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JUNE 2012 VOL 13 (6)

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SPORT PILOT

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Get Involved! Have Your Say! Send in stories, articles letters and photographs. Let everyone know what your club/school/group is up to. Make sure we all know when your fly-in is coming up. And don't forget to send us photos of the big day. All contributions welcome. Contact editor@sport pilot.net.au

WHAT IS RA-AUS?

Recreational Aviation Australia Inc is an association of recreational aircraft owners and pilots. It exists to look after the interests of more than 9,200 members across Australia. The members fly a variety of aircraft under 600Kg, some factory built, others built from kits, and some home built.

WHAT QUALIFICATIONS DO I NEED TO LEARN TO FLY?

If you are medically fit and physically capable, and you are above the age of 15, you can earn a pilot's certificate. You can actually learn to fly before then, but you can't go solo or get your certificate until your 15th birthday. And if you are under 18 years old, you will require written parental consent. Flying a recreational aircraft is not as complex or demanding as other types of aircraft. And once you have become a recreational pilot, it's a reasonably easy step to progress to more complex types, if you are looking for a career as a pilot.

Holders of PPL, CPL or ATPL licences who want to obtain an RA-Aus Pilot Certificate can undertake conversion training at an RA-Aus flight training facility.

Every applicant must complete such dual training as deemed necessary by a CFI and, in any case, shall have not less than 5 hours experience, in an aeroplane registerable with RA-Aus, which shall include a minimum of one hour solo.

WHERE DO I START?

Call RA-Aus head office in Fyshwick in Canberra. The staff can help by telling you what's required and point you in the direction of the nearest flying school or club to where you live. Or you can call one of the board members listed here, who represent different Australian regions. They can answer all your questions.

FINDING YOUR NEAREST FLIGHT TRAINING FACILITY (SCHOOL)/CLUB

Email ops@raa.asn.au

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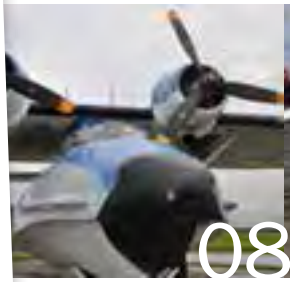
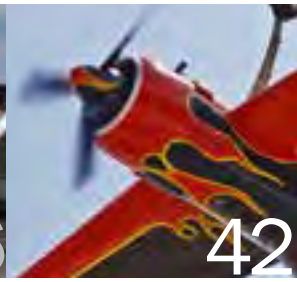
TERMS AND CONDITIONS

>> Cover: The new Rotax 912iS. Photo supplied by BRP





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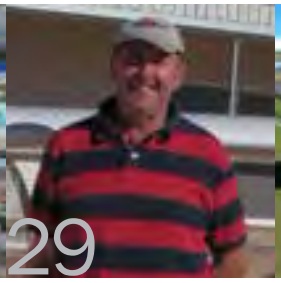

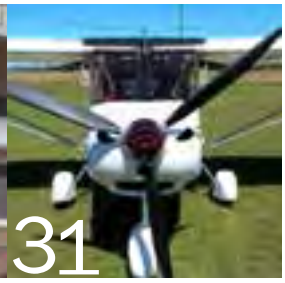

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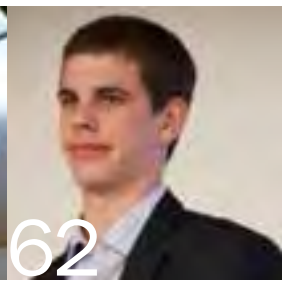
"Clean, green and the first new engine from Rotax in 14 years



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President's Report

STEVE RUNCIMAN

IT would have been nice to think that there would have been a period of respite following NATFLY, but not so for the staff and board members of RA-Aus!

The office is currently two staff down, Alana and Sara having left for new pastures. This has meant the remaining staff has had to cover these positions, so you may see a slight delay to your normal service. I ask for a little bit of patience during this time. The recruitment process has begun, and in the meantime, the staff will do everything in their power to ensure the administration side of the house remains as efficient as it always has been.

This month we have seen a number of issues which have caused a heavy workload for the staff. After a follow up CASA audit, it was discovered a number of aircraft files were still missing a number of documents, including photographs, and there were some issues with other parts of the documentation.

It meant a number of aircraft were grounded for a period of time until the issues were resolved. The owners and importers of the aircraft were informed and the staff worked closely with CASA, the owners and the importers to rectify the issues.

The job of checking the files is a long and slow process, which continues and is expected to take another six weeks or so. Most of the issues are minor and can easily be resolved by the owners supplying the requested documentation. As previously reported, the team has thought long and hard about systems and procedures we use and has been developing a rolling audit program to ensure the problems do not recur. These are being put into place.

We have also had an issue with our insurance this month, which fell due on the 30 April. As is normal, our insurance company is looking for the best solution for our needs. Our broker has been working with the insurance company and, at the time of writing this, we have an offer for renewal, which our broker is looking at. It seems that once you mention aviation, many insurance companies are reluctant to go any further.

This has been very unsettling for the board, as you can imagine, and we have seen two board members resign over the past few weeks, Bill Cain from Victoria and Don Ramsay from NSW/ACT. While I am not able to go into any great detail as to their particular reasons for resigning, I feel I can say the unsettled period over the past month had something to do with their decision

I would like to take this opportunity to thank them for their hard work and wish them both well for the future. Don's resignation has meant the Treasurer's position is now vacant again and the board is taking steps to fill this important executive position without delay.

I previously promised that a NATFLY survey would be sent out with the magazine and you will find it enclosed in this edition. It should only take a few minutes to complete and it would be appreciated if you would do that and send it back to the office, by the method shown at the bottom of the form. NATFLY is your event. It is important we get it right. As such, we need to know what your thoughts are. Thank you in anticipation.

Work on the website redevelopment continues. Towards the end of this month training will be provided to staff members to allow them to do much of the updating themselves.

As you all know, it is close to the time for board elections. You will soon know who has 'put their hand up' to represent you and I ask you take the time to cast your vote when the time comes. It is your organisation and it is important you have your say in who will make the policy decisions in the future.

We will, of course, have our AGM in September. This year it will be held at Heck Field, near Jacobs Well in South East Queensland, which will be followed by the board meeting. The intention is to start the AGM at 1100hrs and follow it with a lunch. This will allow the attending members the opportunity to meet the board in a less formal setting. Please come along if you are able.

We also have NORRA-Aus from 29 September to 01 October. By all indications it is shaping up to be as successful as the last one in June 2010.

So there is plenty going on and plenty more to come.

Remember to check and double check, including documentation, before you next take to the sky and remain safe while enjoying your passion for aviation.

calendar of events

CASA Safety Seminar, Caboolture
3 June
A day of information and entertainment for all aviation people. Free, plus a lunch will be provided. Donations to Angel Flight. For more information, Sean O'Driscoll ycabevent@gmail.com

Queen's Birthday Fly-In
9-10 June
Sunraysia Sport Aircraft Club will host its annual fly-in and dinner at Wentworth Airport. For more information Brian Middleton (03) 5022 7783, 0408 690 650 or brianmiddleton12@ceinternet.com.au

Yarrawonga Flight Training BBQ
10 June
YFT Hangar 19, John Duigan Drive, Yarrawonga, Victoria. Lunchtime BBQ Chat'n Chew. All welcome. Cost is a gold coin. A plate of salad or sweets would be gratefully accepted. RSVP (03) 5744 1466.

Wings over Warwick
8 September
Queensland Recreational Aircraft Association incorporating Warwick Aero Club (www.qraa.info) hosts the event at Warwick Aerodrome (YWCK) - 1600m, all bitumen, no landing fees. (www.warwickaerodrome.com) All aircraft welcome. Classic cars, motorcycles and model planes. Food and drinks available from 7.00 am. Avgas available. Fundraising for Royal Flying Doctor Service. For more information Kelvin Hutchinson 0407 733 836, Phil Goyne (07) 4666 1676 or Graham Hawthorne 0427 377 603.

Ausfly
13-15 September
Narromine airport. All things that fly are invited to the first ever event in Australia which unifies our vibrant and diverse aviation organisations. Seminars, workshops, air displays, entertainment. Fy in, camp on site. For more information www.ausfly.com.au

McIntyre Aero Club annual Fly-In
8-9 September
At Goondiwindi, Qld. Dinner Saturday - Meet the pilots and drinks at the club house, bookings essential. Sunday fly-in breakfast starting at 7am. In conjunction with the Gourmet in Gundy Festival which starts at 10am Sunday. For Goondiwindi accommodation www.goondiwindi.qld.au. For more information Marg Scells (07) 4677 5186 or email PSS@bigpond.com.au


Picture: Brenna Matthews

Battle Of Britain Memorial Weekend
15-16 September
Superlight Aircraft Club of WA hosts the event at the Bindoon "abandoned" airfield, Dewars Pool Rd, Bindoon, WA. The event will pay tribute to the bravery and sacrifices of the men Winston Churchill described as "The Few". Flying activities on Saturday followed by a Battle of Britain mess party theme night in the club house. Come along in your period costume. Dawn Patrol on Sunday morning before breakfast. All aircraft welcome. For more information secretary@slacwa.org.au

Outback Air Race
27 August - 8 September
A GPS-based navigation time trial through the outback. Pilots nominate an elapsed time between two waypoints and receive points for both time and location accuracy. Funds go towards outfitting RFDS aircraft with essential medical equipment. For more information www.outbackairrace.com.au or contact@outbackairrace.com.au

6th Catalina Festival Fly-In
3 November
Ex RAAF Flying Boat Base Rathmines – Lake Macquarie NSW. The spiritual home of marine aviation. Flying boats, floatplanes. All welcome. Many attractions. Will commemorate the aircrew who served at the base during World War 2 with a building housing a Catalina and Museum. For more information: Bill Hitchcock (02) 4944 8189, 0438 448 115 Wildbill1928@bigpond.com or Mike Usher (02) 4975 2257, 0402 460 285 mikeandlyn@southernphone.com.au

Send them to CASA

I agree with the response to the "Name and Shame him" letter in the April edition of Sport Pilot.

However, I believe it should go further. Where an individual is without membership and where aircraft registration has lapsed, surely at such a point, the person concerned no longer falls under the jurisdiction of RA-Aus and it becomes a matter for CASA.

If the pilot had never held membership, or if the aircraft had never been registered, it would never have been a matter for RA-Aus, but rather have been referred directly to CASA.

RA-Aus should concern itself with members and aircraft on the register, not those outside. I am sure the organisation has enough to worry about without taking on external concerns and drawing unwanted attention to itself.

- Gavin McGrath

Support the board

I read with interest the comments of the President in reference to the questions asked at the meeting of the members and the committee (Page 13 of May Sport Pilot). Also the letter written by Dave King in letters to the Editor. Having been involved in the aviation industry since 1967, I have found it is not uncommon to be on the receiving end of abuse for just doing your job. Dave states "stop bashing RA-Aus".

While I fully agree, it does not matter what you do or say, someone will always be ready to try and knock you, misinterpret what you say or do, because it might affect them, bugger the rest. I congratulate Dave on a good letter.

In reference to the moving of the office to Temora, why would you want to? What are the advantages? You are further away from CASA, in case you have to go to a face to face meeting with them or other aviation bodies situated in Canberra, We, the members, already own the building where our Head Office is situated. What effect would it have on staffing? Where would you get the experienced staff we have at present and computing services like we have at present. Would that same service be available? Would travelling for board meetings be cheaper than travelling to Canberra?

Can someone tell me what are the advantages of the move? Maybe I am biased having being involved in the purchase of the building we currently own when I was Treasurer and Paul Middleton was the CEO. I thought that we got a bargain. This was always a project Graham Kevin wanted persued when he was President of the then A.U.F. in 1991.

Regarding the ramp checks. RA-Aus has no say in what CASA does. They can turn up at any airfield at any time and carry out a ramp check. I find nothing wrong with that unless you have something to hide, or CASA has received a complaint about operations at the airfield. I have been on the receiving end of one of those. I had to justify my actions to a sports aviation inspector (of which I was cleared) after someone complained. The complainant wanted the airfield moved even though the airfield had been there for many years before he turned up and built a house near the end of the main strip.

Support the Board in its actions. They are volunteers doing a thankless job.

- Ian Shaughnessy

New Flight Course

We have a new course starting at our university where the students fly 20 hours in a recreational aircraft as a part of their studies. The course starts in Term II (2 July, 2012). The course is designed to give them an experience of flying. We have approximately 60 students so far who will take the course.

- Ron Bishop, Head of Program: Aviation.
CQ University, Bundaberg

Ed- *Good initiative, Ron. Make sure you let everyone know how it goes. We need to keep as many young people in the game as possible.*

Drifting memories

Thanks to David Mason for his story "A Drifter in My Hangar" (Sport Pilot April 2012).

I, too, am an owner of one of these aircraft. My second, in fact. The first was a 95-25 certified, built at Ballina in the early days at Austflight, where Wayne Fisher was the test pilot and flying instructor.


Story of the month

Before I could walk or talk I was making aeroplanes out of clothes pegs and piloting them around the house

A drifter in my hangar by David Mason

Jabiru Liquid Cooled Heads

I didn't get to own it until 1995. During that time it served me well on many trips, in company with other Drifter owners to Cape York, Lake Mungo NP, Fraser Island, Lightning Ridge, Quilpy, Narromine, Raglin and many other places.

My main complaint was that the others had 95-10 Drifters which could jump off the ground quicker and had a few more knots under their belts than I did. The second was an owner built Fisher Mk1 (Drifter) kit, ably assisted by the Wayne Fisher. This one was more in the style of the 95-10 original with lighter rigging than the certified type, but still a tough and rugged little rag and tube thing which has been on line since 2003.

You may be interested to know a little of the history of Drifters in Australia.

To my knowledge, the first Drifter type aircraft imported into Australia was a plane called a Hummer, a two axis V tail design, the rest being a broom stick similar to the Drifter but without a pod at the front. Henk De Jong imported the machine from the US and started Austflight at Ballina near where the "Big Prawn" is located.

They built about 13 or 14 Hummers, 8 Falcons and about 8 Microlight type aircraft before they started production of Drifters. Eventually about 200 Drifters were built.

Wayne Fisher became involved with Henk De Jong and Howard Hughes who were experimenting with Kite flying behind boats. With Howard's ingenuity, they built an aircraft they called a Skybike - probably an early version of the Microlite. Howard's next venture was the Lightwing. Austflight was eventually sold to Jim Fenton who moved production to Boonah. Wayne Fisher continued to build Drifters at Rosebank, a small village north of Lismore. He eventually moved to Lismore where he is still in production of this type of aircraft at Spectrum Aviation with modifications and upgrades including the 912 Rotax version.

My 503 wire braced model certainly has been left in the dust. However weekend flying is not necessarily about going places in a hurry. It's about dedication.

- Ian Byrne

Talking TAS

In the April Sport Pilot magazine, Jim Benn from King Island asks for a rule of thumb for calculating the increase of TAS with altitude.

The usual "rule" is that TAS will increase by 2% with each 1000' increase in altitude. It's all about air density. While the thin air at higher altitudes has less drag (higher TAS), its lower density reduces engine power output and it isn't as dense in the pitot tube (lower IAS). Don't expect to get take-off power at 6,500ft but don't worry about that; you'll still have a better TAS.

Cruising at higher altitudes has other benefits, too. It's always cooler and usually smoother. If you have engine problems, you have more time to resolve the problem and/or more glide range if you cannot. On a normal descent to your destination, you can maintain cruise power and pick up extra speed or you can reduce power and save fuel.

A few cautionary notes: The 2% theory is only

an estimate; it will vary from day to day. Also, the increase in TAS with altitude slows and then reverses at very high altitudes, but that only affects high-flying jets far above our 10,000ft limitation.

Finally, after terrain clearance, the next consideration for choosing a cruising altitude should be winds aloft. A headwind high up will slow you down more than the increased TAS will speed you up. It's more efficient to fly low in headwinds and fly high in tailwinds.

- Glenn Duncan

Guess the strip

I think the aerial photograph is the strip at Kilcoy, on Somerset Dam, north of Brisbane.

Three pilots with our aerochutes from Melbourne, arrived there in 1995 and stayed three days, camping behind the hangers.

The flying was quite spectacular, over the dam wall and back around the mountain, with Watts Bridge off in the distance.

We were made most welcome there by resident flyer, John Gilpin. He kept us entertained with his outback flying adventures and showed us around the hangars. The other two pilots with me were Ron McGowan and Ray White.

I really hope I have named the right place, otherwise this story is irrelevant.

Cheers

- John Dunn

Ed- *You guessed right, John.*

Best of both Worlds reaction

The article by Mike Richardson (Best of Both Worlds - Sport Pilot April 2012) outlines the dual use of a rotor as an aerofoil (wing) as well.

To transition from rotary to fixed wing flight, Mike describes the use of a flip over rotor. History has shown that flapping devices do not work and cannot be satisfactorily engineered.

A major problem is that once the rotor stops turning, the aircraft becomes a rapidly falling and uncontrolled object. Under these circumstances the transition from rotary to fixed wing flight would be a terrifying experience for anyone on board.

Control during transition is essential.

I am not an aeronautical engineer, but I am both a fixed and rotary wing pilot with an interest in the topic and I believe the answer is to develop a biplane, the lower aerofoil being a wing and the upper one a rotor.

The power plant would need to be able to drive the propeller for fixed wing thrust, as well as the rotor and tail rotor for rotary wing operation. Without the countering effect of a tail rotor, the aircraft would turn around the engine when the rotor is turning.

