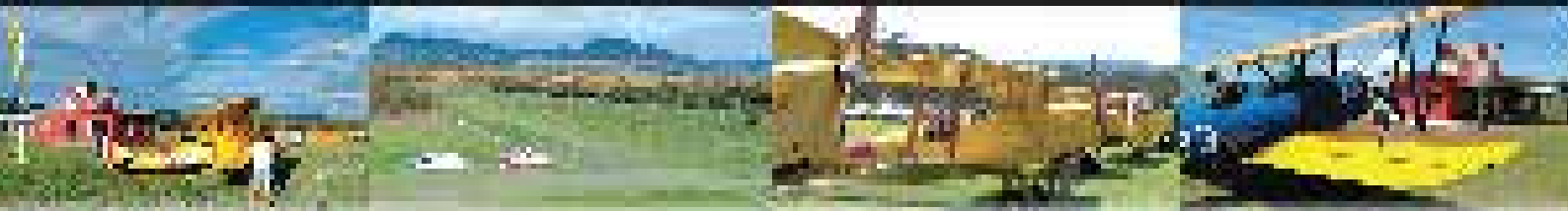
Because of the bouncing Aussie dollar, the price for the fully imported P92 TailDragger has been up and down like the Assyrian Empire lately (to quote Monty Python), but at the moment a new one will set you back about AUD\$139,000, which is smack bang in the middle of the field for these sort of aircraft.

But a word of warning - even if you find this is a great vehicle to cart the wife into town on a Saturday confident you have the luggage space to bring every purchase home again, don't forget it's still a tail dragger and the aero club jury will be watching your landing very carefully.

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# VIEW FROM THE INDUSTRY



**Sport Pilot asked Bruce Stark, local representative of Tecnam, one of the bigger light aircraft sellers in Australia, for his views on where the industry has been and where it is going.**

“Immediately following the GFC in late 2007, the recreational aircraft market showed initial signs of slowing, only to be briefly stimulated by government incentives to spend on capital items. This helped people with an ABN, but did nothing for private owners. Along with a general tightening of credit by the banks, the government then introduced a *Financial Services Act* which put the onus on the lender to verify whether the borrower would be under any hardship in repaying the finance. Minimum deposits moved from 10% to 33% and extensive cash flow and financial statements had to be produced. As a result, it has become rare to see money loaned to individuals and small flying schools for an aircraft with a value of less than \$150,000. Small flying schools rarely purchase new aircraft - rather they rely on the generosity of net-worth individuals within their aviation community to purchase, and put on line, an aircraft suitable for training.

Small business continues to struggle and we can measure the effect on aircraft owners by the number of second hand aircraft for sale in *Sport Pilot*. Everyone is working harder with longer hours and for less return, so the toys have to go.

Other significant factors were the extensive droughts in Victoria and South Australia, compounded by the flooding and now drought in NSW and Queensland. It is easy to forget that one third of Queensland was under water and the effect along the Riverina in NSW was extensive and devastating. More recently, along with drought, we have seen mines in Western Australia and Queensland closing down.

The monetary multiplier effect of all of this results in a significant reduction of cash flowing through the greater community in each state.”

## Where is the recreational aviation market now?

“Just with net worth individuals and rural property owners. The former, because they can afford to buy, and the latter because the aircraft is just another machine along with the Landcruiser, dozer, harvester and truck. In many cases the Cessna/Piper/Maule on the property is being used less due to the cost of buying avgas in drums and the costs of an annual service range between \$6,000 and \$10,000. Many property owners are evaluating the recreational market and taking into account the cost of unleaded fu-

els and the benefits of owner or L2 maintenance. Demand in this area is generally limited to high-wing aircraft with reasonable STOL and slow-fly and slow approach performance.

Many other owners are finding the costs outside the aircraft rising; hangarage, insurance, council landing fees on the home airfield, ASIC compliance. Next will it be ADSB installations for all aircraft?

The recent CASA audits of the various recreational flying organisations have caused a rigid compliance with the original Ultralight Type Certificates (TCs) that were in place at the time the aircraft was manufactured and sold in Australia. This means no modifications without a Supplementary Type Certificate or an Engineering Order. It also means adherence to the original TC in terms of MTOW, which will limit some models to operating as single seat aircraft until if and when the paperwork can be produced for higher weights.

As a result, I think most future sales from aircraft dealers will be LSA only. Most of these aircraft have a MTOW up to 600kg and can be readily modified using the manufacturer’s documentation of change approval system. EASA in Europe has recently approved a LSA certification system and opened up a substantial market for LSA sales.”

## Where will the new / used market be going?

“Net-worth, business and rural buyers will be selective, preferring factory built LSA to ultralight certified aircraft. I think the kit market will become stronger among enthusiasts as a way to own their first aircraft, although finding a completed aircraft on the depressed second hand market will be tempting.

There are a number of progressive RA-Aus flying schools in Australia. Most rely on the generosity of owners placing aircraft on-line with them. Unfortunately the current dry hire rates offered do not offer a viable commercial return on a new LSA which costs between \$100,000 and \$150,000. Until this becomes realistic, you will not see investors placing aircraft on-line.

Unfortunately, some instructors and students have come to expect a panel as complex as a Boeing 777 and at least two Comms radios before considering an aircraft worthy of teaching or learning to fly in. Complexity adds weight, resulting in less fuel to stay within MTOW. While larger and larger capacity fuel tanks are becoming the norm, which is great for single pilot operations, I am concerned this is creating a culture of ‘fill it

up and go’ without considering the consequences of the extra weight on structural integrity.

I think we will see a number of smaller schools close down as either they become unsustainable or unable to source training aircraft.

Larger, well run multi-aircraft schools will survive but hourly training rates will have to rise to meet instructor costs, fuel cost rises and provide adequate compensation to aircraft owners.

Some schools will integrate with GA flight schools where recreational (LSA) aircraft can now be part of the training structure. This will offer ab-initio in a numbers aircraft, switching to a VH aircraft to complete a PPL and progress seamlessly on to commercial qualifications.”

## What is the key to developing a sustainable long term industry?

“A sustainable industry needs a constant flow of new pilots.

Training must be kept affordable, but the operator must make a profit that allows funds to be put aside for aircraft replacement. A recreational flying school does not need an all-singing, all-dancing pocket rocket as a trainer for the pilot certificate.

Students don’t need glass panel flight instruments. ASI, VSI, altimeter and slip ball are adequate for learning stick and rudder skills.

We don’t need ballistic parachutes. They add another 13kg to the empty weight and require foreign servicing in most cases.

We don’t need more than 100 litres of fuel. In fact, even 70 litres is adequate. Apart from cross country, most training work is conducted at 65% power and 70 litres will give you up to five hours flying.

To make flying affordable we need to get a purchase price between \$70,000 and \$90,000.

Forget about 100hp engines for training. We are spoiled by the STOL performance of recreational aircraft and we have unrealistic expectations compared with GA pilots.

A 100hp Rotax may get off the ground slightly faster and climb at 800fpm and offer a better cruise but it uses 5 litres more fuel and PULP is more expensive by 10 to 15 cents per litre.

An 80hp Rotax will still climb two-up at 400 to 500fpm on a hot day and cruise 90 to 95kts cross country. In a reduced power training role it only uses 12 litres of the much cheaper ULP.”



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# TECH TALK

**DARREN BARNFIELD – Acting Technical Manager**

## *A box of chocolates*

If you've ever seen the movie *Forrest Gump* (and if you haven't, you should), you'll recall Forrest frequently saying "Life is like a box of chocolates; you never know what you're gonna get". It's what the Tech Team faces every day.

We are a relatively new team, one which has grown and learned over the past two years. We have dedicated ourselves to resolving as many of your problems as quickly as we can; we certainly understand the frustrations of the membership and acknowledge we still have a way to go before we are totally on top of the current issues. So like Forrest, we in the office do not always know what it is we are going to be addressing from day to day, so I would request when members receive an email or a call from HQ to please use some understanding to work with us to find a solution. We are here to correct the problems and provide you the direction so you can comply with the rules and regulations.

