SPORT PILOT

For recreational pilots
NOVEMBER 2013 VOL 29 (11)

RECREATIONAL AVIATION AUSTRALIA

REPORT

Making good decisions before take-off

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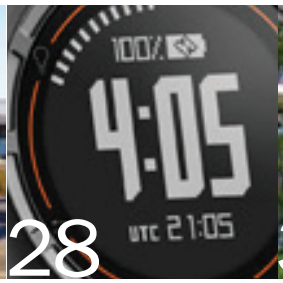

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President's Report

RODNEY BIRRELL

RECREATIONAL Aviation Australia started from humble beginnings as the Australian Ultralight Federation and has grown over the past 30 years to become Australia's largest pilot training/management organisation.

As we continue to grow we do need to consider reforming how we manage our business. It would be easy if we were structured just as a profit driven business. We would employ a commercial Board, accountants, business managers, and a bunch of high priced consultants to do the work for us.

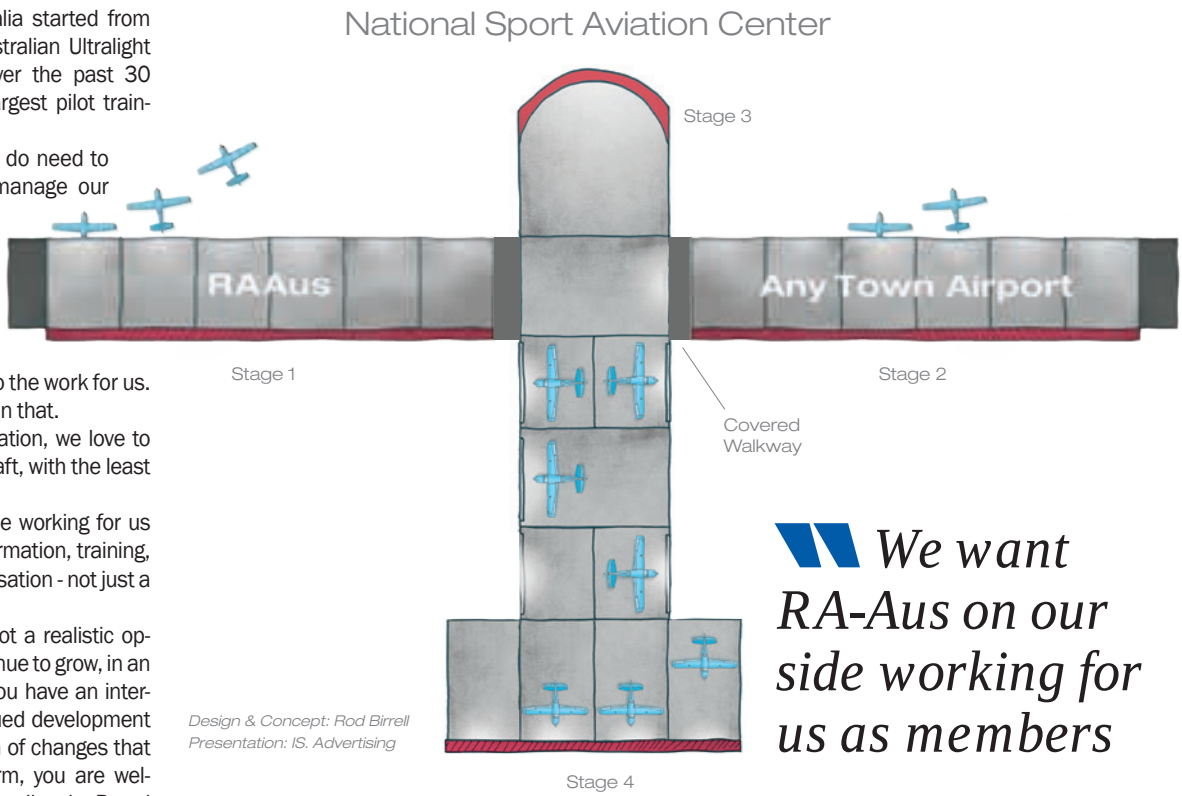
RA-Aus is so much more than that.

We are a volunteer organisation, we love to build, fly and maintain our aircraft, with the least amount of hassle.

We want RA-Aus on our side working for us as members, RA-Aus is an information, training, education and advocacy organisation - not just a profit making business.

Staying stationary is also not a realistic option, RA-Aus does need to continue to grow, in an effective and efficient way. If you have an interest and insight into the continued development of RA-Aus, and the introduction of changes that will involve constitutional reform, you are welcome to have your say and an email to the Board a good starting point.

A vision for the future is something in short supply with the aircraft registration problems RA- Aus has had recently. But there is a light at the end of the tunnel and we will be able to look forward to many positive developments in the next few years. As a teaser the creation of Sport Aviation Centres. SAC's are not a certainty, any development is always subject to Board approval, however as a teaser I have enclosed a thumb nail drawing covering just one part of a SAC plan.



Design & Concept: Rod Birrell
Presentation: IS. Advertising

> *We want RA-Aus on our side working for us as members*

Finally some legal notices, the RA-Aus budget is available for member viewing on the RA-Aus website. The operating deficit RA-Aus has been considered by the Board and, as a result, a modest membership fee increase will occur. No fee increase will occur for aircraft registration or renewal, once again full details on the RA-Aus website.

May I wish you a happy and enjoyable Christmas break and a great, safe, flying start to the new Year.

2-3 November

Back to Holbrook Fly-in and JabFest

Holbrook Ultralight Club will again host its ultralight fly-in and Jabiru Festival at Holbrook Airpark. Forums Saturday afternoon, three course dinner among the aircraft Saturday night and hot breakfast Sunday morning. Trophies awarded at the dinner. Underwing camping and transport to and from town for accommodation and fuel available. For more information, www.holbrookultralightclub.asn.au or Bryan Gabriel (02) 6036 2601.

2 November

Motors in Motion

Kingaroy Aerodrome. Planes, cars, motorbikes, tractors, trucks and anything else propelled by an engine will be on display. Trade displays, entertainment for children, food and lots of other activities. Prizes for best aircraft. For more information, Kevin Krosch 0428 622 749. www.sbmotorsinmotion.com.

3 November

NSW Sport Aircraft Club open day

NSW Sport Aircraft Club open day and fly-in at Napper Field, Lysaght Road, Wedderburn. All levels of recreational aviation welcome and on display. Stalls, food, local produce. For more information, Geoff May 0404 084 199, geoffmay@nim.com.au, www.wedderburnairstrip.com.au/openday.

7-9 November

Catalina Festival

Australia's first seaplane convention will take place at Rathmines, Lake Macquarie Ex-RAAF flying boat base on Thursday 7 and Friday 8, leading up to the 7th Catalina Festival on Saturday 9. Festival goals are a museum and hangar saluting the crews who served there during wartime. Last year's attendance was over 15,000. There will be bands, historic military vehicles, children's rides, a memorial fly past of seaplanes, flying displays, aerobatics and warbirds. For more information, Malcolm Burns 0448 744 763 or mal.767@hotmail.com.

CALENDAR OF EVENTS

11 -12 November

Great Eastern Fly-In

The fly-in at Evans Head Memorial Aerodrome In northern New South Wales will be bigger and better than ever. The Great Eastern will celebrate in its 22nd year with a refurbished Bellman Hangar and a display of an RAAF F-111 A8-147 and other warbirds. There will also be the usual aerial displays, events, catering and camping on site. For more information, Gai Taylor 0427 825 202, (02) 6621 5592, email gaitaylor@exemail.com.au. Facebook or website www.greateasternflyin.com.

24 November

National Toy Run

Put on by the Antique Aeroplane Association of Australia (S.A. Chapter) In conjunction with Barossa Birdmen. Fly in to Truro Flats Airpark (S34 23.9 E139 23.1 CTAF 126.7 refer ERSA). Bring a toy suitable for distribution to a child (Leave the toy unwrapped or wrap in see through plastic and attach a photo of yourself or your aeroplane). Barossa Birdmen will cater lunch with profits going to Kids With Cancer. For more information, John Cooper 0428 117 301 or vhbdq@chariot.net.au.

2 March 2014

Busselton Aero Club Aerofest

Arrivals Saturday March 1 and Sunday March 2– before 10am (preferred). Limited billets available. Saturday night BBQ. Big family day. Inspection of emergency services aircraft and helicopters, hangar displays, model aircraft, car club, food and drinks. YBLN is the gateway to the Margaret River wine region. No landing fees. For more information, Will Owen 0429 098 032, Ken Manton 0429 967 172 or ken.manton@bigpond.com.

BUSSELTON Aerofest 2014

9 March 2014

Clifton Fly-In

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

LETTERS TO THE EDITOR

Open letter to Rod

At a meeting of the Callide Dawson Flying Group Inc. on August 11, it was resolved that we write to you (President Rod Birrell) asking for more specific answers regarding your nominated goals for the RA-Aus board, as published in *Sport Pilot* magazine in August, namely;

- How will you unite a currently divided RA-Aus Board in order to achieve consensus in its decision making?
- When will the Safety Management System be introduced, and what will it entail? Please supply target dates and a system structure;
- Please give a date when the current problems with RA-Aus aircraft registration will be fully resolved. Please give an assurance that registration of our recreational aircraft will continue to be valid;
- Please outline your strategies in allowing the General Manager to effectively manage the tasks the Board has given him, while regaining credibility and transparency with, and the confidence of, the whole of the RA-Aus membership;
- What other sport aviation bodies do we need to work more effectively with, and how can we display a united voice to them from our current partly dysfunctional position?
- What form will the State and National Sporting Aviation Centres take, and who will be able to apply for funding to establish such a centre?
- What strategies do you have to achieve a balanced RA-Aus budget, and what date will a proposed budget be published to the full RA-Aus membership?

The Callide Dawson Flying Group Inc. is a long standing RA-Aus affiliated club of more than 120 members, which has in the past made key suggestions that were successfully adopted regarding incorporation and insurance matters with AUF/RA-Aus.

Our members are concerned with the current RA-Aus board and management situation. Our members have unanimously resolved that, rather that put our heads in the sand regarding the difficulties being experienced, we continue to be involved in having our voice heard in these matters and be able to contribute constructively to their successful resolution.

Your prompt attention and clear answers to the above questions will do much to regain the confidence of our club membership and we are sure, of the entire RA-Aus membership.

David See
Secretary Callide Dawson Flying Group Inc.
Theodore Qld.

Rod - *We live in interesting times and RA-Aus is certainly living through one of these at this time in our history.*

At close to 30 years of looking after sport pilots, we are at a turning point in many regards. CASA is introducing a RPL (Recreational Pilots Licence). This is disappointing when we have a perfectly well established and proved RPC (Recreational Pilots Certificate).

The aircraft registration issues are still a hard nut to crack. We are electronically copying all records as they come through to make the administration of records secure and easier to retrieve (they will be able to be viewed by managers remote from our Canberra office). Optional two year membership and two year aircraft registration is to be reintroduced, which will save office time (and cost) and reduce the hassle factor with aircraft renewal.

We have an Acting Tech Manager who is actively negotiating on our behalf to remove "log jam" problems such as the in-flight variable pitch propeller problem. When all aircraft records have been updated and checked the future renewal process should be much easier for aircraft owners.

The management of the office of RA-Aus is going well. Our General Manager is looking after the day-to-day affairs of our organisation with skill and attention to detail.

What other aviation bodies should we be working with? All the not-for-profits are a good starting point, however our closest "sister " organisation is the SAAA.

The Sport Aviation Centres concept was put on the back burner while we were operating at a deficit. Our current budget should see us turning the corner next year and the plans will be raised then for further member consideration. Everyone will have a chance to be involved!

The RA-Aus budget is available for member viewing on the RA-Aus website and the Safety Management System introduction is proceeding. A dedicated staff member to coordinate all the SMS functions will be appointed shortly (advertised position).

The current Board is working well, the animosity has gone and we are operating cohesively.

The democracy of our Board has served us well over many years, however having a 13 member Board is a challenge. It's expensive to meet face to face and the process of decision making is slow. Board members are all very determined, always right, and everyone wants to have their say! There is room for reform and this is being looked into by the CRC.

Ole Norm Sanders

I always have a grin when I read the Letters to the Editor, as I think 'who is having a bitch at someone this time?' A very entertaining column, to say the least.

Now from the last issue (*Sport Pilot* August 2013) 'Ole Norm Sanders' (sure he could be in his teens) first had a go at dear old Professor Avius and then took a swipe at GA instructors. Ok, now it's my turn and I'm not even a GA instructor.

Norm disagrees with the Prof's comment 'it is not appropriate to use elevators only to maintain the approach path, use power as well'. Well how else are you going to maintain an approach path without using power adjustments? Oh I see - a glide approach only using elevators to control speed and slip it in, eh? I can just see the terror on a student's face, as they go to flare using this technique. The angle to the ground using a glide approach is intimidating - that is why normal powered approaches are taught first. If an airfield requires this technique, because for example, it is over a built up area on all approaches - find another field.

How about this one?
'Wide circuits are done to make money? And most GA instructors don't know how to make power off landings'? Gave me a chuckle, I can tell you. Sorry Norm old son, but you left the door open and invited me in. Last time I looked, power off landings (Glide approaches from within the circuit) are taught everywhere, so I guess GA instructors do know how to do power off landings from downwind, base etc.

I have been a AUF P.E. and a CFI in the 1980s and now a commercial helicopter pilot and senior instructor in RA-Aus (and still a toy boy in my fifties) and while there may be many higher qualified people than me out there, I'm here to say Norm that your approach to landing is not the norm adopted by most flight schools – just sayin'.

Gary Williams

Ed - *Norm isn't that old, but certainly he's not a teen any more. And why does everyone (including Norm) keep assuming the Professor is a crusty old man? Maybe the dear old Prof needs a new picture to go with the column. Just sayin'.*

And this from Norm

I am sorry to have offended Prof Avius by calling him a wannabee 380 Captain with all those gold stripes and fancy uniform. Maybe he really is a 380 Captain! Certainly his writings demonstrate a great deal of knowledge and are much appreciated. In his letter, he makes some good points about approaches. There is a great YouTube on the subject called "A sarcastic view of pattern flying" by AvWeb which is worth watching.

Keep up the good work, Prof.
Norm Sanders

Ed *- Going to take more kissing than that Norm, but good on you for trying.*

Banning kids

I am catching up on my aviation reading after being away for extended period. The above title caught my eye (*Sport Pilot* July 2013) in the news section on page 15.

This Coroner, Jane Hendtlass should be taken to task over making a recommendation that the Federal Government and CASA ban all passengers under the age of 17 from flying in amateur built and experimental aircraft.

It would appear from the information provided in the item that the aircraft may not have been airworthy. This has no bearing on the remaining fleet of amateur built experimental aircraft, either VH or RA-Aus.