So my idea is to use a lower wing as well as a tail rotor and not try to use a wing device for both rotor and wing purposes.

Gearing and shafts would be needed to drive the various components. Maybe a second engine would be needed. Tail rotor and propeller could operate at around 2400 RPM, main rotor 400 RPM.

Why not start with a solid low fixed wing aircraft and add the other components.

I believe it would work but it seems an expensive way to avoid landing on a runway.

- Gary Faulks

Flying cars landing soon

I read with interest your feature article in Sport Pilot (Best of Both Worlds - Sport Pilot April 2012). You may be aware of a similar design where the slowed rotor theory appears to be bought into practice. The design team write up states it will be only 10% more expensive than a similar size helicopter which may suit many more people than the existing market caters for. I attach the link for your interest.

www.cartercopters.com/

Of similar interest to me is the Terrafugia which can only be described as a flying car or perhaps a road driven aircraft. Perhaps the latter is a better description. I have been following both of these prototypes (Carter & Terrafugia) with great interest over a couple of years and think it only a matter of time before they are established enough to comply with the regulations in many countries.

These two companies, along with a number of other innovative companies, have been selected by the US military to assist in designing further types of modern air-ground type vessels.

www.terrafugia.com/index.html

I find the magazine quite interesting and commend the people involved in the publication.

- Kerry Paronella

Ed- *Kerry, we are all waiting for the day when we can fly / drive around the country. More on the Terrafugia car / aircraft in Happy Landings at the back on the magazine.*

Turning wings into rotors

Regarding the question "Is it feasible" at the end of the article "Best of Both Worlds" (Sport Pilot April 2012).

No, I don't think so. The wings of a fixed-wing aircraft are very different to the blades of a rotary-wing aircraft as far as structure and operating speed go. From my knowledge of aerodynamics, I don't think it would be possible to build a compromise which would work aerodynamically. Also, trying to spin a wing stiff enough for a fixed configuration would place great stress on the hub. Plus the wing would have to be capable of tolerating the centrifugal force, which means it would have to be strong, and therefore heavy, which would mean the centrifugal force was operating on a greater mass, so the hub may need to be strengthened, which means more weight.

However, I did enjoy reading Mike's article, although I thought the proposed take-off technique was rather "courageous", maybe adding fixed wings to a gyrocopter with the pre-rotator would be a better compromise.

The wings could have variable angle of incidence to avoid blanking thrust at low speed and maximise efficiency. It might even be possible to stop the rotor once in level flight and stow the blades in a low drag configuration, though I have no idea how.

- Caleb Pearce

A true believer

Regarding "Best of Both Worlds" (Sport Pilot April 2012).

Wow! What else can be said? I mean, this is

fantastic, and I for one want in at ground level. If only I had come up with the idea.

I am shortly to come into a vast financial fortune, and plan to sink every last drop of it into this aircraft of the future. Who wouldn't? It is everything anyone could want and then some. Fly it like a plane or a gyro, switch backwards and forwards between the two technologies... again, Wow!

Now, I realise that being a new hybrid, there are going to be some new technologies and previously unseen parts required to make this aircraft work. So with this as the only stipulation in gaining my financial backing, I would require signed guarantees from the designers that not only can they secure the required mechanical parts, but also ensure an unlimited supply of Skyhooks and fairydust which will also be needed to make this thing fly.

As I said, I want in at ground level, because this would clearly be the safest place to be, and preferably several kilometres from any test site.

I will be in touch regarding the exact size of my fortune as soon as I reach the end of the rainbow and retrieve the pot.

- F Ruitloops. (E. Potter).

Ed- *Sigh. The young are so cynical these days, aren't they?*

Popping the chute

Recent general inquiries among Hunter Recreational Flying Club (HRFC) members, revealed a general lack of knowledge of the requirements, dangers and the existence of real possibility of serious injury and damage when using ballistic recovery systems.

The committee of the HRFC determined that the general membership of the club and the greater flying community would benefit from further education in the matter of the handling and dangers of ballistic recovery systems fitted to aircraft, in light of the recently released:

CASA's Airworthiness Bulletin # 25-003, Issue 2, dated 23 March, 2012, "Inadvertent Activation of Rocket-Deployed General Aviation Recovery Devices (GARD)".

Education of all aviation personnel involved in the purchase, operation, installation, removal, repair or maintenance of such equipment, together with the display of appropriate warning signs/information (Warning participants, spectators, passers-by, fire & rescue personnel).

We recommend that an article along these lines would be a worthy addition to the Sport Pilot Magazine.

- Leighton Judd, HRFC Secretary

Ed- *Thanks Leighton. We will get the figures from RA-Aus HQ as to how many RA-Aus aircraft out there are fitted with ballistic recovery systems, what sort they are, and see if we can put together something for the magazine in the near future. Doesn't replace regular forced landing practice though, does it?*

Flying high, going green

I am responding to Professor Avius' piece in the Flight Instructor's forum.

I generally applaud the choice of references made, however one point needs to be explored more fully so as to really clear the air. That being the myth of aviation mentioned in reference to the book entitled 'Plane Simple Truth', an excellent work by Thomas/Norris/Forbes-Smith/Creedy and Pepper 2008.

For those who don't know it, this book broadly chronicles the considerable improvements in civil aviation technology, related increases in airline passenger traffic, safety improvements and also greenhouse gas emissions.

Military, sport and general aviation are not discussed. One of the conclusions made in the book is that the aviation industry is making considerable gains in reducing greenhouse gas emissions and that the environmental impact of aviation is greatly overstated. While this may generally be true, the actual myth is that greenhouse gas emissions from aviation are insignificant and will become less so as time passes and technology improves.

Civil aviation emissions are tracking at 1-2% of the global total and if radiative forcing is considered, currently estimated to be more than 3.5%. This is a larger contribution than that of Australia with all its mining, agriculture, transport and industry. The next generation of more fuel efficient airliners, eg 787, A320neo, 737Max, etc is expected to reduce GHG emissions by 15-20%. Even with large numbers of these aircraft on the order books, it will be many years before the current fleet is turned over. Passenger traffic is increasing at an average of about 5% year on year. If this trend continues it is not hard to see that any gains are being offset in a very short time.

It's time we in the aviation fraternity bust this myth, get our heads out of the sand and face the facts.

- Thomas Schild

Stimulating Simulators

I read the article on simulators by David Tonks (Sport Pilot April 2012). Very interesting and simulators do play an important role in pilot training, otherwise the airlines and military wouldn't spend huge sums of money and incorporate sim time as part of competency certification.

I have discussed the topic with some instructors and they have pointed out some of the limitations and benefits to me.

The technology now available makes having your own personal realistic sim affordable by the purchase of "off the shelf" gaming accessories. The skill in setting up a home system is knowing what bits and software packages etc to buy. I would appreciate if you could forward my contact details to David Tonks so I can correspond directly with him.

As a post, maybe there's possibility of setting up a magazine user's forum and/or a column along with teaching tips etc. for simulators as an informal tutorial and training aid. In the longer term, CASA may endorse certain simulator configurations as accountable sim training time for LSA style aircraft.

- Mal Smith.

Ed- *Your contact details have been passed on Mal. Let us know if you build one yourself.*

You have been told

I was once told that we should not speak ill of the dead. So we won't.

But we will speak ill of the living whose intention is to turn back after an engine failure on take-off. Let's be clear on the definition and not confuse it with a forced landing, where you have logical choices, as per your training. Previous articles on this subject have covered the more technical aspects of the stupidity of turning back to the field, so I will not cover them again. Obviously they have not had the desired effect in stopping pea brains from attempting this fatal manoeuvre.

The time for political correctness and courtesy is over. Let's take the gloves off. Read the newspaper. "Experienced pilot killed when his engine failed on take-off attempting to turn back to the field". (Experienced? He's dead). "A pilot was killed in a light aircraft today when he attempted to turn back after his engine failed on take-off. He was known to be an accomplished pilot of great experience".

If pilots of great experience and accomplishment cannot successfully carry out this manoeuvre, what makes the rest of us think we can do it? Definitely arrogance and stupidity. I repeat, if you attempt to turn back after an EFATO, you are a halfwit. You don't care about your family and what they have to go through. 100% of pilots who turn back after an EFATO are killed. Does this tell you something? Instructors, are you teaching your students, before they open the throttle on take-off, to say out loud "If the engine fails on take-off, land straight ahead?" If you aren't, you could be open to litigation involving duty of care. What

about "Go straight ahead to the hospital, turn back to the morgue" because that's where you'll be. Let's be very clear. If you turn back you'll be a bloody fool and you'll be dead.

Without apology,

- Kevin Walters, CFI

Ed- *I bet that is something which never happens with your students Kevin. Clear and unambiguous.*

Checking is better than cheating

I don't know about you when traveling cross country, but I'm the sort of bloke who, to quote a friend of mine "needs to have money in the bank", meaning I plan everything, leave nothing to chance and cross check everything.

So when I flew to Ballarat to "Come and Get" the trophy recently, the passenger seat in old faithful, sorry not so "OLD" faithful, looked like a politician's too hard basket - maps, weather chart papers, E6-B and ERSA all over the place, but I still cross check map references and headings against the GPS.

Oh yes, I hear you say, this looks like a story from a silly dipstick who entered the wrong coordinates, flew GPS and after a snooze to pass the time, looked out to see icebergs instead of desert. Well no, but if you were planning a wee trip to retrieve said trophy and looked up the coordinates in the last Sport Pilot magazine you would, after several fuel stops in the Indian Ocean, maybe just glimpse Cape Town, South Africa off the starboard wingtip as you blissfully followed the sun into oblivion somewhere in the Pacific Ocean.

Tasmania is positively located 42 degrees south and 147 degrees east.

Which means, if you were to trust your expensive GPS and carefully programmed in 14 degrees east (the coordinates shown on page 25 Sport Pilot April) under the picture of the good looking smiley one shaking the hand of the handsome, but a bit dishevelled, old bloke, the only thing you would see through your fan up front would be water. So unless you plan a round the world swim and a spot in the record books I recommend the revised coordinate of

South 42:40:60

East 147:24:85

I sincerely hope there is not a pilot out there who hasn't checked everything before leaving on the quintessential cross country and is now, as we go to print, waving to a group of Masai warriers squatting around their camp fire while nervously glancing at the fuel gauge and believing doggedly in his GPS which tells him he has 100nm to run.

- Lawrie Barton-Johnson

Ed- *Yes, and speaking of dipsticks. I have been rampaging around the office to find out which one of the hundreds of Sport Pilot's staff members may have left off Lawrie's vital number 7. Rest assured the guilty will be punished (unless it was me).*

*Correction

In the Letter to the editor section of the April 2012 issue of the magazine, a letter entitled "Potholes in the Sky", was attributed to Civil Aviation Safety Authority (CASA) employee, Simon Scott. In fact, Mr Scott did not write any letter to the editor. Further, the first paragraph of the letter is text not attributable to CASA or any CASA officer. The remainder of the text of the letter is attributable to Mr Scott, but he provided that to other parties in a different context. The editor of Sport Pilot apologises for any confusion this may have caused.

Something to say?

Email editor@sportpilot.net.au

DON'T hold it in and give yourself a headache. Share it with the members and get it off your chest.
Maybe it's you and your completely reasonable opinion about the world of recreational aviation that no one else will listen to.

Email editor@sportpilot.net.au and have your say. (By the way - the editor reserves the right to edit Letters to the Editor to shorten them to fit the space available or in case of libel. We don't want your completely reasonable opinion to land you in court.)

A new toy for the boys

FRENCH light aircraft maker, LISA Airplanes, plans to unveil a new high-end amphibious skiplane, the AKOYA, at Oshkosh this year.

The aircraft uses a combination of cutting-edge hydrofoils located under the fuselage, skis integrated with the retractable landing gear and pivoting wings to provide unequalled freedom. Take off from snow, then land on water, on sea, lake or river. As the only aircraft in the world using the Seafoil technology, the company claims the AKOYA will embody a new generation of seaplanes dedicated to both sightseeing and cross-country flights.

The AKOYA combines the qualities of a type certificated aircraft while fulfilling the S-LSA regulation (CS-LSA in Europe).

It has a top speed of 138 mph (222 km/h) in the US and 155 mph (250 km/hr) in Europe, a range of more than 1,000 miles (1,600 km) and a fuel consumption of 36 mpg (3.3 gal/h; 6.5 L/100km). for more information www.lisa-airplanes.com.

East coast airspace crowded

CASA has its eyes on the increasingly busy airspace over the north coast of New South Wales.

It says a study of the class E airspace between Port Macquarie and Ballina, by the Office of Airspace Regulation, found both airspace and radio frequency congestion in the area. It says lowering class E airspace in the regions would be unlikely to alleviate the problem.

There are also questions being asked about the class G airspace below class E in the area which is used by a lot of aircraft including RA-Aus.

The big boys have complained about the lack of radar coverage down low, and asked for changes including the mandatory carriage and use of transponders. There have also been complaints about operations in restricted and danger areas, the unscheduled loss of the Williamtown radar data feed and disjointed airspace when Coffs Harbour class D airspace is deactivated.

Dropping health education

DROPPING articles from an aircraft is a privilege granted to few outside of the Government forces of any country. Medicine on the Move, in collaboration with WAASPS, is the latest organisation to gain such an approval and put it to work.

After two years experimenting with innovative, low cost, repeatable and safe delivery methods, Medicine on the Move was granted permission to begin a health education campaign by air in Ghana. The Ghanian team uses a Rotax Powered Zenith CH701(which its also builds and maintains) to take health education solutions to some of the more challenging locations in the West African bush.

Part of the drop programme includes inviting isolated communities to attend specific training sessions on health. The first meeting, completely set up by aerial supply contact, took place recently in Asesewa, in the eastern region of Ghana. The community health representatives, accompanied by their Queen Mothers, all wanted to finally meet the pilot/engineer who they wave to as the aircraft passes over their school fields, dropping health education and encouragement to their community. Patricia Mawuli Nyekodzi spoke to them, encouraging them and answered their questions. The people told how the aircraft had inspired their communities and that they now want their children to learn more, so that they can be pilots like Patricia.

A health session, led by Michaela Hayes (who grew up in Ghana), assisted by three student pilots from rural Ghana (Lydia, Emmanuella and Juliet) showed how a SODIS (SOlar DISinfection of water) system works. Water and sanitation are massive issues.

For more information http://medicineonthemove.blogspot.com/

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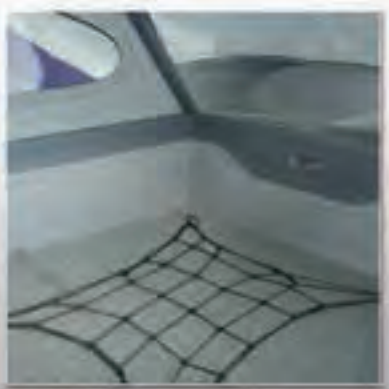

www.pacificibis.com.au

Putting a camera on your aeroplane

by Evan Hart

IT is becoming common for aircraft manufacturers to put cameras on their aeroplanes to record flights for posting on the internet to encourage the interest of potential buyers.

It is also common these days for cameras to be used on motor cycles, bicycles and boats to record video of sports events like races, or just exciting rides. There are also many kinds of unmanned aircraft, from very small to quite large, which carry sophisticated cameras to record things on the ground.

Maybe it's time for you to install a camera on your own aircraft to record the more attractive and interesting parts of your flights.

Cameras suitable for installing on light aircraft, either inside the cabin or outside, are cheaply and easily obtained. These cameras generally offer a wide angle of view at high quality. They are not suitable at high altitudes, but from 500ft up to about 2,000ft AGL they are able to create interesting, attractive or useful clips. Video made with a view of controls and instruments could be a useful aid to student pilots for flight preparation. Most cameras have remote controls for stopping and starting video and for taking still photos.

The use of aircraft-mounted cameras does not, of course, preclude the use of other kinds of cameras like hand held cameras. Pilots should be aware that operation of cameras in an aeroplane can be a distraction and should ensure they are operated by a companion, leaving the pilot to concentrate on flying safely and accurately.

Hand held cameras

Here are two popular models.

Go Bandit (above)

A camera with GPS, accelerometer etc. The Go Bandit provides for an amazing range of capabilities including being controllable from an iPhone or other Smartphone via an app which is free. The Go Bandit can record altitude, maximum and minimum speeds.

Contour GPS camera

Contour GPS (below)

An add-on battery pack providing up to 20 hours of continuous recording is available for the Contour GPS camera.

Cameras like these two can be bought for around $500 in Australia. Work out for yourself which will be best suited for your purposes.

Maybe it's time for you to install a camera on your own aircraft to record the more attractive parts of your flights

Mounting Your Camera

All the cameras come with, or provide for, mounting accessories to allow them to be securely fastened to an aeroplane. Because these cameras use batteries for electrical power, they do not require integration with aircraft systems. And all of the cameras provide enough battery life for several hours of continuous video, an important point since externally mounted cameras are going to be out of reach for the duration of the flight.

Cameras can be mounted almost anywhere on a light aeroplane. Generally, the camera manufacturers also sell mounts which can securely fasten the camera to a wing or undercarriage strut, or internally on a windscreen. They can even be mounted on a pilot's heads for an accurate "point-of-view" video experience. It is also possible to mount these cameras on aircraft fins, thus providing a view which includes the aeroplane within the field of view. Careful consideration of how to mount the camera(s) needs to be made to ensure nothing compromises the aircraft's airworthiness or legality.

Bigger Cameras

For pilots willing to spend a bit more money, it is possible to mount a digital camera of the type often used for home video production. These cameras are bigger, heavier and require not only a much sturdier, larger mount, but also a screen inside the cabin for monitoring the movie as it is recorded. This type of camera generally has optical zoom lenses, as well as high quality video output.