### Registration update

Another initiative has been introduced to further reduce the registration back log. If a file on an aircraft is identified as having a missing requirement, one which the acting Technical Manager deems not to be an airworthiness issue (Airworthiness Directive or missing engi-

neering order) then the following will apply:

- The aircraft file is reviewed and audited by the Tech Team (The team has already started to sign off on re-registrations. In time, the current requirement for a CASA independent auditor will phase out);

- If a signature or placard is missing, it is noted on the file and in the new auditing system. This is provided to CASA each week as part of the newly implemented auditing process;

- The file is then approved for registration. A letter listing the missing requirement/s is also sent to the aircraft owner. The owner will receive a second letter at the six month anniversary of the registration;

- If the aircraft is submitted for registration renewal after 12 months and the required information has not been provided, the aircraft will become unregistered until such time as compliance is provided.

At the beginning of November there were more than 115 files approved for re-registration using the new system. The new system allows us to expedite the registration process so if you receive a requirement letter, provide the requested information as soon as possible in order to ensure minimal delay when reregistering your aircraft.

### Operational noise

Since taking on the role as acting Technical Manager, I have reviewed the past, present and future operations of the Technical team. Each time a review is conducted, more overlooked items are discovered.

This leads me to the Noise Exemption Certificate. RA-Aus operates under various exemptions to CASA regulations, however there are other government divisions to whom we are also responsible.

Airservices Australia, on behalf of the Department of Transport, administers the Aircraft Noise Certification requirement. It is a requirement for every aircraft in Australia, including those registered by RA-Aus, to have a certificate for Aircraft Noise Certification. In many cases, once an application is completed and a certificate received, the aircraft is provided with an exemption from the requirement. While this may make the process appear redundant, the noise certificate is still a requirement. The good news is the application process is free and can be done online. Members should access the application process at the address provided below. The noise certificate will not be linked to your registration renewal.

<http://www.airservicesaustralia.com/services/aircraft-noise-certification>

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By Chris Brandon

**Imagine. One peaceful afternoon, you are taking a walk along a forest track when suddenly! A giant human eating crocodile launches out of the underbrush right in front of you, wildly snarling menacingly.**

### What do you do?

What happens to you physically is very interesting. You recognise a threat to your life. Instantly your nervous thought waves go into 'fight or flight' mode, so your whole body gets prepared for vigorous activity. The releasing adrenaline causes a host of reactions. Your mouth goes dry as your digestive system shuts down. Your blood thickens, so it can carry more oxygen and clot more quickly if needed. Your heart races in preparation to send higher levels of blood and sugar to your muscles and essential organs.

Your breathing intensifies to fuel the increased blood supply and your sweat glands work quickly to cool the underlying heated muscles. Your brain signals stimulate hormones so your attention is in optimum focus.

### Question:

When was the last time you were confronted by a snarling aggressive crocodile? In today's world we rarely need to be this aroused, because very few situations are really life threatening. Yet as pilots we often face such situations. We must take responsibility for the decisions which affect our safety or our passenger's safety. We must make the decisions we consider to be the best under the circumstances.

That's what pilot-in-command is all about and it has nothing to do with being civil, military or sport aviation pilots - it has to do with the brain in our head.

### Yes or no

Any pilot-in-command must be aware and understand human factors. The study of human factors in aviation began about 20 years ago. Since then, aviation authorities have realised how important it is to improving



# SAFE to be Safe



safety. The concept of human factors, in a nut shell, is to understand information skills processing.

This can be a complex area, as even today, psychologists and scientists cannot explain completely how the brain controls our body bits. How our mind sees an event and interprets a situation can be vastly different from reality or fact. It is often said reality is how you perceive it and it is different for every person.

Understanding how your brain works is more important than understanding how the engine works, because the engine and the airframe are very simple and can be repaired by maintenance personnel.

## You must work on developing your brain

The brain controls everything, and without it thinking clearly, nothing happens correctly. Remember, the hands and feet are just slabs of meat doing as they are told. If you are to become a pilot in today's complex world, you must learn how your brain works, its strengths and weaknesses, so you can fly exactly and avoid danger. Because eighty per cent of aviation accidents are related to Human Factors.

When a pilot has an accident or makes a mistake causing an incident, he/she does not do it on purpose. Most pilots do not intentionally create an error in flight control management. Usually, the error occurs because the pilot believes their command response to the situation at that time was correct.

So why would a pilot make an incorrect decision when their thought process believed it to be the right one? Several answers to that question will be found in the information processing.

The mix of correct, incorrect, inappropriate and irrelevant decision

making happens rapidly in an emergency and the result is often unpredictable.

Our brains' processing abilities are very restricted, and there are times when it is possible to overload the system - with potentially catastrophic results.

So it pays to keep your mental load light: Be fit and alert, know your aircraft and procedures and plan ahead.

Keep your muscle memory motor skills in good order by frequent practice, recognise the limits of your performance envelope and stay within those limits.

If you would like to know some more, without getting too technical, I recommend Air Craft Human Performance and Limitations by Tony Wilson, available from the CASA publications.

When you fly, you are confronted with situations which put you on the spot. Next time you fly, decide before you leave the ground, have I taken enough of the load from my brain that it will be clear to make good decisions if there is an emergency?

## Yes or no

I have sufficient runway for a safe take-off, including

a possible emergency?

I have enough fuel and reserves for this flight?

I can navigate the airspace and possible restrictions?

I know the weather and can arrive before last light?

## Am I confident?

The most important thing to realise about flying is not what happens, but how you handle it when it does.

**W** *Understanding how your brain works is more important than understanding how the engine works*

# The air up there

By John Brandon

**C**ontour lines and spot points on WACs and VNCs provide an indication of terrain elevation. An altimeter reading provides the aircraft's vertical position. Thus the current height above ground level and the terrain clearance may be determined.

However, in aviation, that altitude reading and the altitude term itself have many connotations; particularly important is the concept of density altitude. Density altitude is the pressure altitude adjusted for variation from standard temperature; or the height in ISA having a density corresponding to the location density sometimes then referred to as density height. A density altitude calculation for the airfield should be made by pilots before take-off to determine the possible effect of temperature on take-off and landing performance.

The ICAO International Standard Atmosphere model, used for flight instrument calibration, is based on dry (i.e. non-humid) air and average climatic conditions at 40° to 45° North latitudes and as such does not reflect conditions over much of Australia in all seasons, with the discrepancy peaking in summer. However, air density is dependent on pressure, temperature and humidity; the effect of the latter is not great but it should be considered.

High density altitude conditions at an Australian airfield can provide a severely hazardous environment for any aircraft where the difference between power required and power available is rather small. This would concern all sport and recreational aircraft engaged in take-off or landing at that airfield. It is the density of the air which provides engine power, propeller performance and lift.

## Effect of density altitude on performance

What we are really doing when calculating density altitude is estimating the density of the air. In ISA conditions, at a density altitude of 6,000ft AMSL, the air density will be about 1.0kg/m<sup>3</sup>, about 20% less than sea-level standard density. The maximum lift possible to be generated will be reduced by 10% (lift = CL × ½ρV<sup>2</sup> × S) and the ground roll speed related to IAS/CAS prior to take-off will be greater; i.e. during take-off at msl in ISA sea-level conditions TAS = IAS/CAS, but in high density altitude conditions TAS is greater than IAS/CAS. Remember that V<sup>2</sup> in the lift equation refers to TAS not CAS. So, at 6,000ft density altitude, the TAS at lift-off would be about 10% higher than msl conditions, thus the aircraft would have to

accelerate to a 10% higher ground roll speed before reaching lift-off IAS, and that is before taking into account the effect of the engine and propeller performance reductions on the aircraft's ground roll acceleration performance and its climb-out capability.