The Coroner's recommendation is completely irresponsible. I am being diplomatic, when I make this last statement.
Ian Goldie

Busting a cap

I refer to the article 'My Foxbat Wishlist' (*Sport Pilot* July 2013). I have some sympathy with the criticism regarding the fact that the oil filler cap is not attached to anything - with the possibility it might be lost. That happened to me. I got a new one, then some 40 landings (on a rough dirt strip) later found the old one resting between the hull and the rod connecting the rudder pedal and the nose wheel (Yes - I couldn't believe it either).

I decided to fix that, by painting the cap red and welding a S/S tab on top of the cap. A 20lb plastic coated S/S fishing line trace is connected to the cap and the oil reservoir.
Bob Walsh

New biplanes

Here's a sight to gladden a warbird fan's heart.

The new FK 131 full size (Jungmann) biplane designed by FK in Germany in a limited run (Two sold in Australia so far), flying with the Junkers JU52 over the Design Centre's home at Speyer in Germany. The FK131 is FK's second biplane (with the FK12 modern biplane) and is identical, except for minor enhancements to meet stall speeds in the U.S. From a warbird perspective, the FK131 built and flown under German and Japanese colours, joins the spectacular FK51 3/4 scale replica (P51 rivet to rivet identical) shown this year at AERO.
Greg Doyle

Phishing for aircraft

Recently I had my Jabiru advertised for sale on the RA-Aus web site. In the past three weeks I have received two emails, which at first glance, appeared to be harmless inquiries.
The first email was a single line inquiry as to price and condition of the aircraft. I responded with the required details and a few days later received the following email:
"Thanks for getting back. Am ok with the condition and will be offering you (my price plus $500) for it. Am buying it for my holiday because I'll be coming home soon from our rig as I am a petroleum project engineer and presently on the rig offshore. I won't be able to come for the inspection due to the nature of my job. I would have love to call in person but we have call restriction here due to bad weather conditions and our satellite server has been down and that's why I contacted you with internet messaging facility. I will be paying you through PayPal to your bank account as I do not have access to my bank online but I have it linked with my PayPal account to make payment. Do get back to me with your details such as bank name, account number, account name, BSB code, so I can proceed with the payment and once payment has been made, I have a pick up agent that will come to pick up the aircraft from your address. Hope to read from you soonest and kindly end advert on site. Pls send more pictures if available."

The first thing I noticed was the offer of more than my asking price, the next alarm point was the request for my bank details. I contacted the ACCC 'Scam Watch' line and read the email to them, was informed this was a typical scam letter and advised to ignore the whole thing.

Today when I opened my email, I found another letter from a scammer, this one legitimised himself with impressive titles and an offer to set up a business in my country.

I realise I am not the only one to have received emails of this kind, but would hate to think someone else may be duped by these con men if I failed to raise the issue.

Anyone selling online please be aware of who you are dealing with and remember if it sounds too good to be true it probably is.
Kev Young

Why bother with RPL?

As a relatively new and young member of RA-Aus and an undecided GA student, after seeing your report of the long term future for RA-Aus (*Sport Pilot* July 2013), I believe this RPL business really isn't something our organisation has to compete with. RA-Aus provides aviators the opportunity to become airborne with a minimum level of red tape and funds departed.

The RPL only allows you to fly with one passenger and only 25nm radius from the departure point and this would be the entitlement most RA-Aus pilots receive straight out of obtaining their certificate. You will still have to pay the premium cost of GA aircraft hire and maintenance, so I really don't see the point of having the RPL unless you really feel you need to fly that training Cessna around your local strip.

In my opinion RA-Aus is about affordable recreational flying within reach of most Australians. GA is just the expensive stepping stone for a CPL. If you want to fly around with your buddies casually and enjoy the organisation, which is RA-Aus, then there is really no need for a RPL. Why bother?
Luke Burnard

Looking ahead

I have just been re-reading Professor Avius' article on "Landing with flare" (*Sport Pilot* April 2013).


FLIGHT INSTRUCTOR'S FORUM

Facilitated by the aviation guru Professor Avius

Landing with flare!

A safe, smooth and accurate landing is set up way before touchdown

I think there is one very important action that was missed in the very good article. I was taught some 40+ years ago, when doing my basic training, to look to the end of the runway just before commencing the flare. Do not hold your vision on the runway immediately ahead. Invariably, by looking in the distance you will have a perfect or near perfect landing every time.
Geoff Stevens

Come to Carrieton

Memo to intrepid aviators from the Carrieton community.

We have a good airstrip 2km north of the town on the east side of the bitumen road to Hawker.

It has a natural mown grass surface 1200m X 90m (all usable) oriented 34/16 with windsock and parking bay. Elev. 1500 ft.

A white cross at windsock is displayed if closed due rain. No fuel, except by prior arrangement.

Accommodation available at Caravan Park (08) 8658 9090.

Could be a good Navex landing point or comfortable stopover for touring pilots looking for something different.

Coordinates 32.24' 33''S 138.31' 17''E.

Transport to and from town usually available and free. Telstra mobiles work fine from airfield. Home style BBQ by arrangement.

Carrieton Annual Camp Draft in April. Flinders Ranges Annual Carrieton Fly-in October. Carrieton Rodeo in December between Christmas and New Year.

Call me any time for more information.
Ian Drennan 0435 511 790

>> President Julian Hipwell and L2 Steve Donald of the Port Augusta Flying Club, which is closely linked to the Carrieton Aviation Group

Got something to say?

The state of the organisation is reflected in the Letters to the Editor columns. The more letters – the healthier the organisation. So don't just sit there – get involved. Your contributions are always welcome, even if no one else agrees with your opinion.

The Editor makes every effort to run all letters, even if the queue gets long at certain times of the year.

editor@sportpilot.net.au

(By the way – the Editor reserves the right to edit Letters to the Editor to shorten them to fit the space available, to improve the clarity of the letter or to prevent libel. The opinions and views expressed in the Letters to the Editor are those of the individual writer and neither RA-Aus or *Sport Pilot* magazine endorses or supports the views expressed within them).

A NEW LOOK FOR NATFLY 2014

BOARD member, Tony King, has taken on the heavy burden that is organising the annual NATFLY event in Temora.

For next year Tony has decided to reintroduce the iconic NATFLY poster.

This will be printed and put up around nearby towns during build up to the Easter weekend to raise local awareness of the fly-in. It will also be for sale at the event for people wanting a terrific memento of the weekend.

There's also a suggestion it could be made into a version for the kids to colour in.

What do you think of it?

New scholarsh

by Peter Thomas, President of Jamestown Flying Group

APPROXIMATELY 40 members make up the Jamestown Flying Group. In our mission to encourage people to learn to fly we put on the Jamestown Air Spectacular every three years, a full day of air and static displays to entertain and promote aviation. The next one is planned for October 18, 2015 at the Sir Hubert Wilkins Aerodrome, named after the famous Australian aviator and adventurer who was born nearby. The most recent Spectacular in 2012 attracted up to 8,000 people. Some of the proceeds go to help the community and some to improve the local airstrip which has recently been sealed.

To help the club promote flying we have a Jabiru J230 available for hire to club members. To further encourage people to get their RA-Aus Pilot Certificate this year, we offered two scholarships to help towards the cost of obtaining their certificate.

Applicants had to be at least 15 years of age and be a current member (or be prepared to become a member) of the Jamestown Flying Group.

The scholarships (winners of which will be announced next month), will provide for the successful applicants 10 hours training in the Jamestown aircraft by an instructor approved by the club.

For more information on Jamestown Flying Group, Peter Roberts narriota@activ8.net.au or 0418 817 632.

A sad loss

THE Australian Transport Safety Bureau is to investigate the death of well-known RA-Aus member and respected instructor, Ben Dumbrell in October.

The 65 year old former deputy mayor of the NSW town of Tumut died when the VH registered KR2 he was flying crashed after take-off, on an early morning flight from a property at Tumut to Holbrook. His family did not notice him missing for two days. Ben had flown for 41 years and was a very experienced pilot and instructor.

Assistant Operations Manager at RA-Aus, Jill Bailey, said RA-Aus would like to pass on its condolences to Ben's family and friends for his sad loss.

hips from Jamestown

BYE BYE BIRDIES

TRIALS have begun in Melbourne of a new type of bird repelling grass.

According to news reports, it's hoped the grass will go some way to alleviating the multi-million dollar bird hazard problem near runways.

Scientists from AgResearch in New Zealand say the new grass repels the insects which create bird-feeding conditions. Insects weaken or kill sown grasses, which leaves spaces for weeds, which attract grain feeding birds.

Tests at two airports in New Zealand show bird numbers fell by 70 per cent when the new grass was laid.

The grass apparently contains a natural fungus which leaves an unpleasant taste which deters both grass-eating birds like geese and rodents which attract larger predators such as hawks.

TECH TALK

DARREN BARNFIELD ACTING TECHNICAL MANAGER

Tech updates

AIRCRAFT FILES AND AUDIT

AS you know, since the CASA audits every aircraft file is being assessed for compliance. Unfortunately communication and understanding breakdowns over the years have left a lot of files incorrect. The Tech team understands a lot of the problems occurred many years ago, but I appeal to people to try and use some emotional intelligence when discussing them with the office staff. We understand there have been problems with lost information and the process of gaining compliance remains substantial but the staff is following a very strict process to ensure compliance.

In the past week, while the CASA approved Independent Technical Consultant was away, CASA allowed the team and I to complete the sign-off on our own files. We have a large number complete, audited and awaiting processing through payment. At this point, aircraft still missing only minor non-safety related information are being signed off and CASA has also allowed me to adopt a new process.

If your aircraft has incorrect paperwork, you will be sent a notice drawing your attention to what is required to be amended within the next 12 months. You will receive a notice at the six month mark to remind you again. If the aircraft then completes a 12 month cycle without being suitably rectified in accordance with the *Tech and Operations Manuals,* the registration will be suspended. This will remain in force until the registered owner supplies the documentation.

INSTRUMENTATION

This information has been taken directly from the current *Technical Manual* (Section 4.2.4 PERIODIC INSPECTIONS).

17. Altimeters on aircraft used to enter controlled airspace are to be checked every 12 months against a currently certified altimeter or appropriate test equipment for the task. Altimeters are not to deviate by +/- 100 feet up to the limit of the instrument or 10,000 ft, whichever is the lower.

18. Altimeters on aircraft not used to enter controlled airspace are to be checked every two years against a currently certified altimeter or appropriate test equipment for the task. Altimeters are not to deviate by +/- 100 feet up to the limit of the instrument or 10,000 ft, whichever is the lower.

19. Air speed indicators are to be checked every two years against a manometer or against a GPS using test runs in opposite directions. Airspeed indications shall not vary by +/- 4kts. Aircraft with more than one ASI shall not have variations between the instrument readouts of more than +/- 2kts.

20. Pitot and static systems are to be checked for leaks every two years using a device capable of holding and indicating pressure for a minimum of two minutes without loss of pressure. Note: Remove tubing from instruments before pressurising the system to avoid damage to the instruments.

21. All transponders used in aircraft entering controlled airspace are to be checked against CASA AD/RAD/47. Compliance with the inspection is to be noted in the aircraft log book. Note. This is being changed to reflect CAO 100.5 in the *Tech Manual* re-write.

MODIFICATIONS

If you want to modify a factory built aircraft which operates under CAO 95.55, the aircraft must have either CASA approval for the modification, a Part 21 Engineering Order or it must have the appropriate Supplemental Type Certificate. If you modify a 25, 55, 24 or 28 registered aircraft without one of the above items, you are modifying the aircraft beyond its acceptance and it is illegal. The aircraft cannot legally be used and must not be used for training or hire and reward.

If you want to modify a factory built Light Sport Aircraft (24), you need to contact the manufacturer and get its' approval. There is no other method available to modify these aircraft. If you modify these aircraft without approval, you relinquish the Special Certificate of Airworthiness and must inform the CASA Authorised Person. The aircraft will fall into the Experimental category.

If the manufacturer does not exist anymore, you must contact the Authorised Person who signed the Special Certificate of Airworthiness and inform them because your aircraft no longer complies as a Factory Built and must be put into the Experimental category and become an E24. Unless someone else picks up the manufacturing rights and is recognised by CASA as being the new manufacturer, your aircraft no longer complies as a Factory Built and must be put into the Experimental category.

> *Unless someone else picks up the rights, your aircraft no longer complies as a Factory Built*

TECHNICAL MANUAL UPDATE

We have now employed the service of a technical writer and the *Technical Manual* is about half way through its re-write. Many problems and contradictions have been identified and I'm sure you will all be very happy with the revised edition. I will inform you via the website and *Sport Pilot* when the revised manual is approved and re-issued.

I'm now six weeks into the temporary Tech Manager role. The General Manager hopes to be advertising the permanent position shortly (this will occur prior to this going to press). At this stage I still have not decided if I will throw my hat into the ring.

The RA-Aus Technical Manager's position is a very challenging one. RA-Aus is an administrator for CASA which still has oversight of the operational direction via the Civil Aviation Orders. The job is one that can be very rewarding but, can also leave you emotionally exhausted. Please keep an eye open on the RA-Aus website for further information.

Birdsville a

A LARGE number of aviators, including increasing numbers of RA-Aus pilots and aircraft, made the journey to the iconic Birdsville races in September.

The underwing camping and fellowship of the airport crowd was a great feature of the weekend.

Ballina Aero Club had a hard working and dedicated team which arrived a couple of days in advance, to take over the operation of the airport and special events zone to cater for the expected influx of aviators. The team travelled by aircraft, with a road crew bringing extra equipment.

The marking out of the aircraft parking area, as well as signage for the displaced runway 21, was arranged in time for the official handover of the airport to the Aero Club on Wednesday.

A Unicom radio service was provided during the races and inbound pilots were required to report on the CTAF frequency at 10nm, at the racecourse and on base leg.

Conditions at Birdsville during the week were generally light winds in the morning with gathering strength to around 10kts during the day. The wind favoured runway 32.

The group which won the award for having the most aircraft attending from the same club or organisation was Sydney Aviators (BASAIR) with seven aircraft, closely followed by a group of five Robinson helicopters from Victoria, led by Glenn Talbot from Notting Hill and the Ballina Aero Club itself with four.

This year, for the first time, pilots had the opportunity to join the Royal Birdsville Aero Club with all proceeds to the Royal Flying Doctor Service Qld.

Membership entitles you to attend the club's annual meeting at the Birdsville Hotel during the races week. Attendance is optional. There are no other commitments or fees, no office bearers, elections or formalities. But you do get a certificate.

For more information, royalbirdsvilleaeroclub@bigpond.com or www.ballinaaeroclub.org.au.