A remote control mount for these cameras, complete with LCD monitor for inside the cabin can be bought for $US875.00 plus shipping.

There is another kind of camera that may be of interest. The NVIF camera can be permanently mounted on an aeroplane and would therefore have to be certified by the aircraft manufacturer or by a qualified person, before it could be used in Australia.

This camera has been installed internally in some aircraft but is also suitable for external mounting. It is not incredibly expensive, however the approval required to fit it to an aeroplane is not to be taken lightly. It is a great deal cheaper than the types of cameras commonly mounted on UAVs and brings that kind of surveillance and spotting operation into the ambit of ordinary pilots and aircraft owners.

Potential Subjects for Airborne Photography

Australia provides endless opportunities for interesting video photography from the air.

For example, a flight along the Great Ocean Road in Victoria with a camera-equipped light aircraft will provide a new and very exciting view of this famous coastline. A flight past Sydney via the coastal lane at or below 500' would also provide for a spectacular video.

And on a clear winter's day 5,000ft above the Snowy Mountains, it is possible to see both snow on the mountains and south coast beaches.

The Canberra Festival is on during the first half of March every year. Part of this celebration is the Balloon Spectacular where dozens of hot air balloons take off at the same time. Depending on winds, it should be possible to get some good video of the balloons as they rise and drift away from their take-off location on the lawns of old Parliament House.

Imagine how you will entertain your friends and family with some of the best video of this great and beautiful country and you flying above it.

For more information on cameras which can be used:

contour.com
driftinnovation.com
epicstealthcam.com
www.gobandit.com
gopro.com
www.launchhelmetcams.com.au
www.liquidimageco.com
www.tachyoninc.com
www.sportscamera.com.au/index.php
www.vivotek.com/products/model.php?network_camera=md8562

Editor's choice

Brian Bigg

RIDING THE WIRE

I USED to be quite scared of crosswinds. My home airport, for some reason, was not built in the direction of the prevailing north-east winds.

What It means, is that eight days in every 10, there's a crosswind across the strip.

Sometimes, when the wind gets up, the crosswind is so strong you have to leave your pride and joy in the hangar, often for days at a time. I know from the local flying school there are days when they just can't let low time students go out on their own because of it. At the eastern end of the strip is a small hill where they dumped all the rubble when they built the runway.

In a strong south easterly wind, this hill just adds to the havoc pilots experience as they battle the crosswind down to the tree line, at which point things get very still very quickly. Most of us lighties know to give the first half of the strip a miss when there's a southerly blowing. We pity the heavy metal boys who have to use every centimetre of the bitumen.

When I was learning to fly in GA, crosswinds were never much of an issue, or at least it didn't seem to be that way at the time. We had more than enough runways, so there was always one pointing into the wind. We didn't often practice crosswind techniques, but when I did, the big heavy Piper I flew would usually just swing its nose into the wind as we approached the runway. The inertia would still carry me in the right direction. The only thing I had to do as I flared for landing, was to swing the nose back into line with the runway.

On the rare occasions the crosswind was strong, it became a problem for which I had little experience and certainly not enough training. I usually battled it down as best I could and hoped that the sideways jerk on the undercarriage when we touched down was not strong enough to snap the landing gear off. Sometimes it was close.

But on that glorious day when I bought my Zephyr home for the first time, I discovered a new and urgent crosswind problem. The usual strong wind was blowing across the strip and my usual technique of crabbing sideways into it just didn't work. The Zephyr only weighs 300kg wringing wet, so with the all-powerful Rotax turning at the front, when I pointed it in a particular direction, it tended to go that way. Allowing the nose to weathercock into the wind just had me charging off at an angle to the runway. The lift from the Zephyr's big long wings easily overcame the inertia. There was no way I could even get the aircraft to move in the right direction when the nose was facing off. It bounced around all over the sky.

On my third attempt to land, I recalled I had been taught a second method for dealing with crosswinds, but had never used it in the Piper because I didn't need to.

Turning onto final, I kept the nose straight with rudder and banked the wings into the wind. Something immediately happened to the controllability of the aircraft. As long as I kept the nose straight with my feet, I was able to use the wings to balance the gusts and was able to easily keep it on a line to the piano keys.

And another thing. When I had it in this configuration, the controls seemed to stiffen, become more solid, less susceptible to the gusts. Flying down final suddenly felt like I was moving down a length of wire. It also allowed me to control the airspeed more closely. In the Zephyr, carrying an extra 5kts to the threshold will have you landing three quarters of the way down the strip if you're not careful.

Since that first experience, I have never crabbed any aircraft again. It just doesn't feel right, even the times I now fly a Piper. And I get so much crosswind landing practice at my airport, that not only am I not scared of it anymore, I usually don't even think about it.

Or, I should say, never thought about it until my recent return from Natfly. The 30kt tail wind which pushed me home was brilliant, but it turned out to be the forerunner of a strong weather system moving through the state.

The steady airflow started to chew itself up as it hit the mountains. I bounced like a ping-pong ball, even up high where I was trying to stay away from the worst of it. Approaching home, the air into which I descended became more and more turbulent, all of it at right angles to the airstrip. On downwind the windsock pointed like an accusatory finger at me.a

I certainly was not blasé about it, but I was reasonably confident I could handle most of what the crosswind could do. After all, I had landed here hundreds of times.

On final, the rudder had the nose pointing at the piano keys all right, but the wings would not settle in the breeze. The wind felt like it was becoming stronger and more turbulent every second. We danced and bounced and bucked and dipped all way down to the tree line, where suddenly the airspeed dropped to zero.

Even though the wings were still at a steep angle into the crosswind, I had to haul back the nose sharply to make sure at least one of the back wheels got there first. We hit and thankfully, didn't bounce. It wasn't pretty, but I was home.

And it was lucky I got there when I did. An hour later, the wind had picked up so much that not even the big boys could use it and the airport remained closed for the next three days.

If I had not had so much crosswind training and known my own aircraft so well, I would not have been able to land at all and I would have been stuck for three days in a motel somewhere on the other side of the mountains.

And, by the by, I now know the absolute upper limit of the crosswind my Zephyr and I can handle - a touch under 12 knots.

Story of the month

> *All parts, except the sock, were from the local tip shop*

Send in your stories and photos in.
Email editor@sportpilot.net.au

Socking great idea

By Gus Vans-Colina

AN industrious friend of mine who operates a Savannah from an airstrip near Hobart where the permanent windsock sometimes 'takes off', decided to make his own portable sock, all for less than a $100.00.

He bought a half sized windsock and used a bike wheel and bearings to attach it to the pole, allowing the sock to rotate in both planes.

All parts, except the sock, were from the local tip shop. Any flyers interested in making one themselves can email me at rob@vans-colina.com.

A Disappointed 95er

By Nev White

NATFLY is over for another year and as the only 95.10 to fly in, I must say it was a great disappointment. For an event advertised as putting a special emphasis on 95.10, where was the Board member who took on the job?

Would he have not been able to obtain a list from RA-Aus of the registered owners of these aircraft and contacted them to gain an insight into what would have aided them to fly or trailer to Natfly? The numbers being reregistered each year are dwindling, maybe over-regulation and costs? There are still many 95.10 and 95.25 planes in sheds throughout the country.

I had flown 95.10 aircraft for years without radio, EPIRB or cross country endorsement without getting lost or flying into prohibited airspace. I have personally flown into Natfly at Narromine in a 95.10 with no radio. Arriving at 12.30pm after a morning fog and finding eleven other aircraft in circuit. All eyes, correct joining positional procedure and I had no hassles.

Obviously the Board members have little interest in 95.10. To my knowledge not one bothered to attend any of the forums pertaining to the original little aircraft. To rub salt into the wound, even the trophy I received was engraved with the incorrect spelling "Ultalight"!

I'm not against progress, but I

beg you not to forget those who paved the way so you can enjoy more affordable flying in the name of RA-Aus.

What a Bonza club Sydney Recreational Flying Club

By Geoff Raebel

BACK in 1986, before two seat training ultralights had been invented, a Sydney group of enthusiasts from disparate backgrounds but with a common interest of flying got together. They formed Sydney Ultralight Flying Club, appointing Carl Holden as CFI. He was sent to seek out a suitable trainer for the members. After reviewing what was coming onto the market, chose the Hughes Australian Lightwing.

The members did a "whip around", guaranteeing the loan the club took out.

Training started and quickly three Instructors were qualified. This was one of the first clubs under the AUF. Members started getting Pilot Certificates then trying to rake up the 50 hours solo required back then to get a Passenger endorsement. Training moved from Wilton to The Oaks, 15 Km west of Camden. It is a quaint WW2 grass strip where, with minimal taxying, you are at the takeoff point.

Flying draggy two-stroke aircraft, pilots were taught to fly from paddock to paddock and do full glide approach landings for each and every landing, preparing for the time when it was for real.

The club participated at each Natfly, with a ground party carting around the club's unique bowser. Soon, with loan repayments going well, another loan was taken out to buy a second Lightwing. The club has had its share of prangs, but the crashworthiness of the Lightwing was proven and we have never had an injury or ruined a set of wings. After one crash,

the club took the bold step of having the newer Lightwing rebuilt as a 4 stroke Rotax GR912, the start of a happy relationship.

We then endured the liability insurance saga where members stopped flying passengers and the income dried up, nearly costing us the club.

In 2007, under new President, Joe Newham, and CFI, Greg Davies, the club entered a renaissance. Incorporating as Sydney Recreational Flying Club Inc. and dropping right in behind the new RA-Aus.

We recognised that we needed to attract new members and a new tricycle aircraft was needed. Greg reviewed Silverwing's A22 Foxbat and deemed it highly compatible with our Lightwing. It enabled us to cross endorse members on tailwheels at a minimal rate.

Membership surged and use of the Foxbat was at capacity for a three day a week volunteer club.

A damaged Foxbat became available, so again the members' faith in the club was tested.

Many of us put in for a deposit to secure the wreck. Most of the repair was done by Instructor and airframe engineer, Arthur Armour. It cost us a new Rotax 912 crankshaft, but got us a beautiful relatively young Foxbat for about half the cost of a new aircraft.

The Foxbats operate three days a week. They are running up the hours and paying off the loans. It is a wonderful volunteer club with members pitching in, doing jobs and working bees as needed. At the 2012 Natfly we had 20 members at our campfire dinner, not bad for a small volunteer club. It demonstrates the interest and breadth of expertise of our members.

A NEW ENGINE REVOLU

IT started with an email. Wal, from Bert Flood Imports in Lilydale, wanted my number. I gave it, he called and right there, as I stood in the middle of my kitchen on a muggy December day, Wal announced:

"Rotax would like to pay for a Sport Pilot journalist to go to Austria for the launch of their new, exciting product".

"Oh! Oh! And you've picked me?"

"Well, not exactly. We've picked your magazine. Who goes is between you and Brian".

After weeks of pleading, cajoling and mounting pictorial campaigns (see inset: 10 reasons why...) the editor decided it would be much quieter without me and asked if I had a current passport.

"Wunderbar! In Osterreich gehe Ich!" I sang, as I pondered the "exciting new product".

by Kreisha Ballantyne

>> Part of the campaign to get Kreisha to Austria

ROTAX has long been at the forefront of innovation. It's now regarded as one of the world's leading aircraft engine manufacturers, with more than 40,000 units of the 912/914 series sold worldwide. The company's history led me to expect nothing less than a brand new engine design.

On the morning of the launch, speculation was rife, and whispers of possible fuel injection systems, lower emissions and digital engine controls mingled with the salami and coffee over breakfast in our hotel in Wels.

The press conference was hosted at BRP's headquarters in Gunskirchen. As journalists, Rotax dealers, government officials and industry specialists from all over the world assembled in the company's foyer, we were split into groups and colour coded according to our professions. When I spied Paul Bertorelli from

>> Rotax HQ, Gunskirchen, Austria

tion

WEIGHT	kg	lb
Engine with propeller speed reduction unit i = 2.43 with overload clutch	63.6	140.2
Exhaust system	4.3	9.5
Air guide hood	0.4	0.8
External alternator	3.0	6.6
Fuel pumps assy.	1.6	3.5
Engine mount	2.0	4.4

PERFORMANCE		
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914 UL 3 - DCDI with options

2.000 hrs. TBO
ROTAX 912/914

912 S SERIES 100 h.p

912 ULS 3 - DCDI with options

4-cylinder, 4-stroke liquid/air cooled engine with opposed cylinders, dry sump forced lubrication with separate 3 litre oil tank, automatic adjustment by hydraulic valve tappet, 2 CD carburettors, mechanical fuel pump, electronic dual ignition, electric starter, integrated reduction gear i=2.43. Weight 62.6kg including exhaust system and engine truss assembly.

" The Sky Is The Limit ! "

582 UL DCDI 65 h.p

582 UL - DCDI with options

2-cylinder, 2-stroke liquid cooled engine with rotary valve inlet, electronic dual ignition, integrated water pump and thermostat, exhaust system, carburettors, rewind starter. Weight 47.2kg including exhaust, gearbox with integrated electric start.

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EMAIL: gary@bertfloodimports.com.au

Avweb in the US, complete with video camera, I knew the news would be big.

I was seated next to Patricia Mawuli-Nyekodzi (from Medicine on the Move in Ghana, the world's first certified female Rotax engineer) in a front row position. Most of the world's aviation media was assembled, waiting with coffee and salami breath for Rotax's great secret. And revealed it was: to the sound of rock music and a cloud of dry ice, two beautiful blondes unveiled the mystery upon which we were all pondering. As the smoke cleared and our eardrums rebalanced, we were left with the sight of....the 912iS. Clean, green and the first new engine from Rotax in 14 years.

BORE		STROKE	
84.0 mm	3.31 in	61.0 mm	2.4 in
DISPLACEMENT		FUEL	
1352 cm^3	82.6 cu in	min. MON 85 RON 95* min. AKI 91*	

* leaded, unleaded, AVGAS 100LL or E10
1) iS = non-certified
2) iSc = certified acc. to CS-E
available after receipt of type certificate

>> Amidst a cloud of smoke, two models reveal the 912is

"Beautiful blondes unveiled the mystery upon which we were all pondering"

The specs revealed the new engine is an evolution of the 912. The 912iS is a four cylinder horizontally opposed, four stroke liquid/air cooled 100hp (73.5 kw) engine with an electronic fuel injection system and digital engine control unit (ECU).

The company claims it will deliver 38-70% better fuel efficiency (than comparable competitive engines in the same category), the 912iS exhibits lower operating costs and CO_2 emissions.

"BRP has maintained its commitment to innovation through the recent economic crisis by continuing to develop high performance and more fuel efficient engines" declared Jose Boisjoli, CEO and President of BRP.

Having revealed the engine and its specs, it became clear Rotax was launching the fully tested engine, not merely an idea or a concept. The 912iS in front of me had spent 10,000 hours on the bench. At least a dozen similar test production engines were already running and the company claims they've been flying the prototype for three years. Mass production began in May this year.

An aircraft bearing the modified 912iS will now have a significantly longer flight range, CO_2 emission reductions and lower operating costs while still offering the same 2000 TBO. The Rotax classics - propeller gear box, redundant ignition system, press fit assembled crankshaft and dry sump lubrication - remain as standard.

So, if the 912iS is an evolution, what's different about it?

Bye bye carby

The 'i' in 'iS', (which has nothing to do with Apple) stands for "injection" - electronic fuel injection, to be precise.

According to the company, the change from a carburettor system to a modern injection system, standard in the automotive industry, in combination with a digital engine control unit, was necessary to reach its goals.

The 912iS uses the same four cylinder, water/air-cooled core, with modified cylinder heads to improve cooling flow. The Bing carburettors have gone completely, and a single throttle wire now controls the engine power. The new, stylish, Airbox with a single air-filter sits on top of the engine. Each cylinder has two - rather than the usual one - redundant electronic fuel injectors, for redundant fuel supply and reliability. A pair of pumps provides the pressure to the injectors, again offering operational redundancy.

With fuel injection being more precise - due to the ECU with its constant optimising of the fuel/air mixture - the 912iS sees better efficiency and reduced pollution. The Airbox sensors continually monitor the engine - throttle position, inlet air temperature, ambient air pressure, exhaust gas temperature, etc - and as a consequence, the engine self-adjusts for different altitudes and atmospheric conditions.

The biggest advantage of the new engine, according to BRP's Christian Mundigler, is lower fuel consumption - around 20% less than the carburettor version. Additional advantages include doing away with the manual choke; no need to synchronize the carbys and abolishing the 200 hour carburettor service requirement; and, of course, the elimination of potential carburettor icing.

Industry Interest

Tecnam has confirmed it will offer the Rotax 912iS engine into new build aeroplanes from as early as northern summer 2012, optioning the engine to all Advanced Ultralight (AUL) and Light Sport Aircraft (LSA) customers whose aircraft deliver after July 2012.
"Once Rotax has achieved EASA certification, Tecnam will commence work on a 'major change' for the entire Tecnam range of aeroplanes" said Paolo Pascale, Tecnam's Managing Director. "To our customers this should reduce the fuel cost (be it Mogas or Avgas) between 20% and 40%."
Rotax anticipated final EASA certification of the 912iS in June for certified aircraft in CS/VLA, CS23 and FAR 23 categories.