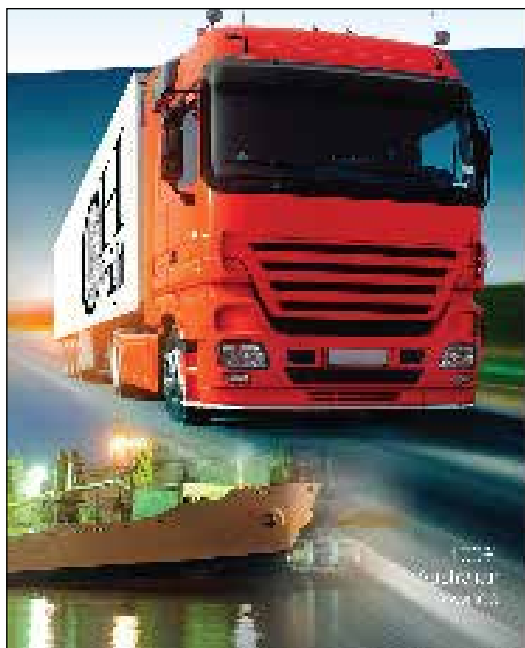
The weight of the charge delivered to the cylinders, in a normally aspirated engine, will be only 80% of the standard sea-level value. Thus, only 80% of the engine's rated power can be supplied at the propeller shaft for take-off and climb-out, or for a go-around. The lower air density (½ρ in the ½ρV<sup>2</sup> term of the lift equation) directly reduces the thrust performance of the fixed-pitch propeller by 10%, in which case the thrust performance will be 90% of 80%, or about 72% of the rated sea-level performance. So both the time and the distance needed to acquire take-off lift - and to clear obstacles at the end of the strip - must be increased; the aircraft's rate of climb, and thus angle of climb, will be less than near sea level.

There are many conditions which might exist at high density altitude which, though they may be individually slight, all adversely affect the airframe and engine performance. For instance, attempting take-off with a combination of some of the following conditions may cause some difficulty; attempting take-off when most of the conditions exist might well be disastrous:

- at an elevated airfield;
- with moderate to high surface temperature;
- on a short, soft strip with unslashed, wet grass;
- at maximum weight;
- incorrect flap setting;
- light and variable winds;
- departing into rising terrain and a sinking air environment.

The same conditions apply when landing; the TAS at Vref will be higher and the consequent ground roll will be longer. The thrust available for a go-around, in the event of an aborted approach, might be very much less than the rated sea-level thrust, which may well preclude any late go-around.

Also, it must be borne in mind that the air is not dry; rather, the humidity might be high. This does have some effect on lift, together with engine and propeller performance. In a carburation or injection system, fuel is metered on the volume of gases being inducted, whether it is air or water vapour. With water vapour in the air, there is less air/oxygen present. This enriches the mixture slightly as the fuel is metered for the total volume of gas. Water vapour slows burning and cools a little, which slightly affects power developed.



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In addition, under high density altitude conditions, the mixture may be excessively over-rich. The recommendation for normally aspirated engines with cockpit mixture control is that the mixture should be leaned to maximum rpm before taxiing, take-off or landing if the density altitude is 5,000ft or greater.

Density altitude at a particular location can vary considerably from day to day, and also according to time of day. For instance, the table below shows a mid-afternoon and an early morning reading at Alice Springs, in central Australia, on different days. The airfield elevation is 1,900ft.

QFE	Temperature	Air Density	Pressure Altitude	Density Altitude
941 hPa	43 °C	1.037	2020 feet	5600 feet
957 hPa	-2 °C	1.230	1580 feet	-100 feet

### Calculating the dry air density altitude

The density of dry air ( $\rho$ ) varies according to ambient air pressure and ambient air temperature, this is reflected in the equation density = pressure divided by 2.87 times the temperature(K). Pressure (or pressure altitude) is readily obtained from the altimeter and temperature can be obtained from various sources.

#### Method 1: use the temperature differential

Density altitude is roughly 120ft greater than pressure altitude for each 1 °C the temperature exceeds ISA for that level, and 120ft less for each 1 °C the outside air temperature is less than ISA. In the ISA table sea-level temperature is 15 °C and the ISA temperature lapse rate is 2 °C per 1,000ft.

For example: Armidale, New South Wales, airport (elevation 3,550 feet) on a warm summer day, temperature 30 °C. Altimeter, with 1013.2 standard sea-level pressure sub-scale setting, reads 3,400ft pressure height/altitude. So,

- ISA standard temperature for an elevation of 3,550ft  
= [15 - (3.55 x 2)] = 8 °C;
- The Armidale temperature then exceeds standard by 22 °C,  
thus adjustment to be added= 22 x 120 = 2,640ft;
- Pressure altitude = 3,400ft;
- Then the approximate density altitude = 2,640 + 3,400 = 6,040ft.

#### Method 2: calculate using the air density equation

The density of dry air at altitude can be calculated using the equation:  $\rho = P / (2.87 T)$ , where:

- $\rho$  = rho – the density of dry air (kg/m<sup>3</sup>);
- P = the pressure (hPa);
- 2.87 = the gas constant for dry air;
- T = the air temperature in kelvin units (K).

Using the Armidale example, with the altimeter set so that altitude shows the elevation of 3,550ft, the pressure-setting sub-scale will display 895 hPa (i.e. QFE). The temperature is 303 K (30 °C + 273) thus density = 895 / (2.87 x 303) = 1.029 kg/m<sup>3</sup>. The height in ISA having a corresponding density is about 5,850ft. This gives a slightly more accurate calculation of density altitude than method 1.

#### Method 3: use the CASA Declared Density Altitude charts

The ICAO International Standard Atmosphere model, used for flight instrument calibration, is based on average climatic conditions at 40° to 45° N latitudes and as such does not reflect conditions over much of Australia in all seasons, with the discrepancy peaking in summer. The Civil Aviation Safety Authority recognises this and publishes seasonal Declared Density Altitude charts with isopleths delineating regional values to be added to airfield elevation to give declared density altitude.

The three seasonal charts (summer, winter and autumn/spring) are published as appendices to Civil Aviation Order 20.7.0 which can be viewed at [http://flysafe.raa.asn.au/regulations/cao\\_20-7-0.pdf](http://flysafe.raa.asn.au/regulations/cao_20-7-0.pdf). For example the summer chart shows regional values of 2,000ft in some south-east and 3,600ft in central areas. These regional values are to be used only if there are no other means of calculating current density altitude at the departure and destination airfields.

Armidale is located at 30° S and 151° E between the 2,800 and 3,000ft isopleths of the summer chart, so adding 2,900 to the airfield elevation of 3,550ft gives a declared density altitude of 6,450ft.

#### Method 4: use a Density Altitude Computational chart

First determine current pressure altitude with 1013 hPa standard pressure setting on the altimeter sub-scale, for example 3,400ft. Also determine outside air temperature, for example 30 °C. Draw a horizontal line from the 3,400ft position to the 30 °C vertical line. Determine the density altitude scale at which the line terminates, for this example density altitude = 6,000ft.

#### Method 5: use an E6-B type circular scale computer

The plastic circular slide rule flight planning computers have a density altitude facility which just involves placing the pressure altitude opposite temperature and reading off density altitude from a third scale. Because the scales are close to the centre of the instrument they are small and difficult to set accurately, but the Jeppesen Model CR-3 computer indicates about 6,000ft density altitude for the Armidale example.

#### Method 6: use the information in the Pilot's Operating Handbook

Charts in the Pilot's Operating Handbook or Flight Manual should provide density altitude plus aircraft performance and maximum weight figures from the input of pressure altitude and temperature.

#### Method 7: use one of the density altitude calculators available on the internet

Google "density altitude calculator". It's probably advisable to do a number of trial runs before choosing a particular DA calculator.