The underwing camping and fellowship of the airport crowd was a great feature of the weekend

big hit

by Gary Faulks

>> BAC team.
Pictures: Arthur Marcel

Personal minima

by John Lyon CFI Chieftain Recreational Aviation

THERE have been no end of articles, letters and admonitions about VFR pilots flying into IMC. These seem mostly to contend that it's dangerous, illegal or both. An aspect of the discussion which seems to get little or no consideration is the 'why' or 'how' of it; How did the pilot end up in cloud or reduced visibility?

It is frequently attributed to 'get there-itus', but is it really? I suspect not; or at least not entirely.

I recall an article in the old 'crash comic' (Aviation *Safety Digest*) about a pilot who got into trouble when he flew his airplane into Kangaroo Valley, just north of Nowra in NSW, in cloudy conditions. As I recall he was rescued by the efforts of an overflying Ansett captain who, fortuitously, knew the area well.

That article focused on the dangers and inadvisability of flying into deteriorating weather conditions, but did not address reasons for the pilot's decisions and consequent actions. As I recall, he was flying up the east coast of NSW from Moruya, or thereabouts, with the intention of landing at Bankstown, on a day when the weather was generally pretty average (the ducks were walking).

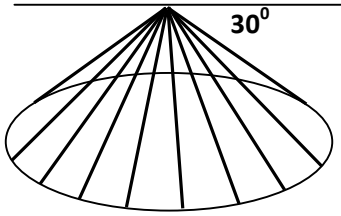
So, why did he push-on? Or, more succinctly, why didn't he land at Jasper's Brush or, God forbid, Nowra or Jervis Bay? But what wasn't asked was, 'why didn't he make a rational assessment of the circumstances and make a rational decision aimed at a successful termination of the flight?'

The answer, I believe, lies in a lack of understanding why there are specified limits of visibility as well as a requirement to remain clear of cloud. And that such limits increase with altitude.

Consider this: VFR minima below 10,000ft.

5km, the minimum VFR visibility at up to 10,000ft AMSL, equals 2.7nm (the 'old' standard was 3nm)
10,000ft = 1.65nm
At 10,000ft that provides a cone of visibility to the ground with a gradient of about 30° centred on the airplane.
(Diagram 1)

DIAGRAM 1



So it appears the standard is about being able to perceive a sufficient attitude to maintain control, rather than being about navigation. If that is the case, then for Visual Flight it is most certainly a critical or limiting standard. Five kilometres is not that far – measure it to some local features and you'll see.

So, with the visibility being not less than 5km (2.65nm; 1.3min flight time @ 120kt) and with the ground or water in sight, a reasonable pilot should be able to control the airplane and manoeuvre effectively.

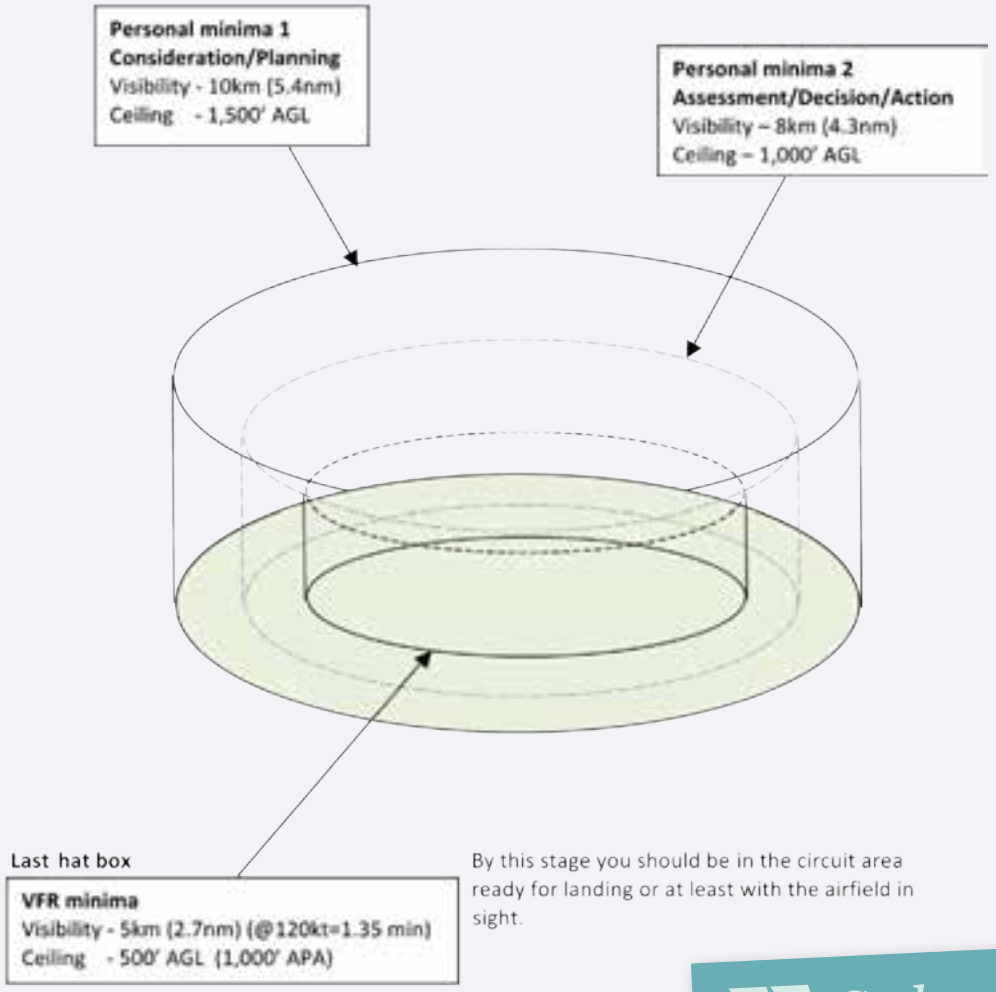
BUT, WHAT ABOUT NAVIGATION?

Obviously, given the short lateral distance, continuing flight requires some control measures; so that the pilot does not find him or herself in such a set of limiting conditions with their attendant impact on confidence. Because once the confidence goes, so does the flying standard.

So, how can we, as average pilots, go about setting up what CASA refers to as 'personal minima' or what I call 'survival defence mechanisms'?

In my early days as a private pilot, I had a couple of events which gave me reason to consider the 'how' of decision making when it comes to

DIAGRAM 2



being able to maintain and continue flight in VMC.

In one instance I was on a local pleasure flight with my wife. The destination seemed to have a fair bit of cloud around it. The day was not marginal, but the destination was on elevated ground and a moist air stream was blowing in from the north east; thus the cloud build-up.

As I continued toward our intended destination, the cloud seemed to increase and become more widespread so I said to my wife "I don't like this, I think I'll turn back". And I did. Having flown back about five minutes or so I orbited and sure enough the whole area I had been heading towards was blanketed to the ground. Just dumb luck, but it gave me cause to think about how I could make that decision in the future.

SO HERE'S WHAT I DO

I take the minimum visibility requirement of 5km and add 50% as a margin and then add the same amount again. Thus the visibility minimum yields me two bench marks to allow my decision making to become more rational. Thus if the visibility reduces towards 10km (5.4nm), I accept I need a plan which will allow me to manage this new situation. This plan will take into consideration the relative cloud base, the terrain, the weather conditions, alternative landing options and my knowledge of the route.

So, now I have some buffer time. My decision can be calm and rational.

I set a similar bench-mark regarding terrain clearance, so that the 500 ft above ground altitude (which is actually more than 500 ft above the ground directly below) allows me to proceed along my re-planned route.

THREE HAT BOXES

Thus, I have what I call a 'three hat-boxes' approach (Diagram 2). The largest (10km and 1,500 ft AGL) is the 'consideration and planning' phase; The next size down (7.5km/4nm visibility and 1,000 ft AGL) is the 'assessment/decision/action' phase and the smallest (5km visibility and 500 ft AGL) is the 'execute/escape' phase.

So if conditions are deteriorating and I find myself approaching the first hat-box benchmark, it triggers me to form a plan. How can I manage this situation, what are my options?

Do I turn around, divert or proceed? What is the weather doing? Is it steady or getting worse and how quickly? Can I see ahead under the cloud? How familiar am I with this route? Am I flying into rising or falling terrain? Is there an escarpment involved? How well do I know my planned destination and its approaches?

Sometimes I've diverted, sometimes I've been able to proceed; but the outcomes have all been successful - I'm still here and able to write this.

Also, on the times I've diverted, I've only had to wait a couple of hours before being able to proceed along my original route.

If the conditions continue to deteriorate towards the second hat-box, I need to fine tune my assessment and settle on a course of action. If the assessment is to turn-around or divert, I don't leave it until I'm actually in the third hat-box, but I treat that boundary as the absolute limit. Under such circumstances 500 ft AGL is 500 ft above the highest known terrain along my new route, thus my terrain clearance will actually be greater than the mandated 500 ft.

> *"So how can avergae pilots go about setting up survival defence mechanisms?*

I'm not saying this is perfect or the only method, but it has served me well on a number of occasions.

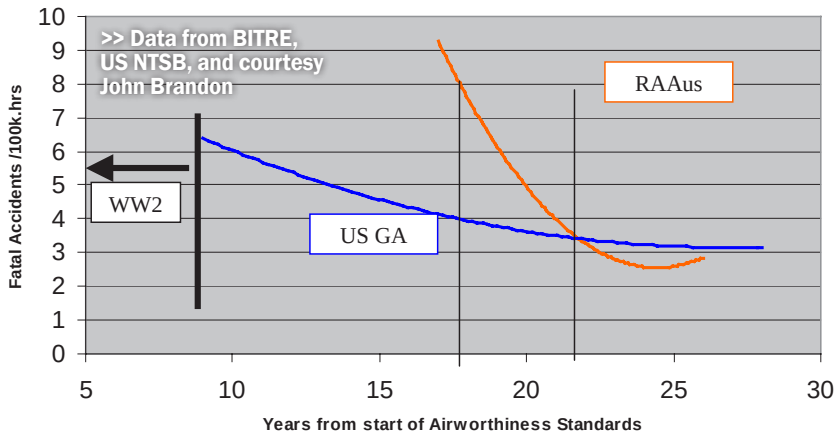
I agree that visual pilots should not fly into cloud. But just saying it is not enough. Pilots need to develop defence mechanisms, which allow them to manage conditions, so they don't get into situations where flying into cloud becomes a possibility.

As they say "the superior pilot is the one who uses superior judgement, to avoid the situations which require him or her to demonstrate their superior skills".

Becoming safe, staying safe

by Bob Llewellyn

THE chart compares the developing safety culture in recreational flying in Australia to the early developments in GA safety culture in the US.



As can been seen, approximately 18 years after the introduction of airworthiness standards into both fleets, the RA-Aus accident rate was twice the U.S GA rate. Why? U.S GA had formal flight training for 29 years, the RA-Aus fleet for 18 years; U.S GA had airworthiness standards for design, manufacture, and maintenance for 18 years, the RA-Aus fleet had airworthiness standards for design and manufacture, almost exclusively for training aircraft, for 18 years.

Yet at 22 years, with the same disadvantages, the RA-Aus accident rate dropped below the U.S GA accident rate for the first time. How could this have happened? The materials and construction techniques of the Beechcraft, Cessnas and Pipers flying at the time were essentially the same as those used in Tecnams, Zenairs, and Aeroprakts; the air was the same and people were much the same.

There are, however, three differences of note:

(1) The average age of the RA-Aus fleet for the period, was much less;

(2) The RA-Aus fleet is limited to VFR by day;

(3) The psychology of training is much more advanced for RA-Aus.

The very rapid improvement in the RA-Aus accident rate must stand as a credit to all involved in the movement; from those responsible for developing and implementing the flying training syllabus, to those responsible for designing and manufacturing, to those responsible for maintaining the aircraft, to those responsible for flying them.

Is recreational aviation staying safe?

The RA-Aus accident rate started to rise around 24 years (i.e. 2009), and has continued to rise since. What has changed? The fleet is still limited to VFR by day, flying training continues to improve by refinement and the proportion of the fleet which meets some sort of airworthiness design standard keeps growing. These are all pro-safety.

However, the average age of the fleet continues to grow; RA-Aus still has no airworthiness standards for maintenance; and the aircraft in the fleet are - and were - designed for ultimate strength, not fatigue endurance.

Is it fair to blame the hardware?

The most recent (2002-2011) U.S GA statistics, the human factors accident rate is 10.9/Mhr; the hardware failure (HF) rate is 1.92/Mhr.

Assuming the same human factors rate for RA-Aus, on the basis that VFR conditions are adequately met by the RA-Aus pilot syllabus, the hardware failure rate would be 44.1/Mhr, or 23 times the U.S GA rate.

Under this assumption, hardware failure would be responsible for 96% of RA-Aus fatal accidents.

Assuming RA-Aus to have twice the GA hardware failure rate (putting maintenance issues, such as misfuelling and clogged filters into the L1's responsibility), the RA-Aus hardware failure rate would still be 24.2/Mhr, or 12.6 times the GA rate; hardware would be responsible for 53% of fatal accidents.

Reference to the ATSB data for 2000-2010 (which does not include the results of all accident investigations) shows that hardware failures are a factor in between 14% and 81% of fatal RA-Aus accidents.

As the steady GA hardware contribution is about 15%, it seems safe to disregard 14% as too low. Assuming only half the hardware-caused fatalities were identified by ATSB gives a hardware contribution of 28% to the fatal accident rate, which comes very close to the predicted value assuming three times the GA hardware failure rate.

Clearly, there is not enough data to be conclusive about the RA-Aus hardware-caused fatal accident rate; but the relationships between the GA HF and hardware, and the RA-Aus total accident rate, are firm. Therefore, for the hardware-caused contribution to be less than about 29% requires RA-Aus pilots to make poor decisions and errors at more than three times the rate of U.S GA pilots.

Should we take some sort of action in response to these statistics? Recreational Aviation is not GA, just as GA is not Transport Category (i.e. airlines); there is no basis to say, "RA-Aus is not as safe as GA, therefore it must

replicate GA". You might as well say driving a car is not as safe as taking a train, therefore private cars should be banned.

There are a few bases for concern. As an individual, I am master of my own fate as long as I control my aircraft. Once something breaks in the air, however, I become the victim of chance - a much less comfortable situation.

Hardware failure which threatens our lives is mostly needless risk; we could fly without such a risk, if we had a management strategy.

If we wish to remain insurable, and not become marginalised in the community, we ought to aim for as low an accident rate as consonant with affordable flying.

Considering the RA-Aus legal relationship with CASA, it challenges us to at least arrest the upward accident trend.

What can we do?