Company Timeline

1920 Formation of the Rotax-Werk AG" in Dresden, Germany
1943 Relocation to Wels, Austria
1970 Bombardier acquires Rotax
1975 Certification of the first Rotax aircraft engine
1977 Rotax snowmobile engines used in microlight aircraft
1978 Ultralight engines 501, 505 developed
1984 Start of development of 912
1989 Type certificate for 912A
1994 Type certificate for 912F
1996 Type certificate for 914F
1998 Type certificate for 912S
2003 New company created under the name BRP - Bombardier Recreational Products, inc
2003 Design organisation approval by EASA
2005 912/914 series compliant to LSA norm, ASTM
2005 Production organisation approval by EASA
2006 582 engine compliant to LSA aircraft norm ASTM
2009 912 series' TBO increased from 1500 hours to 2000 hours
2010 914 series' TBO increased from 1500 hours to 2000 hours
2011 40,000 912/914 engines produced
2012 Introduction of the Rotax 912is

>> Engine diagnostic system

>> The company runs a comprehensive apprenticeship program, which has kept it supplied with new engineers

>> The 912is mounted in a demonstration aircraft

Pleased to meet you, ECU

The 912iS has dual ECUs, supplied by Rockwell Collins, which control the fuel/air mixture electronically at all operating conditions to achieve optimum fuel efficiency. Implemented redundantly to ensure a higher level of safety, the ECU is also equipped with sophisticated failure detection and mitigation devices.

The primary performance feedback for the ECU is the EGT, and power is calculated through a combination of throttle position sensoring and manifold pressure.

The dual generators, run directly off the crankshaft, now deliver 430 watts of electric power. The battery is used only for starting the engine, and in the extreme case of both generators failing.

The power is drawn from two magnetic alternators (generators) mounted on the crankshaft. Independent of the aircraft's electrical system, alternator 1 runs the pumps and ECU. As long as the flywheel is turning, it will generate voltage. The backup power from alternator 2 comes on line automatically in the event of a failure, activated by a "smart fuse box" which is included as part of the engine package.

Based on the ECU, the relevant engine parameters are displayed in a digital instrument board. An electronic diagnostic system (BUDS - BRP Utility and Diagnostic Software) is designed to give insight into the engine management system and its electrical / electronic components. BUDS provides the function to monitor certain testing components, such as diagnostics and troubleshooting in addition to carrying out relevant system setting requirements (e.g. engine information/parameters). As in the automotive industry, it is now possible to receive an electronic readout by simply connecting your laptop.

>> Left: Despite the high tech environment of the factory, the engines are still largely assembled by hand. Each technician works on a separate component of the engine as part of a team along a conveyor belt assembly line. *Picture: BRP*

Perfection is attained by slow degrees

While the overall engine dimensions are approximately the same, making installation in existing engine compartments fairly straightforward, the installation will require a few minor modifications.

The "power pack" includes the 912iS base engine exhaust system, engine suspension frame, fuse box, fuel pump module and the whole Engine Management System (EMS) in a complete package. The nature of this power pack allows engineers to install the Rotax 912iS/iSc a lot quicker by attaching it to the airframe´s engine system and other systems, such as cooling, lubrication, fuel/air intake, electric, throttle and governor actuation and instrumentation.

It appears that the biggest difference in the installation compared to previous Rotax engines will be related to fuel systems; since the iS operates at significantly higher fuel pressure and requires a free flow return line to the supplying fuel tank.

Lunchtime chat in the BRP cafe was mostly centered around the fact that 912iS offers no increase in power output. According to the specs, the 912iS still delivers 100hp at 5800 rpm, with torque figures slightly lower than the 912S/ULS.

As would be expected, a fuel injection system comes at a price, both economically and in weight. The engine is at least 4kg heavier than its predecessor - despite the elimination of the carbys. The extra weight is gained in the installation of the dual electric fuel pumps, fuse box and ECU controller - the 912iS has a dry weight of 64kgs.

While BRP would not comment on price specifics, they did allow an expectation of a 14 - 17% increase on its carburetted sibling. (this will not include avionics package)

The main focus has been on fuel savings, and with prices of both avgas and mogas here and overseas reaching ever increasing heights, Rotax is forward-looking in terms of improved fuel economy.

The question is: over what length of time will the increased fuel economy balance out against the higher aircraft purchase price point?

The answer, of course, remains to be seen.

Facing up to CASA

by Bruce Avery

FOR many obscure reasons, I seem to enjoy flying to Natfly each Easter, roughing it in a tiny tent, seeing the sights and generally socialising with like minded flyers.

While there had been mention last year about CASA inspectors out in the aircraft parking areas, I didn't see any, which was fine by me.

This year, before Natfly, the word had gone around that CASA inspectors would certainly be there again. On hearing this, some of my fellow RA-Aus pilots baulked at going, maybe because of their fear of being over-regulated or maybe to be found wanting if they were inspected.

I decided, with my luck, I was sure to get nabbed, so I set out in advance to try to tick every box and got lucky with a couple of others.

I left Holbrook Airfield around midday on Easter Thursday and headed for Temora in my Jabiru SP 470, safe in the knowledge I was arriving early and CASA inspectors probably wouldn't even be there yet.

After landing, I taxied as instructed to the Blue parking area where a Ground Marshal ushered me into a parking space.

As I shut down the aircraft, a white vehicle with blue flashing light on top pulled up and two CASA staff welcomed me to Temora. A dream come true? Not really.

To their credit, they were friendly and polite and made it clear they were there in an "educational and advisory role". Nevertheless, I was suddenly very glad I had prepared – but had I prepared enough?

I was asked if I used an Ipad. On replying that I didn't, I was checked for the following -

- New Ersa;
- Latest WAC chart;
- Flight plan;
- Notam and weather downloads;
- Pilot certificate;
- Aircraft registration and in place;
- Current registration sticker on the EPIRB;
- Evidence of last BFR;
- Aircraft operations manual;
- Cockpit warning notices.

> *I decided, with my luck, I was sure to get nabbed*

The two CASA guys accepted that I satisfied all of the above, seemed happy with my efforts towards compliance, and we parted on good terms with a smile and a wave.

I had bought a new ERSA and WAC chart on purpose, and packed my log book on the spur of the moment. A photo copy of the BFR page would probably have been enough.

At the end of the day, it hadn't been too hard to get it right. Just some preparation to do those things we are supposed to do anyway.

So when you go to your next fly-in and get greeted by a CASA flashing blue light, think how warm and fuzzy you will feel knowing that you, too, are prepared.

>> Photo: Brenna Matthews

A Nynja too good to be true

SPIRIT OF KITTY HAWK

"I was as sick as a dog, but I was not going to miss it for anything

by Scott Hendry

IT'S two degrees, my head aches, my nose is running like a tap, I'm shivering with fever and I'm as happy as a pig in mud. I'm at 7,500ft above sea level in the right hand seat of a small aircraft bound for Brisbane from Melbourne. My pilot is Greg Robertson. He owns the plane. It's called a Nynja.

My wallet is a couple of grand lighter than it was a few weeks ago, because I've put a deposit on a Nynja kit. I've bought an aircraft and I haven't even sold the trike yet! How the heck did I get here?

I always wanted to fly, but never managed to quite accomplish it. I finally got my wings at the ripe old age of 58. My trike instructor showed me I could actually do it and I went and bought a trike. Things went well at first, but I soon developed a phobia of flying the trike in even the slightest turbulence. Not good. It got to the point where I dreaded going flying. That's when I decided the trike was not for me.

I had done some time in various three-axis machines and they didn't produce the level of anxiety the trike did. So I started looking around. I looked at various GA aircraft which were within my budget, but when I asked about maintenance and the costs associated with them, I was shocked. Then I started looking at ultralights and kits, but only half-heartedly. By this stage, I was disillusioned with flying and ready to give it up.

Once, when I was flying the trike, I met a guy named Mal McKenzie at Watts Bridge airfield and we became friends. We kept in contact over time and I'd just about given up on flying when he sent me an email saying he had sold his aircraft and had purchased a Skyranger kit plane. I had it confused with a SkyFox or KitFox, but checked it out anyway. I found Skyrangers were designed by Philipe Prevot and manufactured in France by his company called Best Off Aircraft. I did a lot of internet searching, but couldn't find anyone who had a bad word to say about this airplane. I was suspicious; that kind of reputation seemed too good to be true.

Our Nynja - 14 August 2011

I decided to build the kit in the garage at home rather than somewhere remote, which was a good decision because I could work on it whenever the impulse struck. It struck a lot. After only about 4 days, I had the frame of the Nynja built and standing on its wheels. Unbelievable!

The frame is complete. Plastic jugs at left are the standard fuel tanks

Before I knew it, it was time to purchase the engine. While I was waiting for the engine to arrive, the fuselage frame was readied for the fibreglass coverings. Greg came over and helped me mount the large tail coverings. He also cast a calibrated eye over my workmanship before we riveted the covers on. This, like a number of other jobs on this kit, looked quite daunting beforehand, but turned out to be quite easy.

My research showed that the Skyranger is a "rag and tube" design which is different to most. Instead of bent and welded chrome-moly, the frame consists of all straight aluminium tubing simply bolted together. Rather than glue and dope, the fuselage and flying surfaces are covered with fabric "socks" which are slipped on and laced up. I have seen other flying machines which used this kind of construction, but mostly they didn't look like "real" airplanes. Some had a distinctly flimsy look.

The kit comes with the fittings already attached to the tubes with the nuts done up finger tight. All that's required to put two parts together is to undo the nut, put the parts together and tighten the nut up. Could it really be that simple? Well, yes and no. The basic frame is just like that and comes together very quickly. Finishing, however, takes a bit longer but more about that later.

When I looked at the manufacturer's website, I found they produced several models all based on the same design principles. They even had one called "Nynja" with a sleek fibreglass cover over the whole fuselage. That really caught my eye and the hook was set.

I contacted Mal and got the contact details for the Australian distributor. Greg Robertson was helpful and friendly, but more importantly, not pushy. After numerous calls to Greg, my wife and I decided on the options we would have, ordered the kit and paid the deposit. I still had the trike, so I then had to make the effort to sell it.

During the time I was waiting for the kit to arrive, Greg moved from Melbourne to Brisbane and I realised he would have to fly his Nynja here. Somehow, I was able to scam my way onto the flight with him. The day before the flight, I came down with the flu or something. I was as sick as a dog, but I was not going to miss it for anything, so I dosed myself up with cold pills. Two days in a small unheated airplane in the winter when you're feeling unwell could make for a very unpleasant trip. Happily, this was not the case with the Nynja. We spent about five hours each day flying, and I was very impressed with how comfortable it was. I knew then that I'd made a good choice.

After what seemed an eternity, our kit arrived from France and was delivered to Greg's house. I took my trike trailer over and we loaded it all up. I could hardly wait to get it home. There were seven boxes and a huge wooden crate. The longest box contained the wing spar tubes and some other long parts. I had designed the trailer for a trike, but it almost looked purpose built for carrying Nynja kits.

>> *Continues P36*

"With care and attention to detail, you can have an airplane which is a real head turner

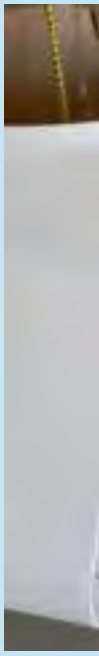
Hanging the engine. Fibreglass on the tail. Locally made 94L fuel tank

My shiny new Rotax 912S arrived in a substantial wooden crate with the gauges and accessories I had ordered, so I borrowed an engine hoist to ease the job of mounting it. Hanging the engine on the frame took about 45 minutes and I was able to do it without any outside assistance. Once the engine was hung, the frame was able to stand on its own without needing any support under the tail.

The firewall of the Nynja kit is supplied pre-cut, drilled and bent. It took less than a day to fit. When that was on, I started on the rest of the fibreglass. That's when it started to look like an airplane. I kept at it and, in a few weeks, I had all the fibreglass on, including the engine cowls. Even though none of them are structural, when fitted and riveted on, the fibreglass panels are all quite rigid. Fitting the fibreglass is a bit fiddly, but it's not rocket science.

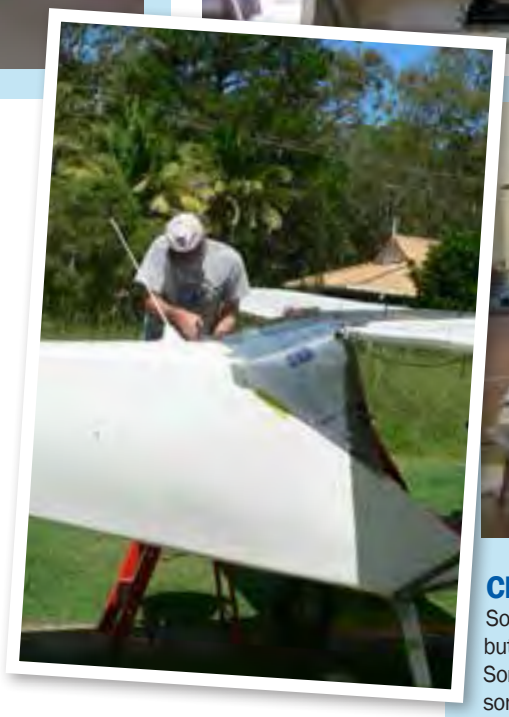
Firewall on. Fitting the scuttle moulding

With the fibreglass done it was time to start on the instrument panel. I had purchased the engine gauges with the engine, the flight instruments I mail-ordered from Aircraft Spruce and the radio I sourced from a local dealer. Building the panel was the job I enjoyed the most of all. I made a mock-up panel out of MDF and mounted the instruments and fitted it to the aircraft. This showed me some things about my layout which needed changing. Then I made a panel from aluminium sheet which incorporated those changes. I could have used the slick looking carbon fibre panel supplied with the kit, but I wanted a white panel and it seemed a shame to paint the supplied one. In the end, I made yet more changes and a third panel. I sent that one off to be powder coated and when it came back, I started wiring it all up. This took at least three times as long as I had anticipated, but I loved every minute of it. The radio and digital clock have active type displays which are easier to see in bright daylight than LCD type displays. I think the LED type aircraft clocks are over-priced so, being an electronics geek, I designed and built my own.



First power test. No smoke or flames!

Building the wings was a snack. It took about an hour to assemble the frames and run the control cables. Then Greg came over again to look at the frames and show me how to put the covers on and the battens in. Greg and I did one wing and my wife and I did the other. That's really all there was to the wings, apart from some Styrofoam spacer blocks to be put in later on.



Greg on tin snips duty, broiling in the hot sun

So far, the build has taken me eight months. I'm a very slow and error-prone builder, so it has taken a long time compared to others who have built these kits in as little as a few weeks. Even so, I've spoken with people who've built other types of kits which took years, not months to build. Although my build was pretty slow, it would have taken me longer and I wouldn't have had as nice an airplane without Greg's assistance. He was always ready and willing to provide advice, help or brainstorm ideas. I commend Greg for his guidance, encouragement and helpfulness, but especially for his patience with my endless questions and phone calls.

Chris putting a batten in the wing

So far I've mentioned only the major steps of the build, but all along the way, I was doing small detail jobs as well. Some of those small jobs were about adding my own personality to the plane with such things as an in-flight adjustable throttle drag mechanism, hatches in the floor for stowage, magneto switch guards, door latches and heel plates near the rudder pedals. I avoided making structural changes to the kit, but there were still plenty of ways to customise it.

Eventually, I started running out of jobs to do, but there was one more major job which had me completely intimidated: the windows. The window material supplied is tinted 1.5mm polycarbonate which is not available in Australia. The front windscreen and the back windows are three dimensional shapes and I could not visualise how to cut them out. A mistake would mean getting more polycarbonate sheeting shipped out from France and would incur lots of cost and a lengthy delay. Fortunately, two things worked in my favour. Firstly, I had Greg to call on and he generously came over and helped me. Greg got me through the hardest parts which were the back windows and the windscreen. Secondly, there was enough material so that even though I re-cut one side window and one back window, I was still able to get the job done. In the end, the windows were not as difficult as I had imagined, but they still gave me the hee-bee-gee-bees. The polycarbonate is amazing material to work with and can be easily cut with tinsnips.

Nynja 8092 - Spirit of Kitty Hawk - Watts Bridge, April 2012

As I write this, my Nynja is about 99.9% complete but not quite ready to fly. There are a few more small jobs to do before the testing and calibrating phase starts. Once it is flying, and it will fly, there will be 25 hours of test flying before I can carry a passenger.

There have been frustrating times during the build, but there have been even more times, like when the windows went in, that I was like a dog with two tails, not knowing which one to wag first. My impression of the kit is a very positive one. It has sleek good looks and comes together very quickly. There's enough scope to put your own personality into it, without resorting to structural or aerodynamic modifications. With care and attention to detail, you can have an airplane which is a real head turner.

The pictures truly do not do justice to the Nynja; trust me, I've looked at a lot of pictures. You have to see one in person to really appreciate it. You have to compare the visibility from the cockpit against some commercially made aircraft to see what Philipe has accomplished. You have to sit in the comfy bucket seat for a long time or experience the ease of getting in and out of the huge doors to know why these airplanes are so popular in Europe and the UK. You have to run your hand over the glossy fibreglass, just as it comes out of the crate, to get that "wow" I got when I first saw Greg's Nynja in Melbourne that day. You have to get in one and fly it.

If you're interested, I have a website with pictures of my build progress at http://members.iinet.net.au/~cscotthendry@westnet.com.au

Pilot WIFE

by Steph Campion

Whether you are just learning to fly, or you have been flying for more years then you can remember, I bet you can guarantee you've had at least one experience which either made you laugh, brought a tear to your eye, was a completely heart pumping, pulse racing adrenaline rush or just downright embarrassing.

When you stop and think about that moment, you may not even be able to remember exactly what happened, or exactly what was said. But it doesn't matter how many times you tell the story or how much it changes, you never forget how it made you feel.