Know the normal take-off distance required

Before you can start to estimate the take-off distance required under high density altitude conditions, you must know the take-off distance required under standard conditions.

CAO 101-28, an airworthiness certification requirement for commercially supplied amateur-built kit ultralights, states in part:

The take-off distance shall be established and shall be the distance required to reach a screen height of 50ft from a standing start... with short, dry grass surface... the aeroplane reaching the screen height at a take-off safety speed not less than 1.2 Vs1... take-off charts ... shall schedule distances established in accordance with the provisions of this paragraph, factored by 1.15.

If buying an aircraft or kit, you should require the standard take-off and landing distance chart information for the airframe/engine/propeller combination be supplied. Statements such as 'Take-off ground roll 10m to 40m' have no value. You must insist, particularly with imported aircraft, that the distances be stated clearly in one form only and for nil wind conditions 'Take-off distance to clear 50ft (15m) screen' or 'Landing distance over 50ft (15m) screen'. You have to know without doubt, having done the necessary calculations, that you can clear obstacles at the end of the unslashed paddock on a hot, bumpy day without risk to you or your passenger and that if it is necessary to abort a landing, the aircraft will have the ability to go-around safely.

**For the full version of this article, including the effects of humidity on density altitude, visit <http://flysafe.raa.asn.au/groundschool/umodule3.html>**

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# PILOT NOTES

## Jabiru J230C

**Engine:** Jabiru 3300, 415hrs. ttis.

In a normal circuit, towards the end of a downwind leg, the engine started to run roughly and lost power. The throttle was reduced to idle, however the engine still ran roughly with a vibration. An emergency glide approach was called and successfully executed.

Subsequent examination revealed that No. 2 cylinder exhaust valve had detached and blown a hole in the piston.

## Zenair 701

**Conditions:**

**Nil wind, light turbulence.**

**Pilot experience: 235hrs, 2 on type**

The pilot was conducting the first flight in the new aircraft and was making an approach to land after performing flight tests. As he applied full power to go around from a high approach, the left wing dropped and the aircraft rotated through 180°. The pilot was unable to regain control and the aircraft struck the ground with its left wingtip and tail wheel. The aircraft sustained major damage to the engine, propeller and airframe while the pilot suffered scratches and bruising.

## Zenair Zodiac 601

**Airframe: 139hrs ttis.**

Immediately after rotation on take off, the side opening canopy unlatched and blew open to its full extent. The pilot's headset and hat blew out, as well as several other items from a shelf behind the seat. The pilot, although disoriented by the wind and noise, landed the aircraft and taxied off the runway while observers retrieved the items lost from the aircraft. Damage was limited to the RH canopy rail, the aft section of the canopy and a radio antenna.

## Jabiru J160C

**Conditions:**

**Light wind and turbulence**

**Pilot experience: 62hrs, all on type.**

While landing in a slightly gusty cross wind, the aircraft drifted off the runway and its left wheel struck a marker. It then travelled for a short distance down the runway before ground looping and coming to rest at 180° to its approach path. The pilot was not injured but the aircraft sustained a broken undercarriage leg.

## Airborne XT 912

The pilot had just returned from a local flight and was refuelling the aircraft from a plastic jerry can.

He was using a plastic funnel and the aircraft had been properly earthed. After about five litres of fuel had been added, the fuel in the funnel was ignited by static electricity, setting fire to the can as well.

The pilot suffered burns to his lower leg and the fingers of one hand.

## Edra Super Petrel

**Pilot experience: 320hrs on type.**

The pilot landed the amphibious aircraft on a runway with the undercarriage retracted. After sliding along the runway for a short distance, the aircraft came to rest on grass with deep scratches to the fibreglass keel. The pilot stated that he now uses a checklist in the aircraft at all times.

## Jabiru J230

**Conditions: Nil wind, moderate turbulence.**

**Pilot experience: 270hrs on type.**

As the aircraft began its take off roll it hit a mound and became airborne before settling back onto the ground. The nose gear leg collapsed and the aircraft ran off the strip before coming to rest on its nose with a broken propeller and damage to the engine cowl. The pilot was not injured.

## Murphy Rebel

**Conditions:**

**Moderate wind and turbulence.**

As the aircraft touched down, it was struck by a wind gust and landed heavily. One of the main wheel tyres burst and the tail wheel broke off. The aircraft came to rest on the runway with no further damage.

## Jabiru J120

**Engine: Jabiru 2200, 811hrs ttis.**

As power was applied to go around from a practice forced landing, the engine lost power accompanied by loud noises. The aircraft touched down in a canola crop and came to an abrupt stop with its nose gear torn off and damage to the propeller. The pilot suffered minor injuries and the passenger was not injured. An inspection revealed two engine through bolts had failed and a cylinder was cracked.

## DEFECTS

### Fly Synthesis Texan 600 LSA

**Airframe: 773hrs. ttis.**

During a scheduled inspection, a hairline crack was found in a carbon fibre bulkhead under the floor beneath the RH seat. At the time of reporting, a repair scheme was sought from the manufacturer and later successfully completed by the maintenance organisation.

### Jabiru SP4

Cracks were found in the welded ends of a muffler at 1.5 hours causing scorching and blistering in the engine cowl adjacent to the muffler. The problem was found to be due to poor weld penetration. New heavier gauge ends were supplied and fitted.

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# 25 years ago

by Mark Clayton

## December 1988

**N**intendo was the best-selling Christmas toy, *Rain Man* had just premiered (quickly becoming the year's highest grossing movie), and *TIME* magazine's cover story *Will This Bird Fly?* announced the B-2 Stealth Bomber's public arrival.

Later that same month, on December 21, the shattered remains of Pan Am Flight 103 would plunge into a field near the Scottish town of Lockerbie.

It was against this background that the Australian Ultralight Federation (AUF) lodged a four-page submission with the Australian Law Reform Commission, making known its concerns about the proposed introduction of product liability legislation. Pointing to developments in the US, the Federation felt the proposed legislation might also expose Australian aircraft owners to frivolous or opportunistic compensation claims. Our magazine cover that month featured the President's (the late Matt Howden) Grover J-3 Kitten 10-0012 which, coincidentally, is still flying in Tasmania. A full page advertisement on page two invited 'well presented' applicants 'preferably with a sound knowledge of ultralight aircraft' to apply for the (new) half-time position of Operations Manager.

It was reported in this issue that the Hawke Labor Government had removed the 20% sales tax which had previously been levied on all aircraft, ultralights included (curiously though, the exemption did not extend to hang gliders).

Neil Hardiman also reported he was a quarter of the way through his attempt to circumnavigate the continent in his Airborne Trike (sans ground support), having departed Newcastle in early August that year.

The Letters to the Editor was unusually constructive, foreshadowing the introduction of dual CDI ignition systems by Rotax, and expounding the relative merits of spin training.

Much of the December issue was given over to the Executive Director Tom Turner, who elaborated what he perceived to be the likely impacts of the Civil Aviation Authority's ARP (Aviation Regulatory Proposal) 88/10 - from which CAO 91.10 and CAO 95.55 derived.

His lead-in proclaimed there should be no fundamental arbitrary limits on ultralight operations because of the class of aircraft involved.

The AUF in December 1988 had 1,995 certified pilots and 1,280 registered aircraft.



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# 1909

The date of the first woman airborne in Australia. Architect Florence Taylor at Narrabeen.

# 724

Average hours Qantas pilots fly per year.

# 26.9

Average age of a GA aircraft in 2009.





# Celebrating



## 30 YEARS

2013-14 marks the 30th anniversary of the birth of ultralight flying in Australia.

From humble beginnings, mostly in farmer's paddocks by a few brave men with little money but a burning need to fly, the AUF/RA-Aus organisation has grown to be more than 10,000 members strong, by far the biggest aviation fraternity in Australia.

Help us celebrate our heritage by contributing your memories.