Learn from GA - use modern principles of risk reduction. Historically, GA used rigid control of design and manufacturing techniques to be able to identify and eliminate dangers. It was thought the use of conservative techniques would guarantee a 'safe life'. It has since been found that such service lives tend to be uncertain, and frequently short, in the absence of an intensive inspection regime. GA maintenance consists largely of intensive inspection and for aging aeroplanes, the Supplementary Inspection Program system has been developed.

> *Hardware failure which threatens our lives is mostly needless risk*

Modern engineering design uses the principle of Failure Modes and Effects Analysis (FMEA) to design inspection programs for structures and machines and also determine service lives for items which wear out. This process can be applied to ultralight aircraft, such that every owner can have a tailored maintenance inspection program. Following the applicable program would give a high confidence that hardware failures (which might otherwise cause serious accidents) can be averted or avoided. The Rotax maintenance schedule for its two-stroke engines is a classic example of such an inspection / replacement program.

Any L2 (airframes) and most L1s could, within the limits of their experience, draft such an inspection program, given some training in FMEA and some aeronautical reference material.

As a principal of the Thruster Owner's Support Group, I am currently writing an FMEA-based inspection program for the T-300 and T-500 series two-seat Thrusters, which will be published in *Sport Pilot.*

I have also developed my own one-day course on applying FMEA to ultralight inspection schemes and associated reference material. It addresses wood, metal, and plastic structures, airframe and propulsion systems, in broad terms as well as in detail.

If anyone is interested in attending such a course, probably on a Saturday, and preferably in Toowoomba, please email me at: BobLDesigns@gmail.com

Pocket FMS easyVFR

by Arthur Marcel

EARLIER this year, I bought myself a Nexus 7" tablet against the advice of friends firmly hooked on OzRunways, which was (and still is) only available for the Apple operating system. The Nexus runs on the Android operating system, but has an autonomous GPS receiver (no sim card required), and, at $280, was half the price of an iPad Mini. At that time there were no established electronic flight planning (EFP) programs for Android, but I figured it wouldn't be long before they arrived, given the system's popularity.

Another reason for buying a Nexus 7 was lack of space in my plane. CASA recommends a minimum of A5 format, but the Nexus is slightly narrower than A5. This still turned out to be a challenge in a Sapphire, but I eventually mounted it on the floor between my legs, a position which has proven virtually trouble free. I can reach the touch screen quite comfortably without loosening my harness, the only problem being that the power input socket and on/off button on the edges of the unit required modification of the mounting bracket. The device takes about 20 seconds to install or remove.

As it has turned out, the European company, PocketFMS, was the first established EFP company to have an Android application up and running. PocketFMS provides aeronautical charts and "AeroData" (AIP data plus other data) for Europe, the US, Canada, New Zealand and Australia, and the advent of Android is sure to bring them a lot of global business. For more information go to http://www.pocketfms.com/easyvfr/

Australian agent, Ron Grenfell, organised an account for me, and it was very easy to register and download the "easyVFR" system using WiFi. The initial program with maps took about three hours and the full Electronic Flight Bag (EFB), including ERSA and other airfield data, took a little less than that. The Nexus has 32 megabytes of memory and easyVFR seems to use just over seven megabytes for a full Australian download, but this can be considerably reduced with selective downloading.

I write this review as a complete novice at electronic flight planning. It has always been my strong belief, though, that software application interfaces should be intuitively logical and no more complex than they need to be. This is especially true for those applications used by recreational pilots my age who fly every second weekend. I quickly became familiar with the basic operation of easyVFR, only having to refer to the notes on a few occasions; however, I strongly recommend all users do the start up lessons (six short videos and eleven tutorials). There is also a comprehensive instructional database including members' forum accessible via the EFB (in my case, using WiFi).

My initial interest was in using easyVFR as a GPS navigation tool. The app seems to have similar functions to a dedicated VFR aviation GPS, including one touch nearest emergency airfields. In Europe, the system supports georeferenced approach charts, but this feature is not yet available in Australia. Except for the on/off switch, all controls are via the touch tab screen, allowing most of the device's area to be used for display. There is little wasted space.

Before installing this device in my plane I had only been using a hiking type GPS in the heading/bearing/distance mode and an automotive type GPS as a moving map back up. I had always crossed referenced paper maps for airspace boundaries. So my first flight with 160 square centimetres of moving, selectively detailed, multi-coloured aeronautical chart sitting front and centre was somewhat overwhelming. I have to say, though, that I quickly got used to it. Now I am beginning to wonder how I would ever do without it. Having played with this facility for nearly two months, the question I have to ask is why any recreational pilot would ever buy a dedicated GPS when this system is available for $280 up front and $60 per year for fully up-to-date data.

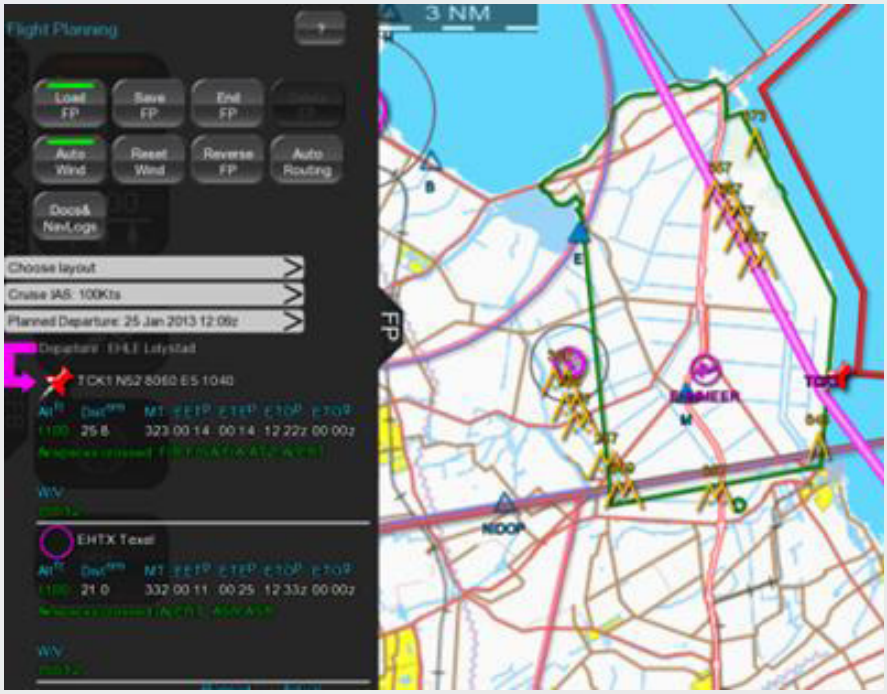
There are several easyVFR GPS features I really like. Firstly, as a pilot who usually flies below 5000ft, I can de-select any information which applies above that level (or any other level). If I choose to fly higher, there is no need to adjust my setting, because the system constantly monitors my altitude, automatically displaying airspace information 1000ft above me. Secondly, I can call up airfield information charts

simply by tapping the airfield map icon. Thirdly, the text size is variable. Unfortunately, though, magnifications over 200% are unworkable on my device. This means I occasionally need to use reading glasses. Another minor drawback is that the aircraft position icon cannot be customised. Its blue colour does not provide the best contrast against the other map colours. Apparently this is a common complaint and will be soon remedied. Even the cheapest automotive GPS receivers offer a range of vehicle icons and colours (including aircraft and boats).

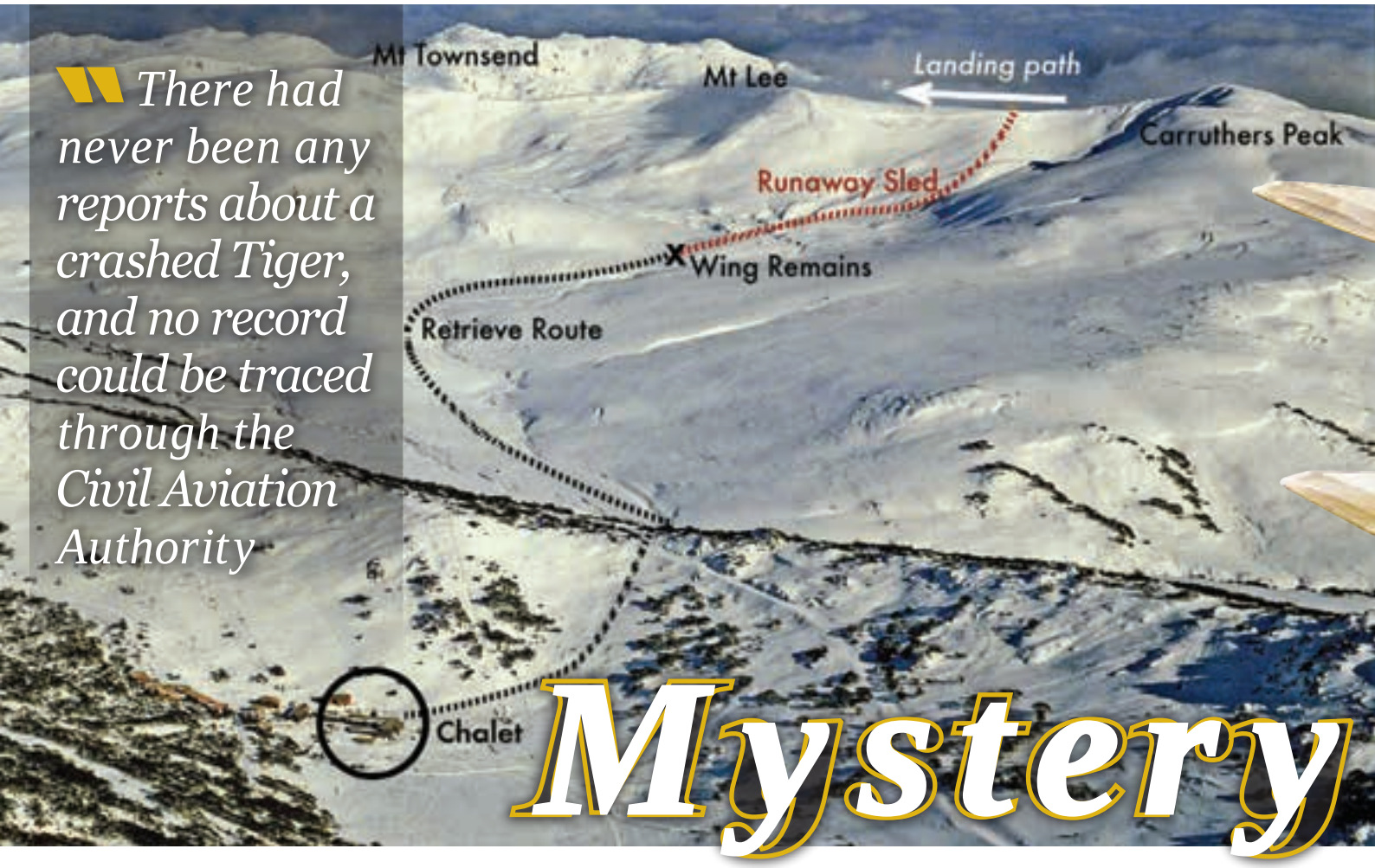
Flight planning can be done straight off the map by simply tapping the departure point and all subsequent way points until the destination. The program draws the track lines in and immediately presents an electronic plan in a format pre-nominated by the user. It is really simple to use it the way I have been using it. One thing I don't like, though, is the rather unique flight plan column abbreviations. These need to be learnt. Even after two months I have to think about it. For example, ETI becomes EETp (Estimated Enroute Time planned) or EETg (Estimated Enroute Time gps), and ETA becomes ETO (Estimated Time Overhead). There is also ETE for Estimated Time Enroute (cumulative flight time).

There are options for customising the screen real estate, for example a facility to insert a smaller 3D map, a restricted airspace warning table or a vertical cross section of the route. I haven't been using any of this, though. I just like the aeronautical map filling the whole screen. Flight plans are automatically saved to the device or, if online, uploaded to the Cloud from where they can be shared with any other device (for example, a back-up Android phone). As I only have WiFi, most of my stuff stays in local memory. With 32 gigabytes of storage, there is plenty of room.

The system also links with internet weather services. Wind vectors are automatically applied to the flight plan if the Auto Wind function is activated; otherwise they need to be entered manually from the METAR. NOTAMS can similarly be downloaded from the Internet but cannot yet be linked to the map as they are in Europe. It is expected, however, that in the very near future the areas of NOTAM impact will be displayed on the Australian charts.



When pilots buy into easyVFR, it is clear to me that they buy into a system. They become members of the PocketFMS 'Foundation'. It is not just a matter of buying the product and being on your own. In the two months I have had my account, I have already had one significant system upgrade. On system start up, the first page always tells me the exact status of the system. As a pilot who, in the past, has spent hours updating documentation and checking currency, this automatic update feature is magic. This is a living, evolving system. A user can't help but feel there is a team behind them looking after the details. It is a good feeling.



Mystery

There had never been any reports about a crashed Tiger, and no record could be traced through the Civil Aviation Authority

of the Tiger

by Barry Wrenford

FRAGMENTS from a Yellow Tiger Moth were found in a valley high in the main range near Mt Kosciusko and no record of a crash could be found.

Back in the summer of 1989 my wife Robyn and I stumbled across a yellow leading edge slat from a Tiger Moth bent around the remains of a camp fire, together with control cable, turnbuckles and some steel tubing. There had never been any reports about a crashed Tiger, and no record could be traced through the Civil Aviation Authority. Visions of another *Southern Cloud* mystery came to mind. This find was then published in the local *Cooma Express* asking for information, and the following is composed as accurately as possible from the comments by the pilot, the aircraft engineer and the manager of the Kosciusko Chalet.

The time was winter 1941, the scenario, the RAAF flying training school at Narrandera where a young trainee pilot was conducting a cross country exercise in a Tiger Moth. This pilot was a dedicated and experienced skier at the Kosciusko Chalet and couldn't resist a look at the ski fields in a calm sunny midwinter day. Furthermore, as he knew the area well he felt compelled to land along a ridge almost 7000 ft high. He knew the area to be smooth, windblown and hard, and planned to land, taxi up the side of Mt Lee at the end, turn around and fly back. Unfortunately at 7000 ft, aircraft don't quite land the same as at lower altitudes, and he dropped it in from about five feet, where the wheels dug into the hard snow and it nosed over on to its back.

The interesting part starts here, with its retrieval over deep snow where no vehicle could go, long before snowcats were around in the mountains.

The pilot had around a five km walk to reach the Kosciusko Chalet at Charlotte's Pass, which was closed down during the war years. Fortunately George Day, the caretaker was in residence. George opened the door to find what he described as an apparition looking like a teddy bear standing on his doorstep. What with a bulky Sidcot flying suit stuffed with Kapok, knee length leather boots, a flying helmet, goggles and fur gloves, the likeness can be excused.