However, being the wife of pilot guarantees you have experienced nearly every one of those moments.

In 2007, my husband James and his brother, Graham, decided to take up Trike flying. They have been around flying and aircraft most of their lives. James went solo at 16 and Graham worked on aircraft from a young age, so it almost seemed inevitable.

It was always kind of funny seeing people's reaction to the news we had become a flying family. They would say "Like real planes in the sky?" I still love watching their amazed looks and their reactions when I explain the whole ultralight flying experience. I also love the wide eyed panicked look on their faces when I offer them a flight.

Most people who know James and Graham, know their love and passion for aviation.

Those who really know them (and most aviators out there) know it's not just a hobby. It's a lifestyle. Even though "the boys" don't like to admit it, it's constantly on their mind.

At work it crosses their minds at least once a day. How good the weather is and how they'd rather be flying than working. If the weekend is coming up and things are planned, they look for excuses to get out of it, especially when

there's the possibility for good flying weather.

For most pilots, flying is in the blood - it's a part of you. That's something you don't really understand unless you fly. And for James and Graham, that's exactly how it is. When they hear an aircraft before they see it, most times they can tell you exactly what it is. Thermals, cloud cover, wind, rain, highs coming in, fly-ins, aircraft maintenance, BFR's, log book hours, all these things seem to be a part of their everyday life.

Sadly, even as a pilot's wife, I find myself checking the weather, Googling conversions for nautical miles into kilometres, flicking through the latest Sport Pilot magazine, automatically texting when I see a news headline of a crash.

But there are days I know the alarm is set for a silly hour and all I want to do is pull the blanket over my head and hit the snooze button. And days when the sun is shining and I am sitting at the airport thinking how my washing could be drying. And days when the stress levels get high and the bank account quite low.

And even though subconsciously I take a deep breath whenever the boys take off and don't exhale again until I know they are safely on the ground, I honestly have to say I wouldn't have it any other way.

>> James and Graham doing what they love most

>> It might look like a hobby, but it's a lifestyle

I don't believe there is any better feeling than watching the people I care about following their dreams, setting their goals and accomplishing them one after the other.

Watching the boys take to the skies for the first time in 2007 is one of those moments that will live in me forever, even though it seems like a life time ago now.

It's amazing when I look through the photos I've taken throughout the years, how a simple photo can turn into a complete story, all the memories which have included the laughter, tears, heart pumping, pulse racing adrenaline rushes.

From the aircraft (Trikes, Thrusters, X-Airs) to the trips (Tasmania, Narrabri, Tamworth) to the amazing people we've met along the way. From their first soloes, to taking passengers for the first time, to setting out on a new challenge, nothing is more rewarding than to see them have a dream, chase it, achieve it and do what others only dream of.

For all you pilots out there with wives sitting on the side lines cheering you on, just remember.

There is no one more proud than the wife of a pilot.

>> Nothing is more rewarding than chasing a dream and achieving it

Flight instructor's forum

Facilitated by the aviation guru - Professor Avius

The stall/spin problem

ALL of us have, at one time or another, been put through the mandatory stall recognition and recovery exercise. Some of us have been fortunate to be taught how to enter and recover from spins. A rare few of us have been unfortunate to have entered a flat spin and have gone through the heart stopping and absolute helpless feeling of not being able to recover. Thank you Mr Irvin!

What is a normal spin and what is a flat spin? A normal spin is when the aircraft is in a stalled state, spinning around a vertical axis and in a nose down attitude 45° or more, to the horizontal. This is also referred to as an erect spin.

Depending on aircraft design, characteristics and loading, the rotational speed could typically be as high as 300° per second and the descent rate in excess of 2000 feet per minute.

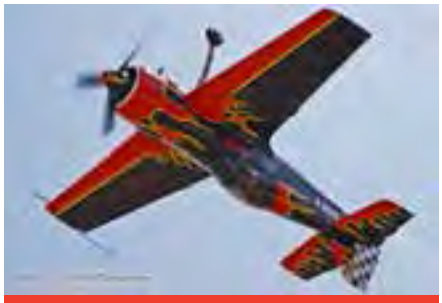
A flat spin differs from an erect spin in that the aircraft fuselage will be at less than 45° to the horizontal. An aircraft in a flat spin could have a rotational speed of 400° or more per second and a reduced descent rate but still more than 2000 feet per minute. The descent path is vertical or nearly so.

From an operational perspective, an erect spin is recoverable, provided that correct control techniques are initiated promptly. On the other hand, if a flat spin has developed in a normal category aircraft, it could be difficult, if not impossible, to recover and a crash becomes inevitable.

Causal factors which could lead to a spin and/or a flat spin.

Readers should be aware that an erect spin could become an inadvertent flat spin, depending on aircraft design, loading, pilot technique and other factors.

- **Weather.** Either just after or just before an aircraft stalls, a sudden gust could place the aircraft in an unusual attitude, and, if not immediately corrected, could lead to a spin.
- **Flight Instructor Incapacitation.** If a pilot becomes incapacitated at the point of a stall, or during the recovery, inappropriate control action could lead to an inadvertent spin.
- **Flight instructor lack of skill.** If the flight instructor lacks the ability to recognise the development of a spin and/or fails to take timely corrective action, an inadvertent spin may result.
- **Student pilot inappropriate action.** Quite often, as any flight instructor can attest, a student pilot can react to a stall by not using correct recovery techniques. This requires prompt and forcible action by the flight instructor to recover the situation.
- **Student pilot too strong.** It is possible that a flight instructor could be prevented from taking timely corrective action because a student pilot, simply reacting to the perceived threat in a stalling manoeuvre, overpowers the controls. For example, the student could pull on the control column while the flight instructor is trying to push it forward.
- **Engine power.** If an aircraft is spinning and power is applied, the gyroscopic forces can cause the nose to pitch up and an erect spin could become a flat spin.
- **Aircraft malfunction.** It is possible a malfunction could also lead to an inadvertent spin. For example, the rudder control could become jammed.
- **Aircraft Limitations.** Aircraft Operations Manuals stipulate the operational conditions of a particular aircraft. These conditions could also be shown as placards in the aircraft and may include weight and balance limits, limiting speeds, permitted manoeuvres and notes for the safe operation of the aircraft.



>> Spinning the way the experts do it
Photo: Darren Mottram

- A note in the Operations Manual of certificated aircraft could state -

'There is no uncontrollable tendency of the airplane to enter into a spin provided normal piloting techniques are used'

WARNING: INTENTIONAL SPINS ARE PROHIBITED or words of a similar meaning.

Certified aircraft are required to have a safety margin in case a stall recovery is delayed. This margin must be proved by flight testing the aircraft to demonstrate it is recoverable from a one turn spin, or a three second spin, whichever takes longer.

Because these aircraft may not have been flight tested beyond the one turn spin, its spin and recovery characteristics are not known if the aircraft exceeds this limitation.

- **Loading limitations**. If these are exceeded, the ability of the aircraft to recover from a stall or spin is unknown.

What is known is that if the aircraft is loaded with the CG behind the aft limit, an unrecoverable stall or spin could result.

- **Flight instructor pushing the limitations.** Because an aircraft is capable of stalling and spinning, some instructors will experiment and this could lead to the development of an unintentional spin event.
- **Operations Manual Syllabus.** The RA-Aus Operations Manual - Advanced Pilot Award - calls up, in Units 10 and 12, stall recovery from skidding and slipping turns. The problem with this requirement is that this is precisely the method used to deliberatively enter a spin. That is, the controls are crossed at the point of the stall. Even though the syllabus states a recovery should be initiated at the point of the stall, an inexperienced flight instructor attempting this syllabus item may not be able to stop the aircraft entering an inadvertent spin.
- **Fabric wings.** An aircraft in a spin will have one wing more stalled than the other. A fabric covered wing which has not been doped may, at the point of stall, become more deeply stalled than the other one and this could lead to an unintentional spin.

So, what to do? The basic fact is that an aircraft will not spin if it is not stalled. NO STALL – NO SPIN!

Stalls are a vital and mandatory part of the training syllabus and can be safely practiced dual or solo. Practice will develop student confidence and an awareness of the signs and symptoms of a stall. Conscientious practice of prompt stall recognition and recovery technique should ensure the aircraft will never enter an inadvertent stall and therefore not enter a spin.

A few tips. Always check the aircraft loading to ensure the CG is within safe limits; Be cautious about holding the aircraft in a stalled state; Always exercise prompt stall recovery techniques; At the first sign of a spin, that is, a wing drop and roll, immediately start spin recovery action – don't wait to see what is going to happen; Always follow the Flight Manual instructions for inadvertent stall and spin recovery action. And, - DON'T MESS WITH SPINS!

***Ed** - The Prof has been a test pilot and done spin testing in many types, including the Jabiru LSA. He has been in two flat spin events and only recovered by actuating the spin parachute.*

Email contributions to guruavius@gmail.com or editor@sportpilot.net.au

PILOT NOTES

Corby Starlet

Pilot experience: 451 hrs, <1 on type.

The pilot was conducting taxiing practice to familiarise himself with the aircraft. He lost directional control and the aircraft veered off the runway, rolling a tyre off the wheel rim as it did so. The wheel rim dug into soft ground and the aircraft came to rest with damage to the undercarriage and underside of the fuselage.

X-Air Standard

Engine: Rotax 582, 162 hrs ttis.

The aircraft was at a height of approximately 150-200' on climb out after a touch and go when a slight vibration was felt through the airframe. Shortly afterwards the engine decelerated to an idle and an uneventful forced landing was carried out on the runway.

An initial investigation suggests that the crankshaft has failed between the fore and aft connecting rods.

T-Bird

Conditions: Light wind, nil turbulence.

Pilot experience: 2680 hrs, 1 on type.

While it was on late final the aircraft encountered sink in the vicinity of a stand of large trees. Despite corrective action by the pilot it continued to sink and then struck the ground heavily in the landing attitude.

The undercarriage and rear fuselage tubes sustained damage and one propeller blade was broken.

Foxbat A-22LS

Pilot experience: 60 hrs, 31 on type.

While conducting supervised solo circuits, and during the final landing, the aircraft ballooned during the flare and the pilot pushed the nose down, causing the nose wheel to touch down first. The nose leg bent back and the propeller contacted the ground. Damage is limited to the propeller, nose gear leg and wheel spat and the gearbox will undergo an inspection.

Jabiru LSA 55/3J

Engine: Jabiru 2200, 492 hrs ttis.

The aircraft experienced fuel starvation in flight which caused the engine revs to reduce to idle. The aircraft was landed without incident and the fuel system was examined. The carburettor bowl was found to contain a white powdery substance which had also found its way into the main jet.

The fuel in the aircraft had been delivered from a tank which had previously contained diesel fuel and it is thought that this combined with possible water contamination may have been the cause of the contamination.

Jabiru J160C

Engine: Jabiru 2200, 700 hrs ttis.

While on cruise the engine failed without warning. An uneventful forced landing was made and the engine was inspected on site where it was discovered that the recently installed flywheel securing screws had all sheared.

Bantam B22S

Engine: Rotax 582, 325 hrs ttis.

The aircraft was climbing through 400' after take-off when the engine stopped completely without warning. The pilot carried out an uneventful forced landing into a grassed area adjacent to the departure runway. Subsequent strip down revealed that the engine had sustained extensive internal damage possibly due to a big end bearing failure.

Zodiac HD 601 M

Conditions: Light wind, moderate/strong turbulence.

The aircraft was on short final when it encountered strong turbulence. It began to sink and the pilot applied power but was unable to prevent it touching down short of the piano keys.

The aircraft then skidded along the runway for a short distance before coming to rest with damage to its undercarriage, wing, empennage and propeller. The pilot was not injured.

Callair Skyfox

Engine: Aeropower, ttis not stated.

The aircraft failed to achieve normal climb rate after take off and struck a tree. The pilot and passenger exited with moderate injuries and the aircraft was destroyed. A thorough investigation found no definite cause for the apparent lack of engine power although it was noted that one of the carburettor mounting bolts was slightly loose which may have allowed excess air to enter the manifold.

DEFECTS

Aeroprakt Foxbat A22L

An investigation carried out after a landing incident revealed that the alloy axle mounting block had cracked right through allowing the main wheel to tilt upwards. The brake disc then fouled a mounting bolt, jamming the disc and preventing the wheel from rotating.

The surface of the mounting block appeared dull and powdery leading the investigator to believe that the cracking may have begun some time prior to the final failure.

Jabiru 170

Airframe and engine: 150 hrs ttis.

While on cruise the pilot noticed that the climb rate of the aircraft had reduced although the engine appeared to be running normally.

During a subsequent take-off the engine would not develop full power so the take-off was aborted. An investigation discovered a small piece of material approximately 15mm by 3 mm in size which appeared to have been partially blocking the main jet as the engine ran normally following its removal.

Picture: Brenna Matthews

PILOT TALK

Jill Bailey
Assistant Operations Manager

A pilot's responsibility for his or her health is even more important when the pilot intends to take a passenger for a flight

RA-Aus health standards

MOST RA-Aus pilots know how privileged we are to be able to fly our aircraft with the relatively simple health standard requirement for a private motor vehicle licence. All that is required is to sign the declaration that comes with the yearly membership renewal, and pilots are ready to fly. Is it that simple?

There are some further considerations regarding this simple self declaration. These are spelled out in the Operations Manual in Section 2.07 paragraph 5d and relate to pilots who suffer from epilepsy, diabetes type 1 or 2, a heart condition/disease or paralysis, a mental illness (medicated or otherwise) or are 75 years old or over. If any of these stipulations are the case, the pilot must obtain a signed statement from their doctor (GP) stating they currently have a health standard equivalent to that required for a private motor vehicle licence.

Currently, if a pilot undergoes a medical assessment for a driver's licence due to RTA requirements, or for a heavy vehicle licence, they are still required to obtain a signed statement from their GP. In the not too distant future, we are seeking approval to accept a copy of the RTA paperwork so as to eliminate the double handling requirement. We will keep you posted regarding this approval.

In addition to the processes outlined above, there is the requirement for pilots to be responsible for declaring any major change in their medical status, which also includes the obligation to self assess their current health status. There are areas which are obvious, including suffering from a cold or flu or if a pilot's health standard changes due to a reaction to a change in medication, etc.

These self assessment criteria should be a part of every pilot's preparation for flight. In other words, in addition to checking the aircraft suitability for the flight, pilots should ask themselves are they are fit for flight. Our Human Factors training should assist us to identify significant effects on personal performance and judgement ranging from the effects of lack of sleep to momentous family issues for example. What about deterioration in the pilot's hearing or, for female pilots, the effects of being pregnant?

If at any time the medical requirement is not satisfied, the Pilot Certificate privileges cease until the medical requirement is valid again. In most cases this is self imposed but, as mentioned above, major changes in your health standard requires providing RA-Aus with a medical certificate from a GP.

A pilot's responsibility for his or her health is even more important when the pilot intends to take a passenger for a flight. If the passenger does not have any flying qualifications, they are relying completely on the pilot for their safety and well being. This responsibility should never be trivialised. Other considerations for passengers' wellbeing should include an assessment of the weather conditions to ensure the flight does not take place during significant thermal activity or other adverse conditions.

The same responsibility regarding health standard self-assessment is an important part of Instructors and CFI's conducting flying training operations. Instructors, including Senior Instructors and CFI's, have the additional requirement of a higher health standard, which is obvious when considering they are responsible for conducting training and Trial Instructional Flights with members of the public. This is satisfied either with a Class 2 medical undertaken with a Designated Aviation Medical Examiner (DAME) or by completing the equivalent RA-Aus Medical Declaration with your GP. Either way, a qualified health professional is involved. This information is part of the requirement for Instructors to maintain their instructing privileges and in the case of the CFI, to continue to operate the Flight Training Facility. Section 2.08 relating to Instructors and 2.09 relating to Senior Instructors both have a statement in paragraph 6 which states this medical requirement must be provided prior to the medical expiring. As the CFI approval is based on a valid Senior Instructor rating, the CFI must hold a valid medical. If the Class 2 medical is involved, all Instructors must forward the interim medical certificate to the office, while the medical is being processed by CASA or their Instructor rating and if relevant, therefore the CFI approval and Flight Training Facility approval will lapse!

At Natfly 2012, there was information regarding the proposed Recreational Pilot Licence (RPL), which I have also heard called the Light Aircraft Pilot Licence (LAPL). The health standard for this LAPL is also based on the health standard required for a driver's licence, with the additional requirement that the assessment must be made by a GP and use the medical pack provided by CASA. This health standard is to be called a driver's licence medical (aviation) and has some different stipulations mandated by CASA. So while it appears the LAPL has the same medical requirement as for the RA-Aus drivers licence health standard, it will be slightly more onerous and therefore considered a higher standard than our self declaration. Another privilege RA-Aus pilots enjoy.

I trust this has clarified the medical requirements. A pilot should think about their health status more than just once a year. Remember to apply assessment criteria like I.M.S.A.F.E. prior to each and every flight.

BTW, I.M.S.A.F.E. stands for...Illness, Medication, Stress, Alcohol, Fatigue, Eating.

members' market

Selling your Aircraft?

2439 FOR SALE JABIRU J-170C

24-5281 Airframe 1750hrs, Engine 350hrs on new factory recon. engine, latest mods carried out by Jabiru factory. New tyres, Dynon 10 EFIS plus analog instruments, Garmin 296 colour GPS,Transponder, external charge connector, lambswool seat covers, spats as new, adjustable rudder pedals, strobe, L2 maintained. Always hangared. One owner since new. $65,000 incl GST. Phone Bill 0429 054 205.