*Sport Pilot* is looking for your stories and photos from the early years to share with everyone. We will run them every edition for the next 12 months as part of the 30th anniversary celebrations.

Send it all to [editor@sportpilot.net.au](mailto:editor@sportpilot.net.au). Please remember to fully caption any photos.

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# members' market

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TT 361 nil incidents, Rotax 618eng (RAVE) for high altitude. 3 blade Bolly prop. Modified HD undercar-

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## 3227 JABIRU J120C



November 2009, 313.2 hours total time airframe and engine- Altimeter, ASI, MicroAir radio + intercom with two headsets, Davtron chronometer, Oil pressure, Oil Temp, C.H.T, Volt meter, Slip ball, V.S.I, Tacho, landing light and strobe, Colour 296 Garmin GPS. Always hangared, perfect presentation, nil accidents never used for training. QLD \$47,750.00. Phone Owner on 0423 532 621

## 3249 1/6 SHARE JABIRU J230D

Jabiru j230d 1/6 syndicate share, micro air VHF x 2, transponder, avmap insured and hangared at Tooradin VIC, 50 hours on latest engine \$13500. ONO. \$140 PCM and \$70 per hour. Call Glenn Wattie 0418 320 385

## 3276 AIRBORNE MICROLIGHT XT



Tourer trike. Rotax 912, 4 stroke engine, Streak 3 wing, Microair M760 dual comms radio, large windscreen, log book, manuals, registered RA-Aus til 27/9/2013, always hangared, always privately owned, excellent condition, lots of extras. \$38,900.

Phone 0429 619 987 flblainey@gmail.com

## 3294 JABIRU LSA



Jabiru LSA Factory built 1998 TT 765Hrs Recent paint new windscreen; Big wheels; Basic panel; Garmin GPSMAP196; L2 maintained; I-com VHF; UHF; Located Gladstone Qld; \$30,000; Ph 49756790 Mob 0400317085 rdgram86@yahoo.com.au

## 3301 SAVANNAH - STOL



Rotax 912 80hp. DUC bipala prop. Slats fitted. Has extra instruments and new MGL trans and coms system fitted. King transponder. wheel spats. Fully maintained and never had an accident. Ideal aircraft for low hours pilot. Always hangared. \$45,000 Situated at Mandurah, contact Garth at garth.lb@bigpond.com or 0409 599 845.

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## 3385 SKYFOX GAZELLE



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## 3387 JABIRU 3300 6CYL.



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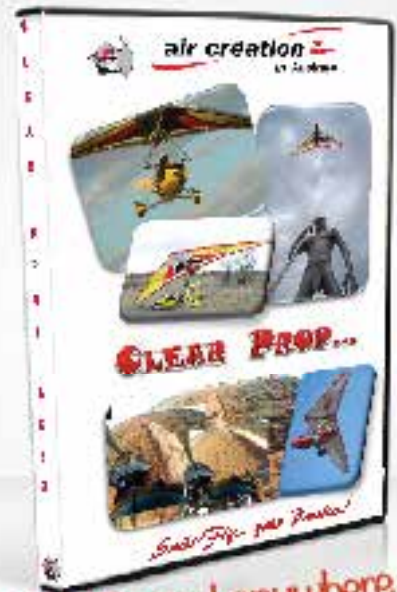
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**3551 JABIRU 230D**

09,Factory,TTIS360hrs.Reg8/14, own hangar, immac as new, L2 LAME maint, Redleather, EFISD100, AVMAP EKP IV GPS, 2axis AP, MicroairVHF & Xponder, remote ext plug, MP3 music, full covers nose to tail, wing strobes, all updates, new prop, rotors & pads, MLG wheel bearings, many spares. \$94,000 incl GST, 0419555726

**3558 2008 AIRBOURNE XT-912 TOURER**

Reduced to sell.Streak 3 Wing 412 hours, Base 515 hours included- large windscreen, Bolly spinner, engine cowl, Microair M760 Dual Com Radio, 1 near new Microavonics helmet and a Garmin Aera 550 GPS. Registered Trailer included. Always hangered, excellentcondition.

Located in Albury NSW. 0416 657 705 Email [henjus1@hotmail.com](mailto:henjus1@hotmail.com) \$34,500

**3561 AUSFLIGHT DRIFTER W/B CERTIFIED**

Ausflight Drifter w/b Certified 582 bluehead oil injected long range tanks radio eng 131 hrs good cond easy to fly contact Lindsay . [boydli@inet.net.au](mailto:boydli@inet.net.au) . 0414586255 \$15,000

**3564 RANS S12S SUPER AIRAILE**

Reduced to Sell - Multi award winning, 1 Owner/ Builder, Rotax 912, 430 hrs, 2 seat side by side, Lots of extras, Nil accidents, Garmin 196, Stol performance. Great plane. \$40,000. For more info & photos Phone Brian 0418 802 002

**3565 HANGAR FOR SALE**

5 year old, 12mtr by 9 mtrs, 2.4 mtr door height. Crushed rock floor. power connected. Folding doors, 4 skylights. Located Colac, 45 minutes Gelong and Surf coast, 1.5 hours West gate bridge. Only 1 hangar site remaining at Colac airfield. \$28,000-00 ono. Phone 03 5233 8244

**3566 SONEX**

Plans built Sonex. First flight Dec 09. 95 hours engine and airframe. Stratomaster Maxi single instruments, ICOM radio, separate analogue ASI, Cruise 90-95 kts@16 l/hr. Aerovee engine. Located Colac airfield . \$35,000-00 no GST. Phone 0352338244

**3570 TERRIER 200**

Terrier 200 Lycoming 0235 740hrs mcauley all prop. 20hrs. full dash adj. seats strobe. afi fuel, Lorraine air map, e/trim dash & forward, 152 cesna transponder and encoder always hangered. I am 78 with heart problems this is not a toy aeroplane must sell \$65,000,00 ono 07 40669049

**3574 THE GREEN HORNET**

The Green Hornet is a 2 seat side by side all metal aircraft. TTIS:268hrs Built 2006 Cruises 80 Knts carries 80 ltr fuel. equipped with ASI ALT Microair VHF Rotax engine gauges. powered by 100HP rotax with warpdrive prop asking \$65000 very negotiable contact Alan on 0429461569

**3575 DRIFTER 582**

Austflight wire braced Drifter, Royal blue with matching wings, upright engine mount, Rotax 582, Brolga propeller, "big boy" cockpit, electric prime, wheel fairings, repainted & new wing fabric some years earlier so looks good. Engine 130hrs since o/haul, new crankshaft, pistons, rings, bearings etc. Only \$13,900. [mail@goflying.com.au](mailto:mail@goflying.com.au)

**3577 IVO INFLITE ADJUST 3 BLADE PROP**

As brand new, Ivo magnum inflite adjust, with constant speed gov as well. 74" 3 blader. Was trialled for 2 hrs max, not suited on a gyro that cruised at 60kts best. \$3300.00 neg. Contact Russ 0418 276 747

**3578 REFURBISHED 503 MAXAIR DRIFTER**

650hrs, 19-3443, Refurbished by Wayne fisher at start of year, new skins, new 69l fuel tank, new tail post and wheel and landing gear. New lcom radio fitted selling with new microavonics helmet with builtin headsets located dalby, good condition, great fun to fly QLD \$12000 Jamie 0448610103 [jamiiebacon@hotmail.com](mailto:jamiiebacon@hotmail.com)

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Carbon Cub SS by Cubcrafters Inc, 100 hours, ready to fly away. 180 hp, optioned up, you will never get one at this price again. Tough, Safe, Powerful, and most off all FUN. Come and fly the most exciting cub ever, Tyabb Victoria. Call 0414 444 971 [www.cubaircraftaustralia.com.au](http://www.cubaircraftaustralia.com.au) \$230,000