Afterwards an NCO and a flight engineer from Narrandera, with a vehicle and trailer, were despatched and charged with the daunting job of retrieving the Tiger from the top of Australia, in a place inaccessible to normal transport. Back then the road was closed at the Hotel Kosciusko (Sponars), which is lower down some 18km from the Chalet. To get back and forth, the only transport available was the VIP oversnow transport which was George's dog team and sled.

As the retrieve team was inexperienced, a couple of days of skiing lessons were in order at Sponars, as they had to ski the 18km to the Chalet. A couple of locals were roped in to help and a six man party set out one fine day with 10 dogs and a large sled to climb up to the accident site. The aircraft had sustained surprisingly little damage, but it had to be dismantled for the retrieve. The wings were detached and first the fuselage was loaded on the sled and manhandled to the Chalet. Then, the four wings were individually loaded and transported, one per day.

The dogs were used for general hauling, along and up hills, but for obvious reasons were detached for down slopes. Here the sled was braked by the crew. The initial part of the route was downhill, and was a precipitous descent some 2000ft in a descending curve into the valley below. The top part of the ridge had large cornices overhanging the slope, which were heaven for gun skiers, but not for loaded sleds. These cornices were successfully negotiated for four trips. However on the fifth- and last trip in deteriorating conditions, with a blizzard on its way, the sled got away from the crew right at the top of the ridge. Well, it must hold the speed record for the descent, for in spite of hitting a rough patch lower down, slewing sideways and rolling over, it made it right to the bottom. The upper mainplane on the top of the sled didn't fare too well, and no doubt George was glad his dogs weren't attached. The damaged wing was left and marked with stocks for later retrieval. Two days later in a full blizzard the party returned for the wing, but it had shifted and was lost, buried in drifting snow. It was only found by probing, and some torn off and badly damaged pieces could not be found - until we discovered them.

This is the story of the mystery Tiger Moth parts in the Snowies.

OFF THE SHELF

Dynon D2 Pocket Panel

It's the second model in Dynon's true attitude indicators product line. The D2 adds Wi-Fi connectivity to allow flight data to be sent to iPad, smart phone and tablet aviation applications. It has a second screen with a G-Meter.

Wi-Fi connectivity allows attitude and GPS ground speed, altitude, G's, and ground track to be sent from the D2 in real-time to an aviation application, which can then show that data on a flight information display. Compatible applications include the WingX Pro7, AOPA FlyQ, BendixKing myWingMan, iHUD Remote, and Air Navigation Pro.

The D2's second page G-Meter shows a graphical round dial with the current load factor shown by a needle, plus it records the minimum and maximum G's since being reset.

The D1 and D2 both use the Dynon MEMS-based AHRS technology. Both are true artificial horizons with accurate pitch and roll, and can find the horizon even if turned on in flight. The AHRS sensors also drive a turn rate indicator and slip/skid ball. Included is an internal GPS receiver to display GPS ground speed, altitude, vertical speed, and ground track.

Batteries are expected to last more than four hours on a charge.

Price USD$1,425.
Web www.DynonAvionics.com

Garmin D2 Pilot Watch

Garmin has set a new benchmark for portable avionics with the launch of its new D2 Pilot's Watch.

The D2 is designed to aid aviators in flight. It has a high-sensitivity WAAS GPS receiver, altimeter with adjustable baro setting and 3-axis compass. Its domed lens makes the screen easy to read in direct sunlight and an orange backlight which illuminates the display in low light. It has direct-to and nearest buttons that utilise a worldwide airport database (no information if this includes Australia yet). It displays multiple time zones with Zulu/UTC reference, includes timers and vibrating alerts for inflight task reminders and can wirelessly receive flight plan information from the Garmin Pilot App.

The D2 also allows you to view your route on a moving map display or follow the HSI to your destination. By setting user-defined waypoints, you can also easily navigate to any location not included in the database. You can also mark waypoints to later find locations you fly over.

The software also allows you to access your current GPS ground speed, GPS track, distance from waypoints/airports, estimated time enroute, bearing, glide ratio and much more.

Price USD $449
Web www.garmin.com

Renovo Plastic Polish

Renovo's Plastic Window Polish is beginning to establish itself as an aviation product for cleaning and polishing perspex cockpit canopies and windshields.

The light aeroplane windshield quickly loses the clarity it had when new once it's been dusted, washed down and flown through variable air conditions. Microscopic scratches eventually make it a challenge to land into a setting sun. Renovo Plastic Window Polish can fix that.

Renovo also makes a cleaner which removes bird-droppings, salt, leaf-gum, and general gunge from an aircraft cover without harming its waterproofing; an ultra proofer which reproofs the cover, contains an ultra-violet inhibitor and resists mould and mildew; and a colour reviver to smarten up the appearance of your parked machine. (RA-Aus members are entitled to a 10% discount).

Price AUD$25
Web www.renovoaustralia.com.au

Three Aviation Myths

PART 3 by Thomas Bisshop

OVER our flying careers, from our first instructor to well-meaning amateurs in discussion groups, we collect a lot of aeronautical 'facts'. Many of these are wrong and some are downright dangerous. This series of articles debunks three of the more common myths.

MYTH ONE - Aircraft overbank in a turn because the outside wing is going faster, generating more lift. Discussed in Sport Pilot (September 2013).

MYTH TWO - The top surface of an airfoil is curved, so the air at the top has further to go. This means it goes faster and Bernoulli's Principle says higher velocity means lower pressure, thus generating lift on the top surface. Discussed in Sport Pilot (October 2013).

Myth 3

Rudder causes roll because yawing makes the outside wing go faster, generating more lift.

Sanity Check

Flying strait and level, slowly apply right rudder. At all times, apply enough aileron to keep the wings level. Eventually you'll be flying in stable level flight in a forward slip. The left and right wings are now going exactly the same speed. Now quickly centre the ailerons. What happens? Unless you're flying something with anhedral or negative dihedral, you will get a rapid roll to the right.

The Reality

You've worked it out already, haven't you? It's the dihedral. For a common-sense explanation, the leading wing is exposing more of its bottom surface to the airflow, getting more lift. The trailing wing has the opposite result.

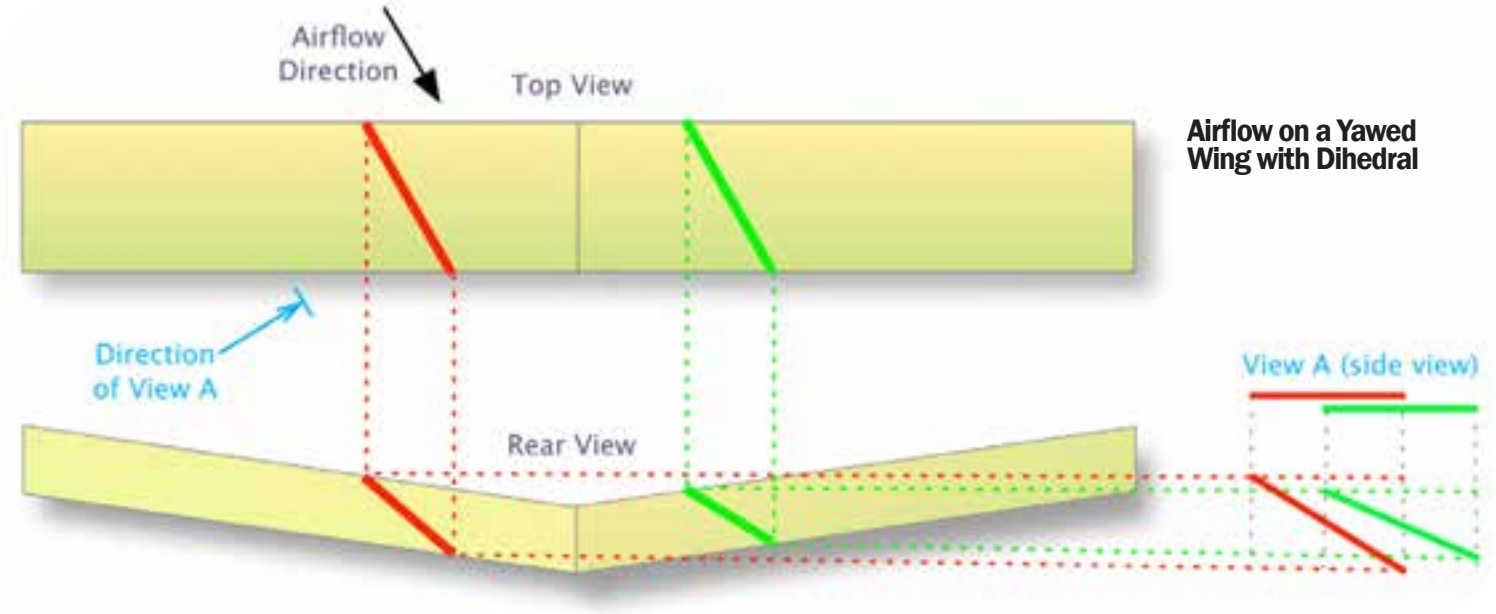
But here's the technical explanation. In a yaw, the airflow is not in line with the longitudinal axis of the aircraft. The diagram shows an idealised sheet-balsa wing with dihedral.

Two airflow streamlines are marked on the top of the wings with the bold red and green lines, as you can see in the top and rear views. If you look at the wing from the left side, at a right angle to the airflow (view A), you can see that because of the dihedral, the top of the left streamline is higher than the top of the right streamline, and the left bottom is lower than the right bottom. Since both streamlines have the same horizontal length, this means that the leading wing has a higher angle of attack than the trailing wing. The difference in lift causes the roll.

Nothing to do with the speed of the wings.

The Author

Thomas Bisshop develops Mobile Apps for a living. He has both a PPL and an RA-Aus certificate, and is the founder and developer of iVFR.net.



Airflow on a Yawed Wing with Dihedral

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EDITOR'S CHOICE

BRIAN BIGG

Being a coward

I SOMETIMES wonder if I am too much of a coward to be a pilot. How can I have the right stuff, when everyone else around me appears to have buckets more of the stuff than me? I notice it most when I am around other pilots at fly-ins.

At Easter, I had intended to fly to Temora just like many pilots, from my area. But despite all my planning and preparation, the departure day loomed dark and foreboding.

All my appeals to the Gods, as usual, fell on deaf ears. I guess I must have used up all my favours with them in my teens and early twenties, when I rode a high powered motorcycle. They figure I have had my share of divine intervention. So the weather stayed bad along the coast and I had to take to the car for the 11 hour drive because, I haven't given myself the option of staying home.

I go to NATFLY to attend the General Meeting in case people have questions about the magazine. It's also where I can catch up face to face with contributors and advertisers from around Australia. I also like to stand up before the Board a couple of times a year and check to make sure they are also happy with the way I am doing things.

The weather prevented many people from the north attending NATFLY this year. The worst part came as I drove over the mountains. The skies cleared and the weather in the west was perfect all weekend long. As I stood among pilots at NATFLY, all of whom said things like 'Oh, it was dodgy at first, but I found a way through.' I felt I should have tried harder.

The same thing happened when I prepared to fly to AUSFLY at Narromine in September. The weather was perfect in the week before the fly-in and a lot of pilots from my area departed early to take advantage of it. I was stuck at home until the Friday. And, of course, Friday awoke bleak.

This time I was determined not to be a timid mouse. At the appointed time, and despite the overcast, I took off and headed towards the mountains, trying to break up the clouds in my path by force of will alone. No good, I couldn't see any gaps. I turned south in the hope I could get across further down the coast, but again the clouds were impenetrable and, at Coffs Harbour, they came down to the deck just to make sure I wasn't tempted in my desperation to run low over the beach.

So after two hours in the air, I turned my aircraft towards home, put the plane away and set off on the nine and a half hour car trip. What fun. This time at least, the weather stayed bad during the trip, which made me feel a bit better and pilots who did make it to Narromine reported strong gusty winds at the airstrip, had made their landings entertaining in a bad way.

> *The weather was perfect the week before and pilots from my area departed early to take advantage of it*

At the board meeting, I again had a lot of questions about the magazine. It is a difficult balance to achieve each month. In our massive group we have young people, just starting out on their aviation journey; oldies who know everything about flying and want to pass that knowledge along; we have pilots who know the tiniest little obscure details of their favourite aircraft; we have the lovers of 95.10 who like nothing better than to take things apart and stick them back together again; and plastic fantastic pilots, who roll their aircraft out once a month and only want to know about far flung places they can go visit for the weekend.

Trying to keep this diverse group informed, interested and entertained each edition is challenging but fun. The board was very supportive again and appeared to be happy with the way things are going, so my long car journey was worth making at least.

But as all the proper pilots started to taxi out to the holding point on Sunday and I slouched towards my car for the interminable trip home, I felt again that I had been too cowardly in my attempts to be a proper pilot.

Perhaps if I had waited a few hours the weather might have improved, perhaps if I had done like everyone else and re-arranged my schedule to allow me to leave earlier, perhaps if I was just a better pilot all round.

But I fly for fun, not for profit. My aircraft deliberately has few instruments, so I won't even be tempted to go outside the comfort zone. The few times I have danced with the weather terrified me, so I have always been more conservative when approaching aviation risks (unlike when I was in my teens and early twenties I can tell you).

Maybe I am a coward. But I'm still here after 26 years as a pilot. That must count for something. And I'm proud to be a "fair weather" flyer.

And maybe the weather will be better next year.

CAGIT HUNT

by Kerry Kroehn

MY flying journey began in November 2003, when I had a TIF with Mike Chapman at Murray Bridge. My long time friend, Peter Dettloff, also shared with me his interest in aviation, and being a man of action, began his training just two weeks later. Peter continued his training and then went on to buy an SK Jabiru. So it is no surprise that Peter, until recently, had 10 times the hours I did. Mind you, I did spend a good portion of the next few years being pregnant!

During 2011, I was invited to join a great aviator's chat on Facebook and spent hours being encouraged by fellow aviators to continue my flying. Finally in December 2011, I was endorsed with my Pilot's Certificate and in 2012, added my passenger endorsement and navigation. Then Peter invited me along to the Jamestown Air Show in his Jabiru and we discussed all my fears and joys of my newly acquired skills.

He then suggested we do more flying together, so I could continue and not let life get in the way of a good flying interest. So we flew to NATFLY in Temora together, to finally meet and cement already growing friendships between like-minded aviators, Dexter Burkill, Anne, Peter Z, Cam and Peter D.

A few months ago we heard there was a Facebook discussion on 'Where the hell is the CAGIT?' Peter D got chatting with Dex, who revealed he had located it and had arranged a trip to Tasmania to recover the treasure. So our Facebook chat became focused around the planning for Dex and Peter Z's upcoming flying trip in the ATEC Zephyr.

Peter D's enthusiasm for adventure also kicked in.