2567 JABIRU J160C

Factory built in 2007, total time flown 120 hours, fitted with standard instruments, permanently hangared, not used for training. Contact Paul. Mobile 0428 661 902. PRICE: $62,000 including GST

2580 TECNAM BRAVO LSA

Immaculate condition only 165 hrs TT. 100hp Rotax 912. Dynon EFIS D100. Garmin Mode C transponder. Garmin radio. AvMap large screen colour GPS. Dual fuel flow meters with electric fuel gauges. Electronic trim. Fully maintained by LAME. Always hangared. $113,000 + GST. Phone 0411 471 273 for more details.

2588 PRICE REDUCED ROBERTSON STOL B1-RD

The ultimate STOL fun machine, this 95-10 built by Robertson Aircraft Corporation using standard aircraft components. Massive 162sqft wing gives stall speed of 15mph and cruise speed 38mph. Website www.ultralightnews.com/antulbg/b1rd_ultralight.htm. Original Cuyuna 30Hp plus spare Rotax 503. $3,500ono. John 0427 757 922

2611 10-069 SAPPHIRE 447CDI

Wing tanks plus 14L fuselage tank with Gauge. ICOM A200 radio, Instruments and near new Sweetapple prop. Low Hrs on Engine and Airframe. Great performing single seat Ultralight, cruise at 75Kts with over 4.5 Hrs endurance. Hangared at Maitland. $13,500 ono. Ph Col 0412 522 916 or email col.burrows71@gmail.com

2645 JABIRU J200A

19-4165 Manufactured 2004, TT480, engine Jabiru 6 cyl. 120HP. Mechanical lifters Jab prop. Stalls 43kt, cruise 115-120 MTOW 600kg. Three strobes, 2 radios, 1 transponder, auto pilot, Intercom EFIS-D10 System IK2000. Flight & engine monitor, GPS MAP Garmin 296. Cabin heat, manual flaps serviced every 25hrs. Nil accidents. 138lt. Hangared L.T.V. $65,000 Ph George 03 9707 3238

2663 AERO PUP

2 seater only flown 30 hrs. Fitted with Jabiru 6 cylinder engine. $45,000, cost $55,000 to build.It takes only 5 minutes to fold the wings back to put aircraft on a car trailer Ph 0412 421 032

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Well maintained and hangared. 449.5 hrs. 123kts @19ltrs hr. Sweetapple cruise prop, custom extractors, 10 ply mains, 85ltr tank. STD gauges + electric turn coordinator, volt meter, fuel flow meter. XCom VHF & headsets, + UHF & 2xGPS. Grim voltage regulator, Anderson jump start plug. Will deliver anywhere. $55,000. 08 9921 8790

2680 PIONEER 300

Jabiru 3300 powered, retractable geared, transponder, Garmin 296 GPS, Micro radio & intercom, electric trim, VFR instruments, RA-Aus Registered, fuel miser, 34kts stall, 130kts cruise. All up 265hrs, this aircraft has been hangared, service records up to date. Many other extra's $125,000, call Mark on 0448 387 828.

2696 DRUINE TURBULENT AT100

19-4864, built under 101.28, brand new with permit. 0hrs.Single seat wooden, VW 1835cc. Expect 90+kts cruise, stall 32kts. 14 lph, total 401. dual ign. (Bendix mag. + coil), 25A alt. Fifth plans – built by experienced builder. $19,000ono. Ph: 02 4351 1437.

2752 FOXBAT A22

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24-4239 TT 550hrs. Rotax 912 100HP, L2 maintained, Excellent condition. New Kiev prop & tyres recently fitted. Hangared at Mudgee NSW. Transponder, Fuel flow meter, Microair radio, Garmin 196, Altimeter, ASI, VSI, Flydat monitoring system, AH-Trutrak ADI Pilot 2 (includes GPS Track readout). $72,000. Ph John 0437 373 503

2760 JABIRU J230C

Factory built, Natfly 2008 winner, 24-4937. Excellent condition, Flies "Hands Off". Always hangared, TT420hrs, Microair radio, transponder, Fuelscan 450 (couples to GPS),. Low fuel light, new battery, dual stobes, heater, 10ply tyres. Serviced every 20hrs. Many extras. Ph: 0418 930 100. $70,000 + GST.

2762 SUPAPUP MK IV

Supapup MK IV single seat. Excellent condition. Originally VH registered. Jabiru 2200 and Jabiru prop with only 32 hours. Aircraft has only 99 hours total time and is RA AUS registered until July 2012. All work undertaken by LAME. Matco hydraulic disc brakes, cargo compartment, really good panel including artificial horizon, 56 litre wing tanks, Microair radio, Hobbs metre and polyfiber covering. Cruises at 90kts and climbs at 1250 fpm. Burns 14 lph. Included is a custom made, Queensland registered trailer. Aircraft can be viewed near Esk, Qld. $30,000. Ian 0417 899 524.

2765 THRUSTER T 500

25-0780 2 seater T/T 1165 hrs, 582 Rotax 225 hrs since overhaul. UHF and ICom VHF Radio. New tubeless tailwheel. Long range fuel tank. Flies great and well maintained. $15,000 Hangered in Helidon/ Toowoomba area. Complete spare engine and gearbox also available. For more info ph Paul 0427 622 176

2775 PIONEER 200 XL. 24-5118

Factory custom built. Long range tanks, Lawrence GPS,SL40 Garmin radio, JPI FS fuel flow monitor, standard gauges, electric aileron trim, electric elevator trim , flaps, metallic blue paint, blue tint canopy, landing & strobe lights, cabin heat, wheel spats.Privately owned & only flown by owner. Excellent Condition. Always kept in fully enclosed hanger Nill accident. Magnificent to fly 231 Hrs. $75,000 Plus GST Ph. 0429 457 759

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In immaculate condition. Airmaster Constant Speed Propeller , Dynon D180 plus all standard gauges. Dual axis auto pilot HDG & ALT hold. Large screen Garmin GDU 370 coupled GPS Transponder with Mode C, ready for entry into Class C airspace. 142Ltr long range fuel tanks. Low hours suit new plane buyer. PH: 0412-834 225.

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Immaculate aircraft, 200h tt, 912S, cruise 105 knots, stall 32 knots, all instruments, GPS, Icom Radio, transponder, extended 116 l fuel tanks, reluctant sale $83,000 negotiable. Rick 0431 914 652 or rnothard@yahoo.com

2822 KR2

Unregistered. Has flown in Canada. Needs tidy up and registration RAA or VH, 2 seats, taildragger, inline 4 auto conversion with belt drive PSRU and wooden prop. Save yourself the trouble (2-5 years) and cost (about $40,000 est) of scratch building. $14,000ono. Call Martin 0419 333 525.

2823 XT912 - AIRBORNE TRIKE

New sst wing with only 45hrs, base 450hrs, excelllent condition, no incidents, always hangared and covered. Set up for touring. c/w covers, pylon bag, o/ night covers, landing light, bar mitts, engine cover. Trailer available. For further info please phone 0419 518 353. Making way for new aircraft."

2835 FLY SYNTHESIS TEXAN TOP CLASS 600

Manufactured December 2007, excellent condition, always hangared, TT 600 Hrs, 2000 TBO, Rotax 912ULS 100HP, cruise 110/115 knots, 100 litres fuel (2 x 50 litre wing tanks), L4 maintained, strengthened main undercarriage (heavy duty), ballistic parachute, wing & tail strobe plus nav light, blue tinted canopy, carby heat, cabin heating, electric trim on stick, 2 x noise cancelling headsets, cabin key lock, canopy cover, Garmin SL40 comm, Garmin GTX327 transponder, Trutrak ADI 3, Trio Avionics 2 Axis autopilot coupled to Garmin 695 GPS, toe brakes, new tyres, wheel fairings. $123,500 Ph: 0400 888 362

2837 BREEZY 19-906

Built 1994, 420 hours total time. Ground up rebuild finished mid 2011. Comprehensive receipts for $37K of work and new equipment. Engine Rolls Royce 0200 – 100HP with 1680 hours to run. This is a sweet aircraft in like new condition, you can expect years of trouble free economical fun flying. $50,000. PH. John 0418 727 575

2841 AIRBORNE EDGE X 582 CLASSIC 32-7815

Streak II B wing 40 hours. Engine 270 hours TT. Microair M760 Transceiver. Raptor Headsets with intercom. Custom-made trailer (Regd.). Tundra tyres and large windscreen. Always hangared, BEAUTIFUL BIRD. $27,000 the lot neg. Phone Nigel 03 6383 9452 (Tasmania)

2860 SKYFOX GAZELLE 4685

This Gazelle has new fabric on wings aluminum aileron hangers, full cockpit instruments bolly 3 bladed prop, leather seat, new paint and decals all mechanical history $34000 including purpose built

trailer. Based in Rowville Vic. Email John: jfwig@netspace.net.au or 0417 032 528.

2880 BRUMBY

Low Wing J600. Jabiru 3300 engine TTSN 25hrs Leather interior. Standard Instrumentation. $115,000 ONO. Ph Paul 0414 677 971 or 02 6341 1635

2882 MORGAN SIERRA 100

Jabiru 2200 (new), Thompson Prop. Matco wheels & brakes, manual flaps, Icom A210 Radio. Flight & Eng inst. Test flight time only. $57,000. hangar also for sale if required. Gawler SA. Ph: 08 8522 2505.

2886 XAIR

2.2 Jabiru motor. 400 hrs. Electric carby heat. Patroney prop. Wide entry doors. Aircraft has been well maintained & regularly serviced. Motor has just had a top end overhaul. Ultralam Skins replaced 3yrs ago. Reliable fun plane. Criuse at 70kts burning 14 ltr/hr. Hangared at Warnervale. $23,500. Sheree 02 4390 0005 / 0408 680 543.

2895 JABIRU J160C

2007 Model,390 hours TTIS,Factory Built, 1 Owner, LAME 2 Maintained, Always Hangered,in excellent condition. Has Microair VHF and Mode C Transponder. Comes with Wheel Spats Not shown in Photo. Located near Yalgoo W.A. call 08 9963 7993. $60,000.ONO

2897 ZODIAC 601XL-B

Jabiru 3300 TT AF and ENG 115 hours. Recently upgraded. Beautifully built aircraft with superb looks and handling. Full glass cockpit Dynon D100 D120 and Avmap IV. Microair transponder and VHF radio. Suit new buyer. Reluctant sale. Visit www.jodaplanes.com for all build and flying photos. $75,000 ono. Contact Dave 0407 008 896 email davidg@fnoc.com.au

2898 JABIRU J160C

Factory built 2007. Reg 24-4926 Aircraft and engine 250TT. Dual microair radio and microair transponder. Garmin Aera GPS. Beautiful condition, well looked after and always hangared. $64,000. ph Jon on 0438 634 411 or email jc4487@gmail.com

2899 RANS S17 STINGER KIT

TT 16 hours ex USA - needs assembly, single seat high wing aircraft kit with as new Rotax 503 DCDI engine, all instruments and ready to go, trailerable but no trailer. Not registered. Located Brisbane asking $11,000. Photo of completed Stinger. Rick 0431 914 652.

2904 AIRBORNE EDGE X

Microlight. Streak wing. 582 Blue Head Rotax, 25 hours since Bert Flood recon. Helmets, headsets, radio, covers. W.A registered custom trailer. Excellent condition. Ready to fly. $20,000. Ph: 08 9450 5953 W.A.

2926 JABIRU SP-6 19-3627

Jabiru 3300 engine [solid lifters] 781 hours total time. Lowrance 2000 color Gps 5". Reg till 12/12. Level 2 maintained. Microair radio/intercom, 2 Blackhawk Headsets, ASI, ALT, RPM, Electric Turn Co-ordinator, Oil Press , Oil Temp, VSI, CHT, Volts, Elec Fuel Pump, Compass, outside temp gauge, Throttle lock, Spats x 3, 85lt Fuel Tank, Aircraft Covers, external power supply. A lot of hours were added to the build to make the door fit and fairings better than Jabiru, professionally painted 2 pack, Cruise 115 kts 19 lt hr. Asking $44,500. Ararat/ Geelong area. Ph.Doug 03 5255 2971 or 0409 084 589. dpark221@gmail.com

2937 CHINOOK 10-0114

Excellent condition. TTIS 500 hrs. Rotax 277, 10 hours since major OH. New ASAP Plus 2 wings and tailplane, full length flaperons. Strobe and standard instruments. With trailer. Always hangered and covered. Great first plane, easy to fly and land. $8,200. Located WA. Phone Ed 0409 201 049 or ed.trindall@gmail.com.au

2938 PEGASUS QUANTUM 912 Q2

32-4264 Good condition 460 hours TT. Helmets (x3), Headsets, Intercom A22 ICOM radio, GPS, fuel flow and all instruments. New propellor, new upper and lower rigging wires and base bar, always hangared. Just done full 100 hourly service with Rotax specialist. Registered Trailer to suit trike + wing. Full maintenance records and history + Log Books + Manuals + Wing Bag + some consumables. $28,000. Ph.0427 963 066 or (07) 4661 4742.

2939 SAVANNAH

101 hours, built 2006, always hangared, Rotax 100HP, professionally maintained. Bolly prop,V.G.'s fitted, standard gauges, dipstick access, Garmin SL 40 radio, Garmin 296 GPS. Brakes fitted both sides. $52,500. Call 08 8536 3101 or losdos@optusnet.com.au

2940 SKYRANGER

First registered January 2007. 130 hrs total time. 912 rotax. Full glass panel include dynon EFIS and EMS. SL 40 VHF, Transponder, Avmap Gps. Nil accident always hangared. $58,000. Ph 0414 450 015.

2942 TL 2000 CARBON STING

680 hrs,always hangered, Rotax 912 uls, EFIS, transponder , full recovery system, CD, in flight adjustable prop, wing tip strobes, cruise at up to 135 kts. Too many extras to list. Full history. Thousands below replacement. $107,000, inc GST. Phone Terry, 0427 561 562 for more details.

2944 ZENITH 701

2001.TT 500hrs Approx . Rotax 012. Big wheels, always hangared. $35,000. Tel. 02 6947 2540. MOB. 0429 445 379.

2948 PROTEC PT 2

19-3145- $39,000. South Coast NSW. Phone 0428 406 940. Airframe 149 hours.Engine 80 hp. Rotax 1,145 hrs 100 Lt tank 6-hour endurance. Cruise 75 knot at 75% power. 2 seats side by side. Full aluminium folding wings 10 min to rig. 3 bladed warp drive ground adjustable composite prop. Garman GPS 55. Engine fully refurbished. New items: battery, Xcom radio, bush tyres 440mm OD, bracket, aerial, altitude encoder fitted to suit Garman GTX 327 transponder. Good ground performer. Can fly without doors. Can be registered VH. 5.8M registered galvanised trailer.

2949 X-SERIES OUTBACK

Rotax 582 Two Stroke 65HP,Tundra tires, Streak 2B Wing, 394 hrs, always hangered, with Incomplete trailer and hanger trolley, $22000 or near offer, Yinnar Sth Vic.Contact Rick on 0412 186 031.

2953 2004 EVEKTOR SPORTSTAR

Reg 24 4399 certified for 12000 hrs TT 3300Hrs, Rotax 912ULS TT 920 hrs. Three blade wood comp prop. Standard instrument pack plus Bendix radio, Transponder mode A and C, Tru track GPS and horizon. Always hangared, level 2 maintained. $65,000. John 0412 965 407.

2956 SAVANNAH XL

24-7377 New 08-01-2010. 212 hrs. L2 maintained. Log books. 912 Rotax, standard instruments, Xcom radio, Bolly 3 blade propellor, electric flaps and trim, twin sticks and brakes. Safety door latches, strengthened front axle. 144 lts fuel, Tundra tyres. Always hangared. $68,000. Ph: 02 6543 7342.

2957 SONEX

Aerovee 80HP. Microair Radio. Cruise 100kts. Garmin 196 GPS. TT 100 hrs. $49,000 OBO Phone 0412 537 730

2958 SHARE IN FLY SYNTHESIS TEXAN 600

Quarter share in a Texan 600 at Tyabb Vic. Manufactured December 2007, excellent condition, always hangared, TT600 Hrs, 2000 TBO, Rotax 912ULS 100HP, cruise 110/115 knots, 100 litres fuel (2 x 50 litre wing tanks), L4 maintained, ballistic parachute, wing & tail strobe plus nav light, blue tinted canopy, carby heat, cabin heating, electric trim on stick, 2 x noise cancelling headsets, cabin key lock, canopy cover, Garmin SL40 comm, Garmin GTX327 transponder, Trutrak ADI 3, Trio Avionics 2 Axis autopilot coupled to Garmin 695 GPS, toe brakes, new tyres. Active syndicate. $27,500. Ph: 0417 371 871.

2960 JABIRU

2007 SP6.TTIS 195. L2 owner built and maintained. 3.3 solid lifter engine, 3 blade Bolly prop, GPS, wing tanks. Imaculate condition. Can deliver anywhere.$60 000 ono. 0400 722 035.

Enquiries
Ph: (02) 6280 4700
E-mail: admin@raa.asn.au

2963 AVGAS FUEL TANK

self bunded 5,000 litres. High volume, 12 volt Solar Powered certified pump. Tank 12 months old & built to licensing standards. $12,500-00 ONO. PH.08-8767 2145 0408 813 501.

2966 ZENITH 601 HDS

Partially completed firewall back kit: (Re-advertised) Empennage and right wing completed, left wing part completed by retired Flight Engineer. Construction log with photos, all special tools to complete, CAD plans and PDF construction guides included. More info: http://www.zenithair.com/zodiac/601-hds.html. Call Bob 0427848148 $16,000.