**3581 EVEKTOR SPORTSTAR 2004**

"Dimples" Certified aircraft not LSA, 24-3978, TT 1100 hours. 912 ULS 100hp, Kaspar In-flight adjustable prop, Adjustable rudder pedals, MP3 plug, Garmin 196, Tru Trak ADI, Bendix King Radio and Transponder, intercom, cabin covers, Aircraft tyres, Koger sunshade, 105kt cruise, excellent condition, SLIGHT hail damage. \$62,000 Ross 0412 484 279

**3582 JABIRU 230 D 2007**

190 hours, Factory Built, 24-5221 Private use, excellent condition, transponder, vertical compass, FS- 450 Fuel Flow, Garmin 296 , MP3 plug, External power socket, Always hangered, regular maintenance, recent new battery, 10 ply mains tyres, Spats included but not fitted. clean, faultless. Bargain Price \$72,000 Ross 0412 484 279

**3583 SAVANNAH 19-4189**

Rotax 912 ULS 100hp TTIS 380hrs engine and airframe.New 3 blade warp drive prop.Factory modified undercarriage.Large tundra tyres.Double wing struts. Upgraded to 560kg MTOW.L2 maintained. Standard instruments plus electric turn and bank gauge.Garmin 196 GPS. Xcom VHF radio and intercom.NIL accidents always hangered.Inspect at Euroa Airfield Vic. Ph Joe 0427941072 \$52,000 ono

**3588 SKYFOX CA22 (CASA CERTIFIED)**

Built - Dec 1992. Rotax 912A. CASA certified. 1272 TTIS. ADs completed. Full panel, Bendix-King VHF, Uniden UHF radio, Garmin GPS-100AVD and fuel-flow meter. Bolly ground-adjustable prop. Wings fold for storage - 10 minutes setup. Nil accidents/training. CASA certification documents. Bannockburn, Victoria. \$30,000 (negotiable). Nick 0419 305 554 or [nick@vk3ty.com](mailto:nick@vk3ty.com).

**3590 INSTRUCTOR NEEDED**

Senior Instructor for sport aviation flight training needed for our flying school located north west of Melbourne. Capable, reliable, personable senior instructor available 2-4 days pw (including min 1 weekend day). [www.airsports.net](http://www.airsports.net) AirSports Flying School (03) 9744-1305.

## 3592 NOOSA AIRSTRIP PROPERTY



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## 3594 JABIRU CYLINDER HEADS



Jabiru 3300 Bare 6 cylinder Fine Finned Heads. Bing Carby to suit Jab 6cyl. Both factory run time only. Located Nowra NSW. Contact Doug: 0438 642 225 or doug@scdcs.com.au

## 3595 JABIRU LSA55



Factory Built 55/3J, 2002, TTIS 919 hours, 2.2 solid lifter engine, 80 hours since top end overhaul. Standard instruments including Garmin 196, VHF and UHF radios. Strobe and landing light, 85 litres fuel and spare prop. Cruise 100 knots. \$30,000 ono, hangared Moruya. Contact Steve on stephen@renbury.com.au or 0421 032 197

## 3596 TYRO MK 2



Tyro Mk2 fun flying machine, fully refurbished with stiits polyfibre, painted in twopack aerothane. As new VW 1600 twin port aero engine swinging a new Ark tech propeller, plus spare. The usual flight instruments and more. This is as good as new! 12 months rego. Call Mick 0409091495. \$12,000ono.

## 3600 TEXAN 600 FLYSYNTHESIS 1/4 SHARE



2X1/4 shares for sale. Dec 2007, TT:850Hrs 2000 TBO, L4 maintained, Garmin SL40 comm, Garmin GTX327 transponder, TruTrak ADI3 AH, Trio Avionics 2 axis autopilot coupled to Garmin 695 GPSMAP, ballistic parachute, Rotax 912ULS

100Hp, 100l fuel, cruise speed 115/120Kts, carby heat, elec trim, toe brakes, wheel spat, wings & tail strobe, nav light, noise cancelling headsets, immaculate aircraft always hangared at Tyabb, Vic. \$27,500 each share Ph: Luc 0417371871

## 3603 AIRBORNE XT TUNDRA 912 S3



2008, 199 hrs Always hangared Excellent condition Skydat GX2 Two helmets/headsets Microair transceiver Tall windscreen Maintenance log Reg. 26/03/14 Extras incl: Custom heavy duty trailer Heavy duty

covers All cross-country bags Training bars \$44,000. Test flight avail. w/qualified instructor. Contact Geoff 0409 913 858.

## 3606 FOR SALE SONERI PROJECT



Complete set of plans & photos...compass, altimeter, ASI, Garmin GPS, Icom radio with VOR, Gas Colator, Flight timer, balance ball, Fuselage constructed comes with fabric, glue to complete plane. Aeropower 80hp engine, two props & spinners . all bolts, nuts, and rivets. all that's required is assembly. Contact: Barry on baajrowell@gmail.com or 0418 659 900

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Super pup single seater Jabur 2200 motor Air frame approx 500hrs engine approx 350hrs In good cond. \$16,000 firm no offers. Please contact Greg on 0407 750 325 for more information.

## 3613 JABIRU J200 19-7169



Jabiru J200 19-7169 Always hangared, & serviced every 25Hrs 3300[120 ] Hp solid lifters TT325Hrs Positek oil Cooler Wingtip strobes, ICOM flipflop radio, Microair Transponder, Jumpstart external socket & leads, Garmin 196 GPS, Nil Damage or Accidents Quality head sets \$55.000 Trevor 0418445937 temart@tpg.com.au

## 3614 SLEPCEV STORCH



Slepcev Storch 19-3094 ,private use only 200 hrs , Rotax 912A , Bolly prop , Microair 760 vhf , gme TX 3200 uhf . Plumbed for l/r fuel . excellent condition . Always hangared. Suit property owner or short field operator. Contact Peter 0427958229 \$57500.00

## 3615 J160 YADG SYNDICATE SHARE



One syndicate share is available (Seven members total) for a factory built Jabiru 160 at Aldinga airfield. Has own hangar. LAME maintained with excellent availability. Super cheap flying in your own plane! \$8000. Contact: steven@jaglanbeta.com or 0430 464725.

## 3617 ALPI PIONEER 300 HAWK



Built 2011 Ttis 115 Hours, As new 300 Hawk, Retracts, CSU, Optional 3rd fuel tank, Toe brakes, TruTrak AutoPilot, Garmin 495 Gps, SL40 & 327 Radio & Transponder, Engine EFIS, Ray Allen A/H, 2 x Lightspeed Headsets, Prop and Canopy covers. Condition 10/10 Available Now. Price \$115000 Tel 0402338402



**3618 JABIRU J230D**



Jabiru J230D, Rego 24-7419. Factory built May 2010, 220 hours. Factory Option 6 Panel. Dynon 180 EFIS Garmin 495 GPS, Microair Radio and Transponder Twin Strobe Lights. David Clark Headsets. always kept in Hangar. Nil damage. \$88,000 Contact Ian: 0419703926

**3619 RV3 PROJECT**

RV3 project. Empennage complete. Quick build wings. Most of kit still in the crates. \$20,000 phone Rob 0417 826 321

**3620 SKYFOX CA21**

Sky fox CA21.Stripped for rebuild, propeller wings and ailerons have been rebuilt and signed off. Rotax 912 needs overhaul. All parts complete including instrument panel and log books.2164 hrs \$10000 ONO QLD 07 33002879.