A plan was hatched for us to take Peter's SK Jabiru to 'Come and Get' the trophy from Dex, once he had brought it back to Denman.

So a date was marked on the calendar and planning began. By now Peter Z had set up the CAGIT Hunters page on Facebook, so our fellow aviator 'followers' could view our progress. We also appreciated being able to view Dex and Peter Z's photos and plans from their trip.

A little pressure from others for planning was good encouragement to get into it early and the

NG

excitement began to build. There were also good natured threats that someone else would steal the coveted prize before our wheels had left the ground.

THE FLIGHT

The morning of departure broke frosty cold with an icy arrival at the hanger. However, our eagerness and excitement warmed us as we packed, checked and rechecked our aircraft, plans and human factors. We agreed a 50-50 PIC share was fair and good fatigue management. Dex's strip is an interesting one, worth the phone call first. We also found it helpful to view his landing on Youtube before attempting it. Dex's strip is an over-under power line challenge, with sink at the threshold from a creek. So with my limited experience in long journeys, I felt it best Peter was PIC landing in Denman.

We departed Swan Reach, SA, just after 0800. With a slight tailwind we tracked via Mantung, Pata (south of Loxton), Meringur, south Mildura across the Calder and Sturt Highways, north of Balranald, Murrumbidgee, crossing the Cobb Highway and Carrathool Road then into Griffith, with winds turning to headwinds by the Hay plains. We had lunch and refuelled at Griffith and had a chat with locals at the aero club, before Peter took the PIC seat via Buralyang, Lake Cowal, via Parkes (for me to view the infamous dish), Manildra, South Lake Burrendong, Windermere Reservoir, Widden then into Denman, arriving around 1630. It was a wonderful feeling, and I truly appreciated Peter mastering a sweet landing there to secure our place in CAGIT history. Dex's cheerful voice on the radio was just the welcome we needed after a long flight, followed by his beaming smile as we rolled to a stop outside his hanger. The handover was completed with laughs and photos, then out came the Crownies to reward our hard earned efforts.

We had time enough only to unpack and put the bird to bed before a quick spruce-up to join the monthly Scone Aero Club Dinner. Vice-President, Peter Blake, welcomed us and we were fed a deliciously Indian-inspired meal cooked by the dedicated aviation club partners.

Saturday was also a packed day of fun in the Hunter Valley.

At Scone, Dex had arranged for an exclusive tour of Col Pays' Warbird Museum. It is a sight to behold. The gorgeous aircraft have been so beautifully and lovingly restored. Then we went from hangar to hangar seeing aircraft, meeting builders, talking design, engine management and mods. It was a real eye opener and privilege to meet the dedicated enthusiasts. Thank you Scone Aero Club.

Saturday night we made a quick check of the weather. With a front moving in, there was no time to waste, so early the next morning we loaded up, farewelled our fabulous hosts and headed out with the CAGIT securely stowed. I was PIC for the leg from Denman to Griffith, having mastered the take-off on Dex's strip during practice runs the day before.

At Griffith, I relinquished the PIC seat for Peter, who flew the uneventful, slow journey onto Mildura - ground speed was down around 70kts. After refuelling and a relief stop, we launched out to confront a wall of weather.

Peter and I were given a great opportunity for team work and cockpit management as we considered options and worked on minimising risk.

We headed towards Wentworth as an alternate. As we neared the front, we knew we could always turn around and return to Mildura, as the sky behind us was still clear.

We agreed to move forward via Wentworth, making an inbound call, while checking radar from BOM on the IPad.

It soon became clear the weather ahead was a thin band of cloud and light rain we could see through. We found a gap in the showers and made a dash through it.

A quick call to Peter's wife for a SITREP at home suggested more weather was to the north, so our next decision point was set for Loxton (the last airstrip before Swan Reach).

We dodged some weather but were now closing in on last light.

As we approached Loxton, the weather looked clear, so we made the decision to go all the way to Swan Reach. A quick precautionary circuit was required to chase wildlife off the active runway, followed by the most perfect of touchdowns Peter had done.

I feel immensely privileged to have Peter as a friend and fellow aviator who has been willing to take time to mentor my flying journey beyond my initial training. He has truly helped me build confidence in my abilities as a pilot, harassed me when I have been uncommitted and been willing to adjust when confronted with his own complacency (very rarely I might add). This has kept our flying experiences together as a fun learning journey where we keep each other safe, always questioning and learning.

I highly recommend others to do the same, not to embarrass each other when mistakes happen, but to openly discuss the failings and learn how to prevent them from reoccurring. More adventures for Peter and I will follow, but for now, thanks RA-Aus for the opportunity to hunt for more fantastic flying experiences and meet with fabulous flying friends.

THE JOURNEY
AIRCRAFT- JABIRU SK. 19-3121
PILOT NO.1 KERRY KROEHN
PILOT NO.2 PETER DETTLOFF

15.7 LT/HR AV. FUEL BURN
215 LITRES FUEL USED
1174NM TOTAL DISTANCE
92KTS AV. SPEED
$2.31/LT AV. AVGAS

SINCE KERRY'S JOURNEY THE TROPHY WAS CLAIMED AGAIN, THIS TIME BY JAMES MURPHY AND HIS DAUGHTER EMILY

WHERE IS CAGIT?
CURRENT LOCATION IS AT ROYAL AERO CLUB, WESTERN AUSTRALIA

JANDAKOT
S32 30.505 E115 49.957
S32 05.764 E115 51.763
HOLDER JAMES MURPHY
EMAIL MURPHYJUK@HOTMAIL.COM

PILOT TALK

by Jill Bailey, RA-Aus Operations Team

Decision making

AN analysis of RA-Aus recent accident statistics has revealed poor pilot decision making continues to be a major factor. As has been mentioned previously, an engine failure can be the catalyst which forces a pilot to respond to an emergency, but in many instances the failure may have come about as a result of poor pilot decision making before take-off.

Other contributing factors include: flying below 500 ft AGL, flying close to or after last light, unfamiliarity with the aircraft or the ALA and pilot distraction during an emergency. Many of these factors can also be related to pilot attitude, including invulnerability "it can't/won't happen to me" and "I don't need to fly a normal approach".

Other contributing factors are recency and competency. On average, most recreational pilots fly less than once a week and, in some instances, it is a lot less. The danger posed by lack of recency is the increased probability of errors, however minor. A small error on its own may not pose a serious threat. However, a series of small errors can compound to a catastrophe. Overconfidence in their ability to cope with emergency situations has led many pilots to accidents.

A new approach

Perhaps once-a-week pilots could think about their flight differently. It could, instead, represent a chance to do more than just a trip around the local area, concluding with one landing. They could include a different practice item each time, giving themselves specific tasks or aiming points.

In basic training, the instructor would often ask for a specific manoeuvre, such as a level turn, and tell the pilot to maintain height within 100ft, or, for a descending turn, a stabilised descent rate of 500 f.p.m. These accuracies are often lost once the pilot achieves their Certificate. The weekly flight could also practice a forced landing (not below 500 ft AGL of course), remembering to simulate the mayday call, trouble checks and passenger briefings. Rather than landing just once at the end of the flight, consider some touch and go circuits to keep the basic structure and procedures accurate.

In my own case, I no longer fly every day. So I have chosen to make a personal commitment, to fly for at least an hour per weekend, in addition to the check flights I do with CFIs or pilots (where I usually don't get to fly anyway). During my weekly flights, I make sure I include at least one simulated engine failure in the circuit or one simulated engine failure away from the airfield and if possible, a crosswind landing or two, along with a couple of circuits. I may also try to include a short field landing and take-off and turns with specific objectives, such as maintaining height for left and right turns to +/- 50ft.

CFIs often report that when conducting BFRs, pilots invariably admit the last time they did a stall, or even a practice forced landing, was at the last biennial. Often, it was also the last time the pilot practiced turns while maintaining a nominated height.

Practice done two years apart is hardly going to ensure competent and safe execution of manoeuvres in an emergency. Especially if the pilot's mind is preoccupied with trying to deal with maintaining control of the aircraft, making a radio call or calming an anxious passenger. During the BFR, most pilots manage to manoeuvre the aircraft safely to a paddock, however in my experience many just sit in complete silence. Most don't trim the aircraft for best glide or complete trouble checks, simulated mayday calls or passenger briefings. It's unrealistic to think a manoeuvre which has not been regularly practiced will be perfectly executed during an emergency.

Information sourced from CASA states that most aircraft accidents are linked to deficiencies in human performance (refer CAAP 5.59-1(0) for more information). Factors include poor lookout, situation awareness, decision making, task organisation, communication, failure to recognise threats to safety and commission of errors. The CAAP goes on to state that worldwide statistics indicate 75% of aircraft accidents are caused by Human Factor (HF) deficiencies.

The CAAP also discusses information processing by pilots during all phases of flight, including factors which inhibit this process, such as single task fixation (gosh, my engine has just stopped), lack of experience, anomalous perception – illusions such as wind drift when operating at low level or false signals from the pilot's balance mechanism, lack of knowledge or understanding – (a wind gust made my wing go up). Other factors which inhibit effective decision making include fatigue, pilot emotional state, fixation, destination obsession and personality traits.

Generally, pilots aware of these principles who practice procedures and emergencies regularly along with assessing their fitness to fly, are statistically less likely to be involved in accidents or incidents. Pilots who just climb aboard, blast off and do not have or haven't considered any plans for dealing with any possible emergences, are most at risk.

Risks at ALAs

Another risk to be managed carefully relates to decision making for operations at ALAs (Aeroplane Landing Areas). These can be an approved private airstrip, a friends' property or a landing at an airstrip never used before by the pilot.

The potential traps at ALAs are heightened because most landings and take-offs pilots conduct are at aerodromes where the surrounding terrain is clear. There are few obstacles such as trees or buildings and the runway is more than adequate for aircraft performance. At ALAs, a greater possibility exists for depth perception errors (due to a wide and short or long and narrow strip), target fixation (trees or power lines on the approach or take off ends) wind gradient and mechanical turbulence (obstacles such as trees or hills), which increase the degree of difficulty.

Surface and slope considerations are another area, which can impact considerably on how the aircraft performs. When used to operating at one particular runway, pilots are often surprised at how much additional runway is needed when a grass surface is wet or the grass is slightly longer than normal. Pilots must also consider how to assess go or no-go decision making points and consciously decide a course of action, prior to taking off.

Some private strips may only be one direction due to terrain or obstacles. In situations where hills or trees at one end effectively prevent landings or take offs in that direction, approach speeds must be very accurate and a decision must be made early to abort and go around. If the decision is made too late, the obstacles ahead may be impossible to avoid. Pilots can minimise these risks by completing some practice approaches to a safe height, possibly with the property owner aboard (pick them up at a nearby airport), and make sure the practice approaches satisfy all the concerns the pilot may have. Pilots should also consider diverting instead to a nearby airport and getting a lift, rather than attempt a landing, which may be above their current experience and currency level.

As Captain Lamplugh said in 1932 'Aviation in itself is not inherently dangerous. But to an even greater degree than the sea, it is terribly unforgiving of any carelessness, incapacity or neglect.'

FLIGHT INSTRUCTOR'S FORUM

Facilitated by the aviation guru Professor Avius

Threat and error management

AS Australian pilot training moves to align itself with ICAO (International Civil Aviation Organisation) standards, the need to incorporate Threat and Error Management System (TEMS) into each briefing session and every practical flying lesson is becoming more and more important.

Some background: From records dating back before the turn of this century, it was recognised that worldwide, 75% of aircraft accidents were caused by Human Factor deficiencies.

ICAO acknowledged the need for the formal instruction and assessment of Human Factors (HF) and Threat and Error Management (TEM).

A further issue arose because there was very little guidance material available to address the subject of teaching and assessing HF and TEM.

Sure, we had the notion which was termed Airmanship. That meant pretty much the etiquette or good manners of the sky. The official ICAO definition is: 'Good judgement and well developed skills to ensure the accomplishment of flight objectives'. The introduction of TEMS is a means of formalising the term and is an extension of the ideal which it encompasses.

CAAP 5.59(0) – 2008 was established to ensure consistency and standardisation during the instruction and assessment of the skills to be assessed under the heading Threat and Error Management.

Up until July 1, 2009 the syllabus of HF was assessed by a written knowledge exam for each licence level. After that date these skills were required to be assessed during every pilot licence flight test, meaning it is essential it is introduced and included in every instructional flight.

SOME ICAO DEFINITIONS:

Human Factors: 'Optimising the relationship, within systems between people, activities and equipment to ensure safe flight operations'.

Threat: 'An event or error which;
- Occurs outside the influence of the flight crew
- Increases the operational complexity of the flight
- And requires the crew's attention and management if safety margins are to be maintained.'

CASA definition for Single Pilot Ops: 'Situation or event which has the potential to impact negatively on the safety of a flight or any influence which promotes opportunity for pilot error.'

Error: The actions or inaction of flight crew which;
- Lead to a deviation from the crew or organisational intention or expectation
- Reduce safety margins
- Increase the probability of adverse operational events on the ground or during a flight.

Management: To plan, direct and control an operation or situation.

Threat And Error Management (TEM): The process of detecting and responding to threat(s) and error(s) to ensure the outcome is inconsequential i.e. not an error/further error or undesired aircraft state.

Undesirable Aircraft State: A pilot induced aircraft situation (such as position, speed deviation or misapplication of flight controls) associated with reduced margin(s) of safety.

Instruction and assessment of HF and TEM is required to be quantitative: i.e. it has to be measurable and assessable. Some practical ideas for the inclusion of HF and TEMS during Instructional Flights (most of which are probably already included). Include, instruct and assess the student's ability to:
- Maintain effective look out (including potential forced landing areas) stating intentions i.e. saying intentions out loud such as a) checklists b) "look left/look centre/look right – turning right" c) control inputs and interpreting flight instruments
- Maintain situational awareness: the student's ability to know what is going on around them and being able to predict the outcome. This could include knowledge of wind velocity/visibility/aircraft performance/position of other aircraft in the vicinity
- Assess situations and make decisions
- Set priorities and manage tasks
- And maintain effective communications and interpersonal relationships.

Next time: We'll take a closer look at how we can effectively and formally include, in both briefings and flights, HF and TEM requirements in simple, practical and measurable ways.

References *CAAP 5.59 (0) – 2008. Pilot Being Human Being Pilot – David Robson Aviation Theory Centre*

CAN WE USE LITHIUM BATTERIES?

There have been questions recently about whether Lithium batteries are safe for aircraft. I have conducted a series of tests on one, to see if it is suitable with charging systems using a permanent magnet alternator coupled to a Pulse Width Modulated regulator. These are common to Jabiru and Rotax engines and possibly others.

by Ed Smith

LiFePO4 (lithium ferro phosphate) is the safest of the lithium batteries, as far as I am aware, and is more resistant to thermal runaway than others, but apparently not immune to the condition.