2968 KITFOX III, 19-8010

TTIS 250hrs, Rotax 912 UL 80 hp, IVO in-flight Adj Prop, Long Range Tanks, Grove Under Cart , MGL Avionics ASI & ALT, TruTrak Turn & Bank, Grand Rapids EIS, AvMap IV GPS, Microair M760 Com & T2000 Transponder, Flightcom Intercom, 3 hrs Instruction, Based Gympie, 45k. Ph: Peter Stanton 0403 865 474.

2969 BOORABEE MK 2

Well maintained and always hangared. Engine: Jabiru 2.2. Radio: Icom IC-A22E. Aircraft and engine- 150 hrs. Exterior of the plane is Stitt's Covering. P.L.B.: XS-4 GPS included. Instrument fitted: flow meter, oil pressure & oil temperature guages. tinytac, V.S.I., compass, hour meter, C.H.T., twin strobe lights, visibility lights, intercom- two headsets. Fuel capacity- 100 litres. Price: $22,000 Firm. Gladstone QLD. Ph: 07 4978 1172

2970 JABIRU J120-C

24-7279 New December 2009, Private use only, Option upgrade incl VSI, Garmin 296, Landing light, Strobe, Voltmeter, Davtron chrono, Charcoal interior, Speckle rear compartment, Custom graphics, Microair M760Q, Avcom headsets, 270 hrs TT and owned by Level 2 . This aircraft is as new and offered for sale to make way for upgrade. Flies perfectly at 100 kts @ 15l/hr. Save over 14k on new. Price $48,000. Enquiries welcome on 0488 685 378 or smartscorp71@hotmail.com

2971 KITFOX 111

Reg 28-4154 Rotax 912 TTIS 540 hrs. LAME built and maintained and always hangared. Instrumentation includes AH, VSI, and engine instruments. 100litres fuel. A great versatile plane, a joy to fly. Cruise 75+ kts. at 14ltrs/hr. $38000 Ph 03 5978 8212.

2972 JABIRU 170-C

2007 factory built Jabiru 170-C for Sale. 750 hrs TT in service, with engine replaced at 575 hours. Level 2 maintained and all A/d's completed. Always hangared. Factory repaired early 2011. Perfect for club, training school or personal purchase. Price $62,000. For more details phone Graham 0427 472 349.

2973 BANTAM B22S

Absolute fun, very easy to fly. 2 seater side by side. Always hangared, full instruments, flaps, ICOM radio, two

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TEXT ONLY $15/month
(50 words maximum - text will be edited when it exceeds maximum limit)

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headsets, 100klm/hr cruise, dual throttle control. Rotax 582, Low hours good condition, very short takeoff and landing. No accidents, car trailer is ideal for transport, $21,000 0417 646 075 Whitsundays Qld.

2974 2006 EVEKTOR SPORTSTAR

First reg 2006, hangared at Aldinga Airfield S.A. 140 hrs on new Rotax 100hp URL-S engine. Garmin 250 GPS, ADI-3G direction indicator, transponder, radio. Always serviced by Level 2 Mechanic. Very clean aircraft. Ph: 0408 804 289. Syndication being considered - seeking interested persons. $85,000 (GST inclusive)

2975 2006 FLIGHT DESIGN CTSW

437 Tach, Hobbs 500 since new. Always hangared. Dynon EFIS D100/D120. Bendix SkymapIIIC, Becker AR4201 COM, Becker BXP6401 Mode S transponder, TruTrak Digiflight IIVS A/Pilot. Neuform electric constant speed prop. Matco brakes. Tundra option H/D undercarriage/wheels. FD highback leather sports seats plus much more. $119,000 NO GST. 0402 079 444 or (08)9341 7819.

2976 CFM SHADOW 25-1063

503 Rotax, 122 hrs, 10m wingspan, 4 blade Brolga prop, always hangared, regular maintenance, 3 axis control, all instruments radio, two headsets. Easy to fly, real value at $18,000. 0428 317137 / 03 5480 1637.

2977 XT582

brand new xt582 outback with everything to fly, 0 hours on base, still at airborne Newcastle. The wing is a streak 2b with 10 hours on it. Would sell the lot for $33500 Selling because of cut hours at work Please call me on 0407012306.

2978 SAVANNAH VG

Built in Feb 2008, in good condition. Hangared at Scone Airport. Total hours 336, radio, Xcom, extra instruments T&B and VSI. Rotax 912 ULS engine, 4 fuel tanks in wings. Log book up to date. $60,000 or good offer. Ph John 0428 286 296.

2979 FOR SALE

A new, single seat bi-plane powered by a brand new ROTAX 503 dual ignition, electric start, GSC Canadian Ground Adjustable Propeller, handles beautifully, performance as good as it looks. If you are an enthusiast of open-cockpit flying, and are looking for something special, then the Bumblebee is for you. The design is based on the Fisher classic but uses a more sturdy welded airframe. Built by a Level II, hangared at Tumut Airfield, NSW, contact Mike Roodt, on mobile 0405 428 005. PRICE : $35,500.

2980 ARION LIGHTNING

24-7194 professionally built 2011, TT 40hrs Dual controls and toe brakes for PIC, MGL Odyssey glass panel, MGL radio, ASI guage, Leather seats, Electric flaps & trim, Adjustable pedals, Jabiru 3300, 6cl engine, Aircraft hangared at Horsham, Victoria. Heart health issue forces sale. POA, but less than 100k. No GST. Ph Bill 0468 323 396, email: punga.iwi10@gmail.com.

2981 AIRBORNE T- LITE 10-8074

5 hrs TTIS! Bailey 4 stroke. Full specifications /photos on Airborne site. Selling to buy a two seater. Current new price is $20,000. Brand new covers, Vario altimeter, helmet/headphones, funnel, fuel container, two base bar fittings and freezer suit. Batemans Bay $20,600. Ph: 4478 6288 / 0402 027 214.

2982 WANTED

ROTAX 912 100HP. Chasing low hour good condition (no damage history) 912s or 912uls.Preferably 2000hr tbo engine but would consider older engine must have manuals and log books Please call Tim on 0410 660 212.

2983 AIRBORNE

Outback 582 Tundra. Ex Cond. Original Wizard 3 wing 160 hrs, set-up twice only. Micro-air radio and Lynx interface 2 helmets and headsets. Base 430 hrs. Brand new Rotax 582 . 6 Month Rotax warranty. Bolly Prop. $26.000 with new motor or $19.500 with original motor. Geoff WHITE. Phone 03 5122 3489 or M: 0437 073 400

2984 AIRBORNE T-LITE

22hp Bailey Engine. Core wing. Helmet, Headset and Icom radio. Disc brake. 2 Months old, 9 Hours flight time. AirBorne demo model. $18,000. Over $3,000 off new price.Geoff WHITE: 03 5122 3489 or mob.0437 073 400

2985 AUSTER J5P

Auto car,1956 vintage. In good condition, but wings off and engine needs re assembling. Lots of re built parts and has been stored in my shed. Airframe is in good order, no corrosion, fabric is good. New ground and matched crank, new piston rods, all there waiting for someone who can do the job. Phone Peter after 6pm weekdays 03 5797 8456 or email .pgraydvr@fastmail.fm $10,000, just need to recover purchase cost.

CHILDERS

>> Wings of Life founder Douglas Field gave one lucky girl a flight in the 80% scale Spitfire

by Edith Rutherford

>> Ron Field's immaculate Renegade caught the attention of all comers at Childers

>> More than 340 vehicles were on display and adjacent Superior Aviation Services provided joy flights in pristine flyin conditions

ISIS Flying Club members are ecstatic. For the first time, the Club's Wings & Wheels event was launched as a full weekend and it attracted more than 340 vehicles on display, and more than 60 aircraft.

"The weekend was a big step forward for us," says committee member Les Duguid. "The event started as a breakfast in 2010, grew to a full day last year and this year, with help of the entire community, became a weekend event which we hope will continue to grow in the future".

Vintage and veteran vehicles, machinery displays, a working blacksmith, and a visiting rally of more than 130 Hot Rods all provided much for visitors to see. Tucked away in the bush to the west of Bruce Highway in southern Queensland, Childers Aerodrome came to life with perfect weather allowing visitors to discover the delights of the region.

Flying into Childers was stunning, views stretching from Mt Goonenaman through to the coast and Fraser Island, clear blue skies as far as the eye could see. The ground view was a delightful patchwork of lush green canefields, macadamia and avocado plantations providing the perfect backdrop for the event.

>> Far left: Friends for 60 years Bill Jenkins and Leo Kalinowski love to show children the Hawker Hurricane at events

>> Left: Variety was the order of the day at Childers in May

CHILDERS

Visiting aviators were treated to stunning views, warm hospitality and lots to see and do all weekend. Especially popular was the Saturday night dinner served up by Bundaberg Historical Machinery Society. The dancing went until late, but Childers Lions members were up early next day to serve hundreds of cooked breakfasts.

Childers has done itself proud. If this first weekend open invitation event is anything to go by, it can only get bigger and better next year.

>> Middle: TIF Flights with Gympie Aero Club popular

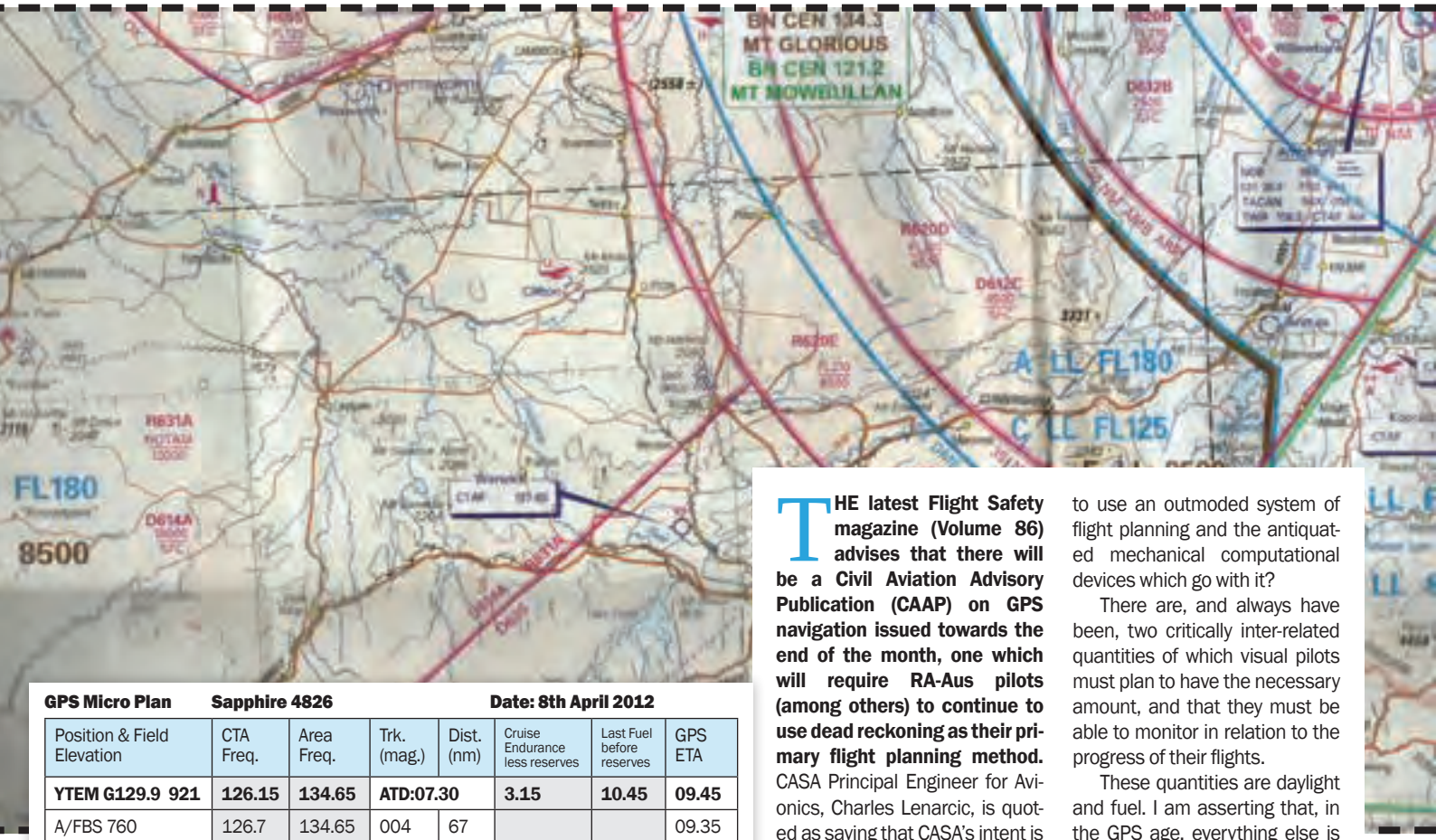
>> Bottom far left: Local wine and produce, amusements and kids activities provided something for everyone

>> Bottom right: Terry Brassingtons' restored military truck and David Britten's Bren Gun carrier added another dimension to the display

LET'S GET REAL

Why the emperor has no clothes

by Arthur Marcel



GPS Micro Plan **Sapphire 4826** **Date: 8th April 2012**

Position & Field Elevation	CTA Freq.	Area Freq.	Trk. (mag.)	Dist. (nm)	Cruise Endurance less reserves	Last Fuel before reserves	GPS ETA
YTEM G129.9 921	**126.15**	**134.65**	**ATD:07.30**		**3.15**	**10.45**	**09.45**
A/FBS 760	126.7	134.65	004	67			09.35
A/PKS 1069	126.7	123.9	004	17			09.33
YNRM 782	126.7	123.9	004	53			09.29
				137			
YNRM 782	**126.7**	**123.9**	**ATD:10.16**		**3.15**	**13.31**	**12.58**
A/YGIL 1050	126.7	123.9	014	37			12.48
Kenebri		127.1	014	59			12.43
Wee Waa		127.1	022	39			12.41
YMOR 701	126.7	127.1	019	48			12.40
				183			
YMOR 701	**126.7**	**127.1**	**ATD:13.29**		**3.15**	**16.44**	**16.13**
Yelarbon		127.1	030	73			16.01
Inglewood 930	126.7	123.95	052	20			16.00
A/Clifton 1450	126.7	121.2	043	49			15.58
YFRH 400	126.7	121.2	043	34			16.03
				176			
				Last Light: 17.48			

Local time zones

THE latest Flight Safety magazine (Volume 86) advises that there will be a Civil Aviation Advisory Publication (CAAP) on GPS navigation issued towards the end of the month, one which will require RA-Aus pilots (among others) to continue to use dead reckoning as their primary flight planning method. CASA Principal Engineer for Avionics, Charles Lenarcic, is quoted as saying that CASA's intent is to create regulation which maximises the advantages offered by new technology while minimising the risks.

Apple iPad software applications such as those supplied by OzRunways are now available to streamline the traditional model of flight planning. But there may be a better model to be had and this article is meant to promote serious, constructive discussion on the topic of GPS navigation. It is not meant to be dismissive of people who are doing their best (as regulators) to ensure the safety of people like us who risk our lives (and the lives of others) in recreational aircraft. However, the question has to be asked - why we are we still required to use an outmoded system of flight planning and the antiquated mechanical computational devices which go with it?

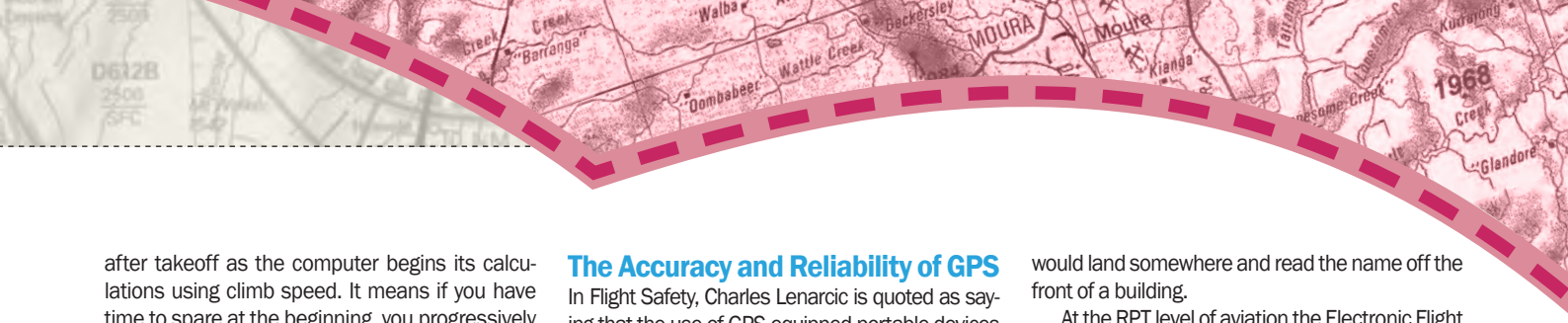
There are, and always have been, two critically inter-related quantities of which visual pilots must plan to have the necessary amount, and that they must be able to monitor in relation to the progress of their flights.

These quantities are daylight and fuel. I am asserting that, in the GPS age, everything else is peripheral to the main game.

The era of not knowing where you are, or of not being able to find your destination, has passed. Filling out unnecessary forms enroute is more likely to distract pilots from the main game than help them follow it. In an elegant system, complexity should not exceed the demands of adequacy and, if and when it does, resources are wasted and failure rates increase.