**3621 KR2 ALMOST COMPLETE PROJECT**



Registration lapsed KR2 99% complete. Needs new prop, new / repaired engine cowlings, redrive reassembly (all parts included), odd jobs and paint. Subaru ea81, flaps, tricycle u/c easily re-converted to tailwheel. Includes fitted intercom and older style GPS Lapsed licence forces sale. \$14,000 ono. Martin 0419 333 525

**3624 JABIRU CYLINDER HEADS**

JABIRU CYLINDER HEADS Six cylinder heads (no associated hardware) to suit Jabiru 3300 engine with hydraulic lifters. 6 hrs in service since new. Sell as complete set only. \$ 1500. Phone Uwe 0428484313

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600m private airstrip, Murrumbateman area, 20 mins

Canberra, highway access, 12 x 12m hangar, OCTA. House 5 bed, 3 bath, tennis court, 4 car garaging, established gardens. 40ac income producing property, currently running 70 prime lamb ewes. Shearing, machinery, hay, workshop sheds, large cool room, 2 stables. \$1.3m. Phone 0402413126.

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Simply the BEST CTsw available with many extras ( e-mail for details) 120 kt cruise Amazing Visibility 7+ hours endurance, Auto Pilot,Transponder and BRS just serviced to 2019 Completed its MAJOR 500 hly inspection with LED Nav Lights being replaced so no real expenses looming- they've all been covered. peter@simplyspecs.com.au

**3632 ROTAX 912A**



Rotax 912 A, 80hp, 1997 with 1,100h TTIS, good condition with service history. Comes with regulator/rectifier, oil reservoir, oil cooler and new aluminium radiator. All coolant hoses and carby sockets replaced. \$6,500 ono, contact Chris on 0418 493 989

or chrisoz@gmx.net

**3633 WANTED ROTAX 503 DCDI**

Wanted Rotax 503 DCDI, any condition considered, price negotiable. Phone 08 9446 6674 or 0434 558 038. Also Wanted gearbox parts for Rotax 503.

**3635 GAZELLE AND TRAILER**

With excellent custom built trailer and CASA required wood prop. Lots of extras, gps, spats. For photos and info phone mob. 0417492065 south australia Paul

**3636 SPORTSTAR**



The recycled beer can needs a new home. Low hour 2007 Sportstar Plus in excellent condition. Standard VFR instrumentation complimented with a Garmin GPS286, electric T&B and solid state Al. Garmin SL40 Radio and GTX327 transponder. No dings, dents or snags, just needs someone with a bit more time available to love it. \$96,000 Phone: 0418 692 878

**3637 KR2S**



Certified Aeropower VW with dual ignition and Sweetapple Prop. Engine/airframe TT 370.

Built 2005 and UL registered. Very economical 120Kts at 12-14 L/hr (50L tank). Good condition, always hangared. Comes with Airmap 1000 GPS and has bellyboard (flap) fitted. Reluctant sale, located WA. \$32000 ono. 0447180958.

**3639 ERCO ERCOUPE415C**

1946 Ercoupe 415C project. Ex N2465H, serial No 3090. Corrosion free Coupe with most AD's completed. New glass, suspension donuts, cable loom and much more. C85-12 engine. All log books supplied. Well advanced. Can register RAA or VH. Inspection welcome. Brian. 0394591779 or 0400166762 or bjgarrett@optusnet.com.au Offers over \$21k

**3640 AEROCHUTE**

2 seater Reg to April 2014, 503 Rotax, Electric Start, Bolly ground adjustable prop with spare IVO prop. Icom radio & flightcom headsets. Open trailer, ramps, jerry can holders, large front equipment box. Many extras. Chute checked Sept 2013, and LAME check before sale. Good entry level machine. Gippsland Vic. Price: 12,500 Phone: 0412946535

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French designed, extremely manouverable, light and crisp on the controls. Take-off 150m, Lands inside 300m Stalls @ 27kts, Cruise @ 90kts, Climbs @ 700fpm, Range of 3hrs. Blackburn Cirrus Minor 2 engine & new Invincible Airscrews Prop. (includes extensive engine spares package) must sell. \$25K ONO Phone: 0458 763 461

**3645 FLIGHTSTAR IISC**



Must sell brand new, never flown Flightstar IISC, put together with excellent attention to detail. Will part with it for less than the cost of the kit. Plane completed with a fully enclosed cabin, dual controls, custom carpet interior, Falcon instruments, in-flight trim, brakes and mylar coverings. Call 0412 506 242

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ROTAX 912 UL 80 HP Engine, June 2005 delivery Serial 4407 i 095, Total 460 hours \$8,900 negotiable Melbourne Phone: Maxwell 0418 316 207

## 3647 QUAD CITY CHALLENGER CWS



Quad City Challenger II CWS. Built 2000, 224 hours TTIS. Full history. 70 Knot cruise @ 18l/hr. 60 Litres fuel. 65hp Hirth 2706, electric and pull start. Brolga prop. Magellan GPS, radio & headset. Needs cosmetic work but only \$6,000! Hangared Melbourne. Call Mal on 0422 201 312.

## 3648 SKYDART MK III



Rotax 447, 150hrs TBO. Great little aircraft for low hours pilot. Lots of fun. Sound skins, new tail feathers, all round in good condition. All instruments, ICOM radio. Reliable and ready to fly. \$6,500 ono. Hangared North Queensland. Can be dismantled for transport. Contact Volker at volkerschwerdtfege@gmail.com

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80HP Jabriu Motor 274 TT, serviced every 25 hours, latest spec, easy start modification, complete unit includes exhaust & oil cooler, currently in aircraft, test fly available, wonderful engine now upgrading to larger HP. \$6,980, 60x44 propeller good condition \$500 brianwalkerocceanstwo@hotmail.com 0459 027 718

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Avalon winner 2007. Best overall recreational aircraft. Excellent condition always hangared. TT 435hrs. Serviced every 25hrs. Microair radio, Garmin 296 and 95 GPS. Low fuel light, heater, 2 strobes, manual flaps. Nil accidents. Reduced to \$69,000 ONO. Phone: Bevan 0428 536 338 Email: bevanlane@bigpond.com

## 3651 ALPI PIONEER 300



Factory built. Rotax 912 100HP Engine, with electric Variable Pitch Propeller and retractable undercarriage. Fitted with Pioneer Super Wing. Comprehensive avionics systems fully factory installed. Nil accidents. Hangared since new, meticulously serviced. Deceased estate. \$110,000. Phone Michael Bartlett, 0408 719 742 Email: mikes560@hotmail.com.

## 3657 RESURGAN MKIII



Ultralight Aircraft reg 10-0012 . Has not reached 70 hrs. flight time. In good condition. Phone: Frederick 0408 540 721. \$3,250 ONO

## 3658 SAVANNAH VG



Savannah VG, 100HP rotax, 250 hrs TTIS, Large main wheels, ext baggage, long range fuel tanks, Warpdrive prop, Odyssey battery, GPS, VHF and UHF. Great little aircraft. \$52000. Phone 07 4623 2645

## 3659 WAIEX 3300



LAME Built.135-140kts @2800rpm, climb 1400fpm gross 2000+fpm solo, stall 35kts full flap, +6-3g. 2000+hr build, flush riveted, corrosion treated/epoxy primed, TracyO'Brian gear legs/disc brakes, speed fairings, Dynon EMS Microair radio Garmin296, leather interior. Solid lifter Jabiru3300, tuned exhaust, flow balanced induction, compressions above 75/80, \$89,000 serious inquiries call 0447 798 710

## 3660 JABIRU J160-C



Immaculate condition factory built october 2006, 560 TT engine and airframe. Well equipped Dynon D10A, Microair transponder and radio, PCAS, Trio autopilot, Garmin pilot 3,cabin covers and more Always hangared, regular maintenance and nil accidents. One owner Jabiru and never used for training. Located S.A. \$56,000 Contact: theo@graftedvines.com.au 0418 805 204.