In literature from various manufacturers there are interesting warnings. One recommends if the battery gets warm (no definition of warm) you leave it undisturbed and evacuate the immediate area.

There is also a warning that the battery contains no toxic materials but will vent hydrogen fluoride gas if overcharged or overheated and that the electrolyte is extremely flammable. The first part is confusing since hydrogen fluoride is extremely toxic. The agents for the battery I used for the test, could not tell me what the electrolyte is.

The battery had excellent cranking amp capacity with negligible voltage drop at cranking loads on a Rotax 912. The Lithium battery has very low internal resistance and appears to offer many advantages. However, I have seen firsthand the damage done when one of these rated at 20Ampere Hours Pb equivalent does catch fire.

Concerns

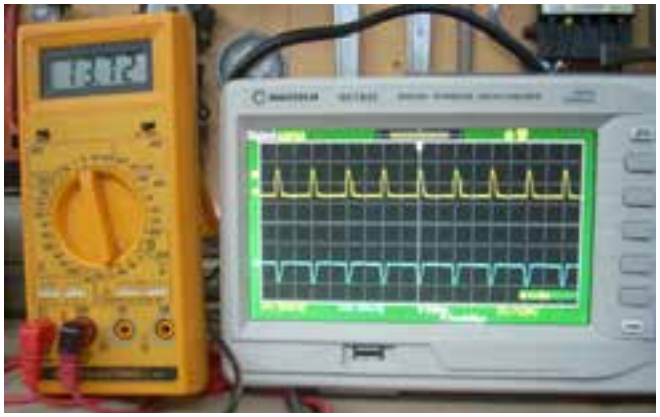
My concern is the use of such batteries with PWM rectifier /regulator systems - as used by permanent magnet alternators - where there is charge regulation (but no voltage regulation) of the alternator output.

As the battery nears full charge, the output from the regulator is a series of high voltage, short duration spikes, 40 volts or more with a repetition rate of around 1200 pulses per second. You can charge Pb cells like that with impunity. The innards of the Lithium cell in this case are more of the type common to electrolytic capacitors, where the insulation between the elements is a chemically formed film. If this is penetrated by a spike, the huge internal current discharge has a catastrophic effect.

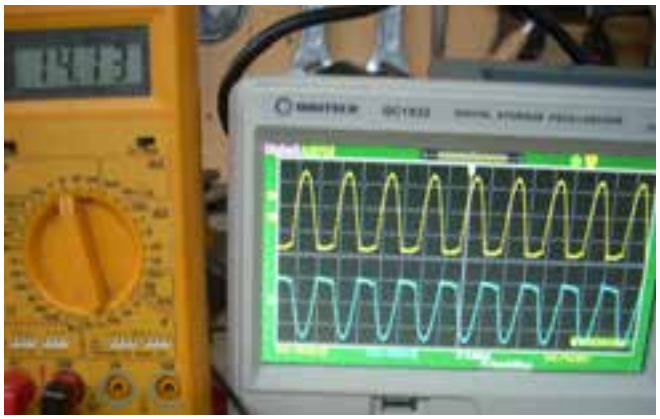
The manufacturer's literature warns against exceeding a final charge voltage of 14.6 volts because thermal runaway may occur. The test battery had a printed warning on the rear of the case, that the battery should not be exposed to a charging voltage exceeding 15 volts.

So I charged the test cell repeatedly, to a terminal voltage exceeding 16 volts, but saw no sign of the battery getting warm. Discharge tests to determine the veracity of the 20AH Pb equivalent storage capacity confirmed Paul Saccani's (W.A. Uni's electro-technology section) comment that the battery would exhibit only one third of the stated capacity. 8AH was all it would deliver, not 20. This has implications if used with battery dependent systems such as EFI and CDI in the event of alternator failure.

In this photo I have set up the battery with a voltmeter and a dual beam oscilloscope displaying the battery charge pulses from the regulator (yellow trace), measured across a series shunt with the regulator output (inverted) in the blue trace below. The differences in the traces are caused by normal wiring resistances in the connecting harness, a factor which may be significant in correctly setting up the charging system in any aircraft using one of these regulators. Note the battery voltage shown on the meter in the early part of the charge cycle and the relatively wide charge pulses.



In this photo you can see the action of the regulator controlling the charge pulse width to reduce the average charge current. Note the voltage across the battery on the meter alongside. In this photograph the voltage sensing line from the regulator was connected directly to the battery positive, resulting in the regulator sensing the correct voltage and narrowing the charge pulse width. The charge pulses have narrowed as the charge has risen, as shown by the increase in cell voltage.



In this photo the regulator sensing line has been moved to the instrument supply bus, a common enough arrangement, but here the voltage drop in the supply line - due to small currents being drawn by such things as radios, glass panels and other devices - has given the wrong reference voltage to the regulator, resulting in a much greater charge rate, as evidenced by the much wider charging pulses. Note the voltage shown on the meter attached to the battery. While this is still a safe potential for one of these batteries, greater losses in the reference line due to inadequate wiring or heavier than usual current demand, could easily result in the cell potential rising above the 14.6 V which is the maximum safe potential for Lithium batteries of this type.

Charging issues

A lead acid battery will overcharge differently to a Lithium battery. It may heat up and give off hydrogen gas as its electrolyte is consumed. If it is a sealed type, it may pop its vents. Probably not a catastrophic failure, just a shortened life and maybe acid burns to nearby items.

Lithium batteries may fail catastrophically or vent hydrogen fluoride gas, which is very toxic, if continually overcharged.

In addition to this simple test, I did a series of full discharge and recharge cycles to measure the capacity of the Lithium battery which was rated at 20AH Pb equivalent. I saw no adverse effects on the battery type during the initial tests. There was no heating of the cells at even quite high charge and discharge currents. The battery is very light (1250 grams) and of identical dimensions to a commonly used Odyssey battery. Its very high cranking capacity (700 cca) is more than double that of an equivalent size lead acid battery. Its use results in very positive starting of both Jabiru and Rotax engines and may well prolong the life of the Sprag clutch in Rotax engines because this can be damaged by inadequate cranking power.

The critical safety issue is to ensure the regulator sees the correct voltage at the battery. It's essential to use a good heavy supply lead from the battery to the master switch or relay which supplies the main wiring loom. The regulator sensing and excitation feed, which supplies the small current for the electronic circuitry inside the regulator as well as providing an accurate sampling of the battery voltage, needs to go as close to the master switch output side as possible for the charging regulation to occur properly. In my opinion, this would be significant for the safe operation of Lithium batteries in aircraft.

The second issue is to understand the difference in the storage capacity. If your plane needs to depend on the battery to keep fuel injection systems - high pressure fuel pump, engine management computer and ignition - running in the event of an alternator failure, the current Lithium batteries may have limitations because their storage capacity is limited compared to lead acid cells.

A lead acid loses voltage steadily as it discharges, but will keep supplying useful current as it does so. Monitoring the voltage will allow you to work out how much flight time you have left. However a Lithium battery will maintain relatively full voltage until exhausted, then quit without warning. I was able to see this in the charge and discharge cycles of the unit I had under test. As a 20AH equivalent, it provided eight amps for 55 minutes with its voltage holding from 13.2 volts to 12.7 volts, then it went completely flat in a few seconds.

My initial test results led to me advising caution in the use of these batteries in aircraft. However, my subsequent tests - where I set up a simulation of flight conditions, using a PWM regulator as the charge control element - showed some disturbing trends where the charging time was more like that experienced in general flying.

Subsequent Test Cycles

After doing the bench tests, I simulated the operating conditions of a battery in a typical aircraft using a PWM regulator, as would be the case with a Jabiru or Rotax engine. For convenience and practicality, I substituted a 20 volt transformer for the alternator. I used a Jabiru regulator, the same kind used by Rotax and others with permanent magnet alternators.

I used a typical load current on the battery, as would be the case with an aircraft using glass panels, a large screen GPS, radio, transponder and an iPad running a navigation program during the charging phase (engine running time) and ran the test for an extended time to simulate typical flight conditions.

In three repeated cycles, the battery went into a runaway condition after around 90 minutes of normal operation. The runaway was marked by a sudden rise in cell potential and an accompanying large rise in charge current drawn by the battery. On each occasion the cell voltage suddenly shot up to around 16 volts, the charge current went to 25 amps and a safety fuse installed for the test, blew.

For each cycle, I partially discharged the battery by an 8 Ampere load for 15 minutes then reset the test conditions. The results were consistent, the failure occurred in the same time and with the same indications.

A lead acid battery substituted in the test performed faultlessly.

Conclusion

The typical PWM regulator and permanent magnet alternator are definitely not suitable for use with Lithium batteries in aircraft and may lead to a dangerous failure. In my opinion, this kind of charging system is only suitable for use with lead acid batteries. Manufacturers' literature does say that secondary forms of control need to be integrated into electrical systems where Lithium batteries are to be used.

So I tested the Lithium battery with a strictly voltage regulated charging condition, as would be found with an automotive alternator and regulator with similar working load applied. It performed faultlessly over a period of several hours. In a strictly regulated environment, it seems these batteries have good potential. But in charging circuits, where the charging voltage is unregulated as with PWM charge controllers, there is potential for dangerous conditions to develop.

Before you change any part of your aircraft or its manufacturer supplied components, seek expert advice and proceed with caution.

BOOK REVIEW

Hustling Hinkler

AUTHOR D.R. Dymock
PUBLISHER Hachette Australia
REVIEW Mark Tyler

PART adventure, part mystery and part tragedy, *Hustling Hinkler* is the unforgettable true story of Bert Hinkler's astonishing life.

Herbert John Louis Hinkler was a working-class lad, born in Bundaberg, Queensland, in 1892. He became a decorated air gunner in World War I, before achieving his pilot's wings in the RAF. Combining formidable flying skills with a genius for invention, he became famous for his death-defying aviation triumphs. In 1928 he thrilled the world with the first solo flight from England to Australia, and another across the South Atlantic in 1931.

Yet behind this publicly feted hero, was a complex man who struggled to find his place in the world, when not in the sky. He desperately clung to his dreams, despite the odds against him. Tragically, Bert's pioneering attempts came to an abrupt end on January 7, 1933, while attempting another solo flight from England to Australia.

Hustling Hinkler is the riveting true story of a remarkable trailblazing Australian.

Darryl Dymock, the author, is a colleague of mine and works tirelessly in the adult and vocational education field. He gave up his full time career as an academic, to spend more time writing non-fiction.

> *He desperately clung to his dreams, despite the odds against him*

Darryl has shone new light onto the Bert Hinkler narrative by reporting warmly the instances of heroism in Bert's life. Bert could be considered a hero more for his actions rather than a compilation of headline grabbing exploits.

After reading Darryl's account, I was left with the true notion of a quiet achiever. The story is gripping as it moves from Bert's exploits as an intrepid country boy, to him achieving his aviation dreams - dreams of designing, building and testing aircraft and the setting of records which influence global air travel to this day.

One could suggest that Bert was a maverick, a self-starter and confident in his own abilities. I must admit these traits reminded me of some of my club members (Darling Downs Sports Aircraft, Clifton), the ones who inspire me to take on the various challenges of flying, by their dogged determination to achieve.

So, on one of those days when the windsock is being stretched rigid in a displeasing direction, find a quiet and comfortable nook in the hangar and dive into this well written book. It is very much worth the effort.

RECREATIONAL AVIATION AUSTRALIA INC

National Safety Officer

Recreational Aviation Australia Inc. (RA-Aus.) is a national membership organization responsible for administering – on behalf of the Civil Aviation Safety Authority – the training, assessment and certification of almost 10,000 pilots. The Association is also responsible for assuring the registration – and airworthiness - of almost 3,500 aircraft, and for overseeing the operations of a further 200 affiliated flying training facilities and clubs.

The National Safety Officer will be responsible for the development, deployment, and oversight of the Association's organization-wide Safety Management System (SMS). The successful applicant must be able to demonstrate recent, relevant (preferably), and substantial experience with SMS development and deployment; risk identification, assessment and control measures; health and safety system, hazard and compliance auditing; and workplace inspection.
You will be a self-starter with a proven track record of teamwork, commitment, accountability, and flexibility. Effective verbal and written communication skills will also need to be evidenced, together with a strong work ethic.

This is a part-time (20 h.p.w.) contract position with the appointee required to travel extensively throughout Australia.
A competitive contract rate will be negotiated in line with the applicant's qualifications and experience.
Applications to be received by c.o.b. Friday, November 15th.
Application guidelines, position description (and selection criteria) available at; www.raa.asn/safety/sms

Enquiries to Jim Tatlock (0403 228 986)

RECREATIONAL AVIATION AUSTRALIA INC

Technical Manager

Recreational Aviation Australia Inc. (RA-Aus.) is a national membership organization responsible for administering – on behalf of the Civil Aviation Safety Authority – the training, assessment and certification of almost 10,000 pilots. The Association is also responsible for assuring the registration – and airworthiness - of almost 3,500 aircraft, and for overseeing the operations of a further 200 affiliated flying training facilities and clubs. Reporting directly to the General Manager, the Technical Manager has overall assurance and compliance responsibility for all airworthiness, registration, engineering and maintenance training aspects of our national operations.

The successful applicant must be able to demonstrate recent, relevant, and substantial aviation engineering experience relating, preferably, to sport, ultralight, recreational and LSA operations. An authoritative working knowledge of relevant legislation, regulations and orders is essential, especially CAO 95.10, CAO 95.32 and CAO 95.55.
You will be a self-starter with a proven track record of team-building, process improvement, accountability, and flexibility. Effective verbal and written communication skills will also need to be evidenced, as will your established networks throughout industry and government, and your trade and tertiary (preferably) qualifications.

This is a full-time, ongoing position with the appointee periodically required to travel extensively throughout Australia. Remuneration: $90,000 p.a. + super
Applications to be received by c.o.b. Friday, November 15th.
Application guidelines, position description (and selection criteria) available at www.raa.asn/safety/techmgr
Enquiries to Mark Clayton (Ph: 02 – 6280 4700)

LIGHTWING
Zero One Five Eight?

by Geoff Raebel

IT was a glum meeting of Sydney Ultralight Flying Club in November 1991 – we were grounded. A volunteer, one-aeroplane flying club and we had a Lightwing with a broken crankshaft. "Actually", said Instructor, Bob Conrow. "I think I took off with the crankshaft broken. The only indication was the smell of burnt electrical insulation."

We have always had great committees and a great club spirit. The old AUF Magazine was scanned and rescanned until we saw an aircraft which would make a suitable second trainer for the club. Instructor, Dr Roslyn Skinner was putting her Lightwing on the market. Always L2/LAME maintained, it was a perfect match for 'Good Old 81' and with a bit of financial wrangling, we became a two-aeroplane flying club and business boomed - three days a week.