Monitoring Daylight

GPS makes daylight management a relatively simple task. Both last light and a progressively updated ETA can be displayed on the same screen. With a reset trip log, ETA is at its worst just



after takeoff as the computer begins its calculations using climb speed. It means if you have time to spare at the beginning, you progressively have more time to spare into the flight.

Monitoring Fuel

It has been said that DR flight plans are necessary in order to more accurately calculate the fuel required for a flight, and that the incidence of fuel exhaustion before arrival is higher for flights not planned in this way. Obviously, this is a strong argument in favour of DR; one that needs to be addressed. To my mind, the question becomes one of how fuel management, especially over longer routes, can be made as reliably simple as daylight management. Do pilots flying GPS plans need to carry greater reserves? Perhaps they do.

I suggest, however, that we treat fuel in the same temporal manner as we treat daylight, by converting our fuel on board figure (less reserves – see next paragraph) into a cruise endurance figure. After takeoff, we add this cruise endurance to our departure time to get our fuel exhaustion time (Last Fuel). This can then be compared to the GPS ETA during the flight in the same way as Last Light is compared to GPS ETA. Notice how this has been done on the example GPS micro plan (completed for a return flight from Temora to Forest Hill, Qld on Sunday 8th April 2012).

Reserve Fuel

Traditionally, reserve fuel is determined by an upwards calculation, adding 15% to the estimated flight fuel and then another 45 minutes on top of that. GPS navigation, however, requires cruise endurance to be calculated downwards by subtracting a nominal reserve figure from total endurance. For most aircraft, this nominal figure would be 70 minutes or greater. The example plan is for an aircraft with a proven cruise consumption of 13 litres per hour departing with 60 litres of usable fuel. Total endurance at the beginning of each leg is 277 minutes. If 45 minutes is taken off that and then 15% off the remainder, this leaves a cruise endurance figure of 197 minutes, (in other words, there is 80 minutes of reserve fuel). This cruise endurance figure (rounded down to the nearest 5 minutes) is used for any flight made in this aircraft when departing with full tanks.

Notice also that this micro plan has no airspeed, wind, or predicted heading DR columns (no one is suggesting, by the way, that the weather situation, including predicted winds, should not be assessed pre-flight). Likewise, there are no cruising or lowest safe altitude columns. In regard to cruising levels, most visual pilots don't know them until they get up there. That's because they are looking directly at the winds as they ascend, trying to get the most favourable level. (Incidentally, differences in climb fuel burn are not so great for the altitudes we normally fly at, and can easily be allowed for.) In regard to LSAs, visual pilots hopefully avoid the terrain by keeping their eyes outside the cockpit. The leg by leg groundspeed column is likewise not on the above micro plan (because it is redundant as well).

The Accuracy and Reliability of GPS

In Flight Safety, Charles Lenarcic is quoted as saying that the use of GPS equipped portable devices as the primary means of navigation has some hidden dangers that few pilots appreciate. He questions both the integrity of positional information and the accuracy of the displays. It has also been recently pointed out to me that in the recent past, there have been controlled airspace violations (that is, more than one) attributed to GPS inaccuracy.

I agree with Mr Lanarcic in that, apart from receiver malfunction (eg., power supply failure, software/hardware glitches, etc), there are two conceivable categories of GPS positional errors. One would be when the GPS itself provides inaccurate positional information. The other would be when the electronic map overlay contains incorrect positional information (eg., wrongly marked CTA boundaries). Albeit without knowing the full facts, I would say the probability is high that the latter type of error was involved in any airspace incursions (and is therefore an error that could occur with any other type of map).

While most of my flying experience was gained in the days before GPS, I have owned and operated a GPS in my car for the past five years. This device is one of two I have used in the plane for almost the same length of time. By using it in the car every day, I have become 100% intuitively familiar with its operation. To my knowledge, it has never given me an incorrect fix. Sometimes its street routing program has taken me a little further than I may have otherwise gone, but the positional information it has provided me on a daily basis has never been wrong. Likewise, the map overlay, while sometimes in need of updating, has always been positionally correct. (I might add that in the past the Refidex street directory system of car navigation was less effective, and far more dangerous in that my situational awareness was more compromised at critical moments while navigating.)

Just recently, I contacted the two largest Brisbane taxi companies and asked them about the reliability of their GPS taxi routing systems. These companies route thousands of cab journeys every day on the basis of GPS positioning. Both companies said that they had had a number of "outages" over the years due to hardware and software malfunctions, but they found the GPS system itself extremely reliable.

Although basically the same technology, dedicated aviation GPS receivers are made to a higher standard than those in automobiles. Many RA-Aus pilots, though, use automotive type (or sometimes handheld type) receivers. Even with the aviation type, however, I believe it prudent to duplicate GPS systems (preferably using independent power supplies). This is not difficult, because the things are as small and cheap as they are reliable. The chances of the greater GPS system ever going down are especially negligible. Even if, for some unimaginable reason, there was to be a complete GPS failure, it would be no more serious than what used to happen sometimes when flying unknown routes with only a map and a pre-takeoff prepared, dead-reckoning flight plan. The pilot would land somewhere and read the name off the front of a building.

At the RPT level of aviation the Electronic Flight Bag debate obviously has more substance than it does at our end of the flying world (perhaps with the possible exception of when we fly in close proximity to controlled airspace). I believe the question of electronic navigational reliability for RA-Aus pilots to be mostly a theoretical distraction. This is particularly so because the alternative, that is, dead reckoning navigation, is very far from perfect.

The Accuracy of DR

Some pilots assert that DR is an accurate method of navigation. However, these people often fly higher performance aircraft. Certainly, the faster the aircraft, the less effect are the differences between forecast and actual winds; in fact, the less effect the wind has altogether. These kinds of aircraft usually have directional gyros too. Most of our planes fly at slow speed and have magnetic compasses often placed to one side with mountains of parallax error. And who swings their compass these days; indeed, who knows how to? Even if the thing is accurate, how do you read it in turbulent conditions? Also, aircraft with higher L/D ratios which fly at speeds less than 100kts (like mine) are greatly affected by thermal activity and it is rarely possible to fly a constant airspeed at a given altitude and constant power setting. I maintain that, for the kind of aircraft we fly, particularly those without directional gyros, DR is an approximate method of navigation. Even if DR is thought to be satisfactory, it is a whole lot more complicated than GPS navigation, allows less time for looking out and reduces situational awareness in general.

Paper Maps

Some pilots claim reading maps is not that difficult. I agree that in well-delineated areas, it is quite feasible to get a fix with a traditional map. The further from the coast, however, it becomes increasingly problematic. Try working out where you are in the mid-west of NSW on a hot hazy day, if you haven't got a good idea already. I believe that the only remaining use for paper maps in the modern visual flight cockpit is as a backup for GPS units with limited electronic map displays, or to show controlled airspace boundaries in the absence of these being marked on electronic maps.

The truth of the matter is that this is how many (very many, I dare to suggest) RA-Aus pilots are flying their aircraft at this moment. This is certainly true for shorter journeys, but agreeable and reliable habits are soon extended to longer trips. The Emperor has no clothes in that a traditional DR flight planning method is ostensibly being supported by pilots who aren't admitting to not actually using it themselves. Given a simpler, but workable alternative for monitoring the flow of both daylight and fuel (as suggested in the above draft GPS micro plan), there is no reason why these pilots shouldn't be completing their flights just as safely as those driving a whole lot more paper around.

STEVE'S SAVANNAH

by Arthur Marcel

STEVE Donald is a senior aeronautical engineer with Virgin Airlines. It is therefore to be expected that when Steve builds his own aircraft, the finished products are rather exceptional. We have already seen evidence of Steve's professionalism in the Aeropup he has been flying around our area for the past four years. Now Steve has done it again with his new Savannah.

Having finished the Aeropup in 2008, Steve told me he had been itching to build again, so he began researching another suitable project. A few years ago at Narromine, he met Reg Brost, the NSW/QLD agent for ICP Savannah, who had a Savannah VG on display. Reg explained the attributes and STOL ability of this aircraft, and also the fact that the kit came complete with absolutely everything required. Steve remembers being very impressed. By the time he was ready to purchase, the VG XL model had become available. This model has a few improvements over the VG model, including a ring engine mount, and a new streamlined engine cowling, giving the aircraft even more attractive lines.

After much discussion with the lady he calls his Minister for Finance, Steve finally convinced her of his psychological need to build another aircraft. To put it another way, he finally got the green light to spend more of the kids' inheritance. So he ordered a VG XL kit from Reg in Feb 2010, thinking he would have the plane built in about six months. It actually blew out to become a two year project, not that Steve said it was difficult, but he still had the Aeropup to fly. So there was no real pressure to complete it, and he was able to take his time and savour the experience.

During the build, he became aware of two other Savannah builders living nearby, so he made contact with them and was able to compare notes. The three of them helped each other out with queries, especially with the deciphering of the Italian/English builder's manual. Steve thoroughly enjoyed putting the plane together in his shed at home, and completed the project in January this year. A friend of his, Kevin Haase, did the final inspection, and, in February, Steve received his provisional registration and authority to fly within the test area. He was keen to fly off the 25 test hours as quickly as possible and did this in only two weeks because he wanted to take the plane to Temora, which he did.

Before that first flight, however, he needed a Savannah endorsement, and did this with Neil Schafer at "Go Fly" Caboolture. He had to get a feel for the aircraft, particularly the takeoff and landing characteristics. Steve was pleasantly surprised. He said the Savannah was so easy to fly he immediately knew there would be no problem doing the first flight himself. So, when the day came, he took off and did a circuit. He described it as really a bit of a non-event. The only minor problem he encountered in those first 25 hours was some minor engine cowl chaffing, which he promptly rectified. The aircraft flies straight, runs smoothly and Steve is really having fun exploring its STOL characteristics. He says that with full flap on approach and a slight breeze down the strip, he can literally touch down at almost walking pace. This makes it a very safe aircraft if he needs to put it down in a paddock for some reason.

Steve flies out of Caboolture for which the airfield designation is "YCAB", so he has called his Savannah "Y Cab Sav". He is already thinking about his next project (he warned me not to mention this to the Finance Minister). He thinks perhaps a Savannah S with a Rotax 912iS would be nice, but he would need to sell the Aeropup first, because having three aircraft might be a bit extravagant.

But then, is it really possible to have too many aircraft?


Y Cab Sav


19-1966

SCHOLARSHIP AWARDS 2012

The Board of RA-Aus is delighted to announce the results of the Giving Young Flyers Training Support (GYFTS) scholarship program for 2012

THE following ten applicants have each been awarded a scholarship of $2,500, sponsored by Airservices Australia. The Board and members of RA-Aus acknowledge the support for scholarship program by Airservices Australia for the past three years.

Jett Barnes (15)	QLD
Belinda Blades (15)	NSW
Joshua Coate (16)	NSW
Tristan Dinning (16)	VIC
Jacob Fawkner (17)	VIC
Troy Finocchiaro (16)	NT
Cuan James (16)	SA
Henri Maxwell (17)	NSW
Anastasia Millward (16)	TAS
Riley Schier (15)	NSW

THE following seventeen applicants have each been awarded a scholarship of $1,000, funded by Bolly Aviation and donations by members of RA-Aus. This fund pool grows each year and the Board of RA-Aus acknowledges the generosity of Bolly Aviation and RA-Aus members.

Ashley Bosveld (16)	TAS
Brodie Dionysius (15)	QLD
Hannah Ferguson (19)	SA
Jake Funnell (18)	NSW
Ashleigh Gesler (16)	NSW
Harrison Hayne (15)	NSW
Amelia Kane (15)	QLD
Suzanne Munns (20)	QLD
Jai Nankivell (17)	SA
George Nicholson (16)	QLD
Stuart Orford (15)	VIC
Caleb Pearce (18)	VIC
Joshua Ryan (17)	SA
Callum Saunders (15)	NSW
Brad Smith (17)	NSW
Solomon Tesfaye (16)	VIC
Jesse Thomson (15)	QLD

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Who needs an airstrip?

IT may never make it to Australia, but the first ever street legal aircraft is now a significant step closer to being a commercial reality.

The production prototype of Terrafugia's Transition has completed its successful first flight in the US.

The same vehicle also successfully conducted initial drive and conversion testing.

The Transition is a two seat aircraft, capable of driving on roads and highways, parking in a single car garage, and flying using unleaded automotive fuel.

"The successful first flight of this production prototype marks a critical move toward initial production and first delivery," said COO Anna Mracek Dietrich.

Terrafugia will continue its testing program in preparation for first delivery, which is expected to occur within the next year. Six phases of flight testing are planned to continue development and demonstrate compliance to the Light Sport Aircraft standards.

The Transition's first flight reached an altitude of 1400ft AGL and lasted eight minutes while staying in the vicinity of Plattsburgh International Airport.

Chief Test Pilot Phil Meteer said: "It's a remarkable vehicle both on the road and, now, in the air. When I drove it into the shop, literally from the road through the garage door, I was amazed I had just flown it at Plattsburgh a few days before. A long-overdue mode of transportation and fun is just around the corner. I can't wait for the upcoming flight tests and the chance to 'wring it out'.

For more information www.terrafugia .com

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

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NEW GTN 650 and **GTN 750** series GPS/NAV/COM **CALL**
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G3X EFIS/EMS System **$6695**

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Panel Dock for ÆRA series **$195**
Panel Dock for 196/296/495 **$195**
Panel Dock for Garmin 695 .. **$275**

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Aware is Australia's first airspace warning GPS complete with digital charts from Airservices Australia (*NZ ver. also available).

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- **Unique airspace alerting system**
- **Ready to use straight from box**
- **Free airspace updates for life**

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- Improved comfort
- better noise attenuation
- bluetooth connectivity
- auxiliary music input

Zulu.2 ANR GA version ..... **$ 950**
Zulu.2 ANR Helicopter ver. **$ 950**
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with blue tooth and music input

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HM51 child headset **$199**
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Sennheiser HME95 ... **$299**
Sennheiser HME100 .. **$399**
Sennheiser HMEC250 **$599**
David Clark H10-13.4 **$399**
David Clark H10-60 **$449**
David Clark H10-13H **$425**

Bose A20 Headset
A20 GA twin plug w/bluetooth **$1345**
A20 GA twin no bluetooth **$1295**
A20 Helicopter w/bluetooth **$1345**
A20 Lemo w/bluetooth **$1345**
Installed wiring harness **$75**

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AFFORDABLE GLASS COCKPIT AVIONICS
* Not TSO'd. For experimental aircraft or for certified aircraft with a CAR35 approval

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EFIS-D100 ... **$2575**

Engine Management
EMS-D10 .... **$1795**
EMS-D120 .. **$2275**
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Auto Pilot Systems
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AP74 Interface module **$715***
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*requires D10A/100/180

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SV-D1000 10" display **$3695**
SV-ADAHRS-200 ... **$1320**
SV-EMS-220/A **$660**
SV-XNPDR-262 Mode S transponder Module **$1980**

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MM001B Integral helmet **$795**
MM001C Integral helmet with VOX electronics **$995**
MM020A Helmet only **$349**
MM001 UL100 headset **$440**
MM001A UL200 ANR headset **$575**
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XCOM

XCOM VHF Transceiver **$1395**

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COCKPIT VIDEO CAMERA

NFLIGHTCAM HD Camera **$449**
NFLIGHTCAM HD GPS Camera **$549**
NFLIGHTCAM+ HD GPS Camera **$649**

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AK-350 altitude encoder **$295**

AK-451 ELT (406 MHz) **$899**
FAA/ETSO approved 406 MHz ELT

BENDIX/KING

SKYMAP IIIC GPS .. **$1995**
KMD 250 panel mount ... **$3695**
KY 97A VHF (OHC) 14v ... **$1695**
KN 64 DME (OHC) **$2095**
KR 78A transponder (OHC) **$600**
KR 87 ADF (OHC) system **$2495**
For New BK Avionics please call

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Zaon *XRX $1475
*Now interfaces with Garmin GPSMAP 495 / 496 / 695, Avmap EKP4 / Geopilot2, and the BendixKing AV80R

ICOM

ICOM

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IC-A6 Pro **$595**
IC-A24 Sport **$495**
IC-A24 Pro **$695**
Sport versions come with cigar lead and alkaline battery case. Pro version comes with rechargeable battery rapid charger, cigar lead, and headset adapter
IC-A210 (panel mount VHF) **$1299**
IC-A110 (vehicle VHF) **$1195**

MICHEL/TKM

MX11 Comm **$1095**
MX170C Nav/Com **$1795**
MX300 Nav/Com **$1795**

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RCA 2600 digital horizon (electric) **$2995**
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4300 LIFESAVER Electric Horizon with emergency battery backup **$4250**
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1394T100-7Z Turn Coordinator **$ 925**
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7000C.31 Vertical Speed Ind. ... **$ 695**
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With Transducer, fittings, Firesleeve and GPS interface **$850**

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GH025 (electric) Artifical Horizon 14v .. **$1195**
GD031 (vacuum) DG **$475**
DG023 (electric) DG 14v **$1195**
BZW-4B turn coordinator **$399**
BC-3E Altimeter 20,000 ft **$299**
Vertical Speed Indicator **$199**
Magnetic compasses **$150**
Vertical card compass **$299**
Air Speed Indicators from **$199**

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HM
2 place portable **$175**
2 place for Icom **$175**
4 place portable **$250**

PS ENGINEERING
PM 501 panel mount 4 place I/C **$350**
PM 1000II 4 place **$395**
PMA 4000 audio panel & I/C **$895**
PM 3000 4 place I/C **$525**
PCD7100-I CD player & I/C **$895**

SIGTRONICS
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Approved life jacket in sealed bag 10 year service life ... **$199**

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