## 3661 INSTRUCTOR WANTED

Rewarding flying Job/ Career. Instructor needed to join an expanding RA Aus Flying school in Narabri NSW. Training in Tecnam Sierra, Skycatcher and Faeta, plus opportunity to expand. Prefer SI but can train the right person if needed. Call and discuss. Ken 0457 811 627. Email ken.flower747@gmail.com

## 3662 CLASSIC SAVANNAH VG AIRFRAME KIT

New complete and still in box. Extra wing tanks. \$25,000 0419 215 514

## 3664 CORBY STARLET



A real pilots aeroplane, must go to make room for 2 seater RV4. Sweetapple prop, Jab 2.2 replaced 1.6 original, Stitts paint, Vertex radio plus headset. Easy 100 kts cruise and low engine temps. Good climb rate. Always hangared and no damage. Ian Borg 0749750209, 355yen@tpg.com.au

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FOR SALE Marian Qld 4753 25kms to Mackay HOUSE ON 60 ACRES with private airstrip.4 bedrooms plus study.7.5 x 9m 3 bay colourbond shed and12 x 18m shed.Solar hot water system and solar power grid. Private air strip at back of house,fully fenced pastures for cattle.PH:4954 3929/0447 591 105.

## 3668 SIGMATEK DIRECTIONAL GYRO VACUUM

I have a new sigmatek 4000B-30 directional gyro sitting in its foam packaged box. This is ideal for someone who wants a new directional vacuum control instrument to replace a faulty one or is working on a project. Asking price of \$600 is well below cost, contact Carl 0431 800 348

## 3669 DIMONA MOTORGLIDER SYNDICATE



The Melbourne Motorgliding Club operate a HK36R Super Dimona out of Moorabbin offering the challenge and excitement of soaring with the convenience of a Rotax powered, two seat (side-by-side) cruising motorglider. We are seeking expressions of interest in syndicate shares in the aircraft. Please email barry.hendy@gmail.com for more information.

## 3670 AIRBORNE REDBACK TUNDRA



Airborne Redback Tundra for sale. Two seat microlight. Only 132 hours total, excellent condition. Rotax 503 Engine. Wizard wing 132 hours. Radio, intercom, dual headsets and helmets, 2 flying suits, stone guard, saddlebags. Purpose built trailer and Pumpkin Patch cover. Tundra kit fitted recently. All manuals. \$15750 ono. Phone 0487 340 554



**3671 JABIRU SK**

L2 built & maintained. Serviced 25 hrly. GA instrumentation. TT 636 hrs engine hrs 164 always hangared, big foot wheels & spats, 65 ltr tank, 95/100 kts 12/15 ltrs/hr. Nil accidents, in excellent condition. Phone: 07 4939 8431 Rob \$30,000 ONO

**3672 JABIRU J430**

4 seater OR register 2 seater RAAus. Upgraded engine- latest plenum, oil relief manifolds (no oil between changes) 6 CHT6EGTs Fuel flow. 1 mag & 1 electronic ignition, 1 rdium plugs, K&N filter. Carbon ground adj. prop. Cummins spinner. Dynamically balanced. Strobe Landing Light. 10 ply tyres. D180EFIS, ICom A210 radio GTX327 transponder. PM501 intercom Aera500 gps Trio Auto Pilot Althold Climb Decend. ZAON anticollision. Always hangared inland. \$88000.00. Gerard 02 6721 3029 its181@hotmail.com

**3673 POWERED PARACHUTE CANOPY**

Performance Design Barnstormer 400sq ft. Canopy. 4 point pickup with safety risers. 11 cells with Mylar stiffeners. Silicone coated ripstop nylon fabric. Blue, black and white colour only 43 hours use. Excellent condition, one of the best chutes ever made. \$1750 ono. Phone Ron 0407713273

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New Viking Aircraft Engine Inline 4, Liquid cooling multi-point fuel injection, 110hp @ 5,800 (2,500 prop) Torque (lb-ft @ rpm) 247 @ 4,800, 81kg with dual FADEC, dual fuel pumps, Viking Bus & Warp Drive Prop included. phone Jon Gooding 0412091487

jgooding@chw.net.au \$17990

**3676 ZODIAC 601XLB PROJECT**

Fuselage built 80%; tail feathers on; Jabiru 3300 installed; instruments 80% installed; one wing 70%. Complete airframe including XLB wing mod. New engine not yet started. Nothing to buy to finish. \$30,000 all up. 0427 115 225 didja@skymesh.com.au

**3677 ZENITH CH 750 STOL**

Zenith CH 750 STOL, the largest STOL aircraft in its Class MTOW 600 New aircraft on its way from USA, Rotax 912 ULS (100hp) Cruise 75 kts, stall 30 kts, Dynon D100, Icom 210A, Garmin GPS, 21" tyres. \$60000 ono call Allan 0417 121 111 Bendigo

**3679 FOXBAT A22**

Foxbat A22 Manufactured 2005. 100HP. Unregistered. Low Hours Hangared since new. Needs new Windscreen fitted. As is, where is. Reasonable offers accepted. Contact 07 5465 9154. 0427 820 721.

**3680 XT-912 TUNDRA SST WING**

Airborne Microlight 2009 XT912Tundra, 2 Brandnew Flycom Helmets & Intercom, Samsung 7" Tab with Oziexplorer & maps, Rotax 80hp 4 stroke Engine, SST wing, Rear disc brakes, Microair M760 radio, Training bars, Landing light, Bar mitts, High windscreen, Engine cover, Log books, All manuals, HGFA registered, 393 hrs Always hangared, Dixons Creek Victoria. \$39,500 or \$38,000 without helmets. Phone Steve 0419 879 340

**3682 TRANSPONDER AND RADIOS**

Microair T2000-SFL-01(7) transponder factory rebuilt, still in the box with with release certificate etc., includes ACK A-30 encoder, antenna and wiring loom as removed. \$1000. Icom IC-A200 radio with rack. \$450. King KY-97A TSO'd radio with rack. \$800. Open to offers on all items. 0437839190 or mark@paneloopy.com.au

**3683 DRIFTER**

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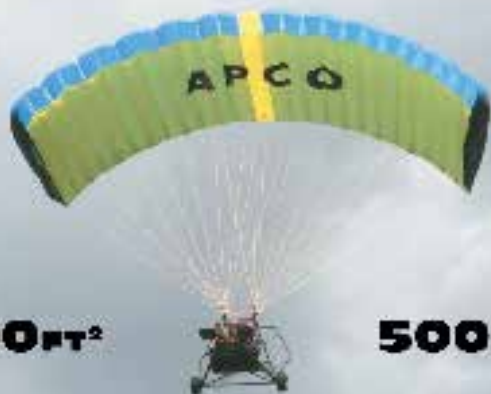
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# HAPPY LANDINGS

## Tyler takes off

by Halden Boyd (proud dad)

**Evans Head teenager, Tyler Boyd, celebrated his 15th birthday in a way few young people do. Tyler took the controls of a Foxbat Aeroprakt 22LS and went solo, winging his way toward his career path as an airline pilot.**

"I like flying because it is a challenge and I get to see things others only dream about," the young pilot said when he touched down at the Evans Head Memorial Aerodrome.

"It is funny because my friends have been paying me out about flying solo and getting my licence before I can drive a car," he said with a with an ear to ear grin.

Tyler was greeted on the ground by pilots from the Northern Rivers flying fraternity and bit into a big slice of birthday cake at the local hangar.

Tyler was one of the youngsters caught up in the RA-Aus controversy around changing junior



membership rules last year to raise the legal minimum age to 15.

"I was upset I was grounded, but then I thought to myself I was going to prove a point to RA-Aus and set myself to solo when I turned 15," said Tyler.

His instructor, John Gardon from Air North, was pleased with Tyler's result.

"Tyler was determined to get there. He does have talent and a real future ahead of him in aviation if he keeps this and his study up," said John.

Tyler was also the youngest pilot ever to solo at the historic NSW Heritage Listed WW2 Evans Head Memorial Aerodrome in Northern NSW which is home to the annual Evans Head Great Eastern Fly-In. The popular event is scheduled for January 11 and 12.



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](mailto:editor@sportpilot.net.au)



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