One-Five-Eight was a good buy for the club and for a while Ros instructed with us. They both had a history. Ros had bought 158 only a year or so earlier. It was one of many aircraft she has owned and she crossed Bass Strait each way with this one.

Sydney Recreational Flying Club (SRFC) was one of Hughes' original customers and our engineering staff had selected the Lightwing because of its ease of maintenance and its crash-worthiness. It was a good trainer. And with almost 9000 hours on this type, we have proved all three criteria.

However, after a couple of years we were a one aeroplane club again. One-Five-Eight's Rotax seized as she went over the fence. The pilot elected to shorten his landing run by pushing the aircraft into the ground, wiping out the undercarriage and ripping away at the underbelly.

Another dull club meeting. Nigel Bisset did some quick analysis - all but one of our prangs came after an engine failure and all the engine failures happened with 2 strokes.

Luckily we were insured and 158 went back to the Hughes Engineering's jig to be rebuilt. Nigel had suggested getting Howie to upgrade it to a GR912. Another of our club's famous whip-arounds raised funds for one of these new-fangled engines. We have since taken that engine and three other 912s out to full life without another engine failure.

It took a long time, but eventually Greg Davies and Nigel flew 158 home from Ballina. I remember Nigel showed us the track, the first time most of us had seen tracking GPS. Our two Lightwings soldiered on, not many students wanted to start on taildraggers with so many Jabirus around.

>> Lightwing 158 doing what it does best – taking us flying

Our CFI, Greg, determined we needed something modern and tricycle to kick our club along - enter our first Foxbat. Before long we acquired yet another aircraft - yet another Foxbat. Suddenly we were a tricycle club and the Lightwing was parked in the back of a crowded hangar, hard to push out over the gravel floor.

Now we have a completely new batch of trike-trained pilots wanting to stretch their legs. Along comes a low hour Lightwing GR912 with flaps and a performance similar to our Foxbats. After another whip-around we will update 158 to try and increase our taildragger utilisation and move the new Lightwing back in the middle of the hangar.

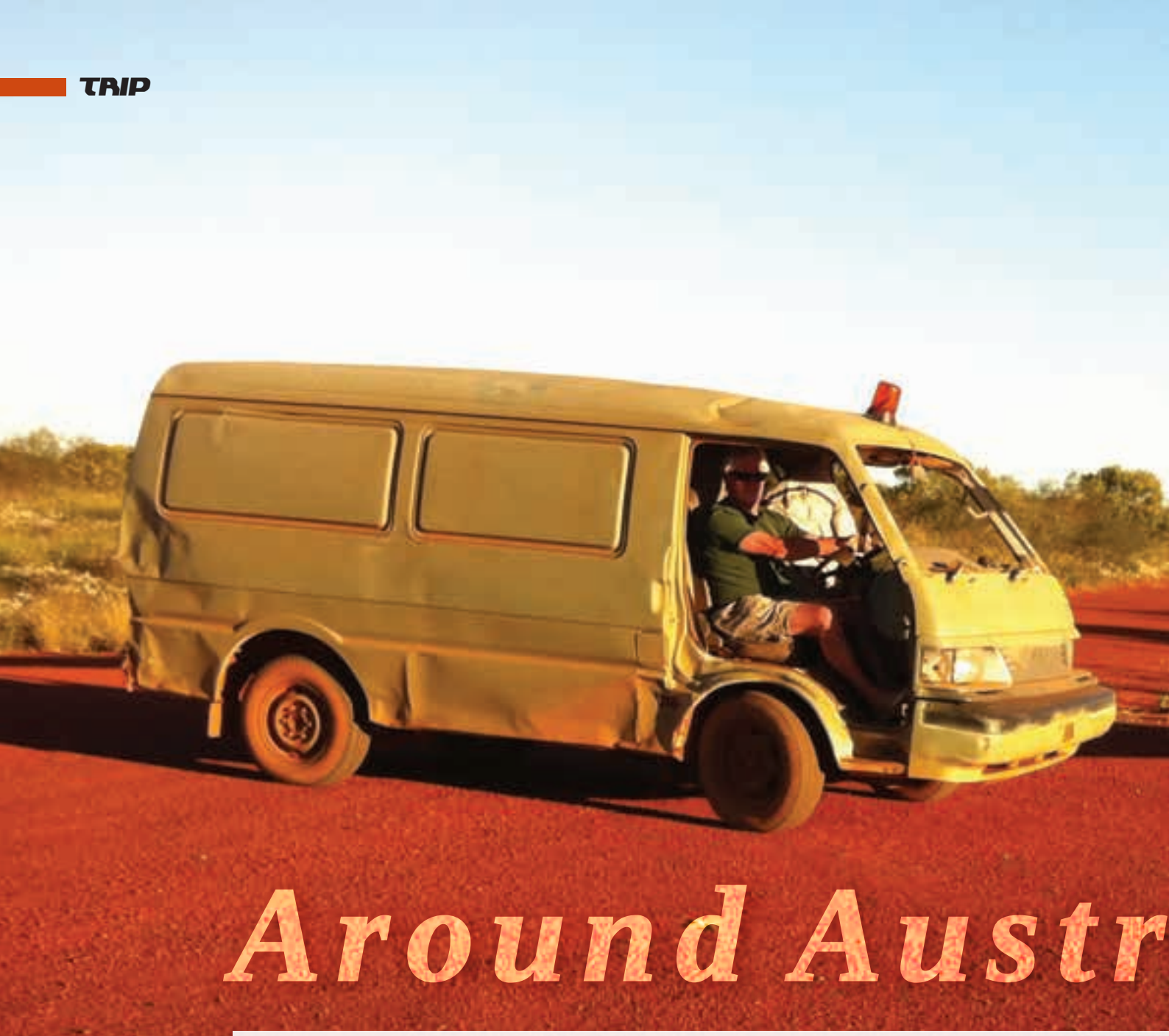
So Lightwing-Zero-One-Five-Eight is now on the market (complete with a training package for the new owner if required). With seven instructors, four aircraft, over 50 members and enough funds to replace the next Rotax 912, we have the means to back up our offer. We thank the group of volunteers from 1986 who had the foresight to start our club - four of them still fly with us.

For more information, raebel.g@iinet.net.au.

Around Australia in a Super Petrel

by Andrew Maluish

>> On the Berkeley River in the Kimberleys



Around Austr

>> Above: Refueling at the Sandfire Motel in WA, and inset, above Mitch Falls

MY new Super Petrel only had 40 hours on it, but my co-pilot Rhonda and I were ready to go - both lucky to have time on our hands for a non-scheduled long flight and to live a dream, I know many pilots have.

The idea was to actually hug the entire Australian coastline, travelling clockwise. My fundamental navigation was to make sure it was blue on my right and green (or red or brown) on my left. Unlike the Cessna pilot I used to be, it was comforting actually looking for water as an emergency landing site rather than looking for anything except water.

My very professional friends at APA at Heck Field in SE Queensland helped me get back in the air. Nick Sigley will be pleased to know I no longer have a death grip on the stick and Rohan Whittington can rest assured that my wings are absolutely straight and level when in the water. To Bill Ginn, even though there was no one to talk to most of the time, my radio worked a whole lot better. I was also very grateful to Kelvin Hutchinson out at Warwick for pointing me to OzRunways.

There is no question that winter is the time to be flying around the top end - above 30 degree days and plenty of thermal activity - not to mention avoiding the worse alternative of flying around the bottom of the country in cold, wet and windy weather.

The first legs from Bundaberg took in Shute Harbour, Cooktown, Lizard Island and Cape York/Thursday Island when the weather was unusually wet and cloudy for a Queensland winter, but still OK for flying.

Lesson One

Back down inside the Gulf to Weipa, then Karumba via Coen for fuel taught us lesson one. There are huge areas of tiger country up there where, I'm afraid to say, your emergency landing options will involve some damage. Even the temptation for a seaplane to land on a billabong brings in the prospect of the tallest trees for kilometers surrounding it. The winding brown rivers also look safe but there is apparently a big increase in the croc population up there too.

All you can do is understand the risk – or don't head up there in the first place.

Lesson Two

Closely related to this subject was lesson two. This is a truly remote part of the world, especially the coastline, so besides a personal EPIRB, I also carried a handheld air-band radio, a handheld marine-band radio, a Spot Tracker, flares and a V sheet.

alia in a Super Petrel

The leg from Karumba to Gove via Borroloola and Groote Eylandt revealed some long stretches of magnificent white sandy beach, surprising considering the rest of the Gulf is mangrove lined and muddy. From Gove, we headed to the Jabiru strip outside Kakadu for a couple of days and then across to Darwin, which revealed lesson three.

Lesson Three

The only aviation chart up there is the WAC, and it doesn't show a great deal of detail. For instance, the closest an ultralight pilot can get to Darwin is the small MKT strip about 40kms south. It has fuel and is a friendly place, but you need local knowledge to find it. In fact, at the beginning of every day we made a preliminary phone call to someone at the next strip just to make sure all was OK. Checking the NOTAMs is important too, even though you are so isolated. For instance, we only discovered in the NOTAMs that the desirable runways at Derby and Carnarvon were both closed.

The highlight of the whole trip was flying about 1500ft around the Kimberley coastline and staying at the very modern new lodges up there. The new Berkeley River Lodge is only accessible by sea or air, as is the Kimberley Coastal Camp. Naturally, a side excursion to the Bungle Bungles is necessary and not just to practise some water landings on Lake Argyle.

> *There is apparently a big increase in the croc population*

From the Kimberleys down past the Pilbara mining towns to Exmouth and a timely chance to snorkel with the whale sharks, before further south past Carnarvon, Kalbarri and Geraldton, skirting Perth along the coast to Busselton.

Overall, an amazing 60 hours in the air and over 11,500 kms – so far. Come December, the plan is to head for Tasmania and, probably unable to resist the temptation, up the east coast to cross the finish line at Bundaberg.

THE Heath 'V' Parasol PART 4

by Len Neale
Restorer and pilot

Part four of the story of the first 95.10 category aircraft in Australia, the Heath Parasol (Parts one, two and three featured in *Sport Pilot* August, September and October 2013). Built by Vladmir Slusarenko, a Russian pilot and aircraft builder who lived in Queensland, the first Heath, named 'Miss Sandgate', was used by pilots at Archerfield for years until it got too old and was put away. Then it found a new supporter.

Miss Sandgate is Re-Born

The Heath remained in storage until 1991. I had gained my Ultralight Pilot's Certificate on a Hughes Lightwing and, during a bout of long service leave, had helped Myles Breitkreutz repair a little aeroplane called an N3 Pup Sport. The Pup was a single seat open cockpit parasol monoplane, much like the Heath. It was powered by a Rotax 447 two-stroke engine. I flew the Pup after we fitted an auxiliary fuel tank behind the seat to correct a nose heavy condition. There was no possibility of dual instruction, so this was my first solo venture in a single seater. The flight was sheer delight. The open cockpit with the wind in my face like a motorbike, I was hooked. With the advent of the 95-10 Ultralight category, registration of amateur built machines like this were now a possibility.

It was then I remembered the tiny Heath Parasol, stored in the workshop at Smoky Creek. I called Kevin Wilson and asked permission to restore one of his aviation treasures. Kev agreed, and in 1991 restoration commenced. On the death of my father Reg Neale, I had been bequeathed $3,000, which went towards the purchase of a new 50 HP, dual ignition, electric start Rotax 503 two-stroke engine. This would solve the Heath's under-power problems once and for all. It was around half the weight of the old Henderson with almost twice the horsepower.

>> Heath Parasol before restoration in 1991

We trial assembled the Heath, including the original engine, and suspended it using a chain block from a hangar roof truss onto a beam attached to the top of the wing center section. This established its centre of gravity, much as you would for a large model aeroplane. We then removed the ancient Henderson engine and re-

placed it temporarily on the original wood engine-mount with the brand-new Rotax 503. We had to move the Rotax eight inches further forward on the mount, measured to the prop flanges, to get the correct balance. This was later re-confirmed using weight and balance data fed into a formula, allowing for the CG limits of the Clark 'Y' aerofoil and the variable weight of pilots and fuel. The aircraft was then disassembled and stripped.

Restoration begins

The fuselage was started first with a complete strip down to each individual component. A new tube steel engine mount was constructed to house the Rotax. I designed the mount as a combination of the old wooden shape and an adaptation of a Lightwing/Rotax mount using rubber cushion mount blocks, with which I was familiar. The installation has given no problems in 280 hours of operation.

The fuselage tube frame, luckily, had been filled with preserving oil. The frame, once stripped, was found to be in remarkably good condition. Numerous repairs were evident on the undercarriage attach points. The only repair we had to make was to replace a cross tube at the firewall, which had been cut out to allow the second magneto on the Henderson to be installed. The tube was re-primed using zinc chromate. The undercarriage legs were checked and repaired, and the compression spring telescoping undercarriage struts were re-built using heavier tube. New wheelbarrow style wheels were incorporated on the original stub axles.

Extra wood longerons were installed to restore some of the cylindrical fuselage shape which had been lost in various adaptations during the life and trials of the Heath. I also, rather optimistically, installed a small Tiger Moth style luggage hatch behind the seat thinking it would never be used, because if the Heath ever flew again, it would probably not go very far. How useful this small hatch has proven to be for storing a small tent, a sleeping bag, tie downs, camera, toothbrush, change of undies, tools and emergency water and rations.

The tiny instrument panel was restored using the original airspeed indicator, single needle altimeter (calibrated in inches of mercury instead of the now common hectopascals), and Tiger Moth style mag switches. Alongside these were installed the modern electric tachometer, switches, cylinder head and exhaust gas temperature gauges necessary to start, run and monitor the Rotax. The panel was topped off with a 'blob-in-a-tube' slip and skid indicator, and a small compass mounted on top behind the Moth Minor windscreen.

The original antique throttle quadrant was re-mounted in the left side of the cockpit on a section from the side of an aluminum ladder and connected via a yoke to the dual Bing carbies via bowden cables. Choke controls for the Bings were also adapted from pushbike gear levers and cables.

The control stick and control box were overhauled and new sailboat style stainless steel elevator and rudder cables were manufactured before the whole empennage and fuselage was covered with Stits Poly-Fiber fabric, silver doped. The engine was run-in using a propeller acquired from Jabiru at Bundaberg.

I later abandoned this propeller as too short and coarse, in preference to a 60-inch diameter Canadian GSC ground adjustable. Fuel was contained in a temporary motorcycle tank. After the engine was run-in, a short taxi around without wings proved that turning was quite feasible, despite the lack of wheel brakes or steerable tailskid.

Next came the wing restoration. At first I thought the Irish linen fabric installed in the early 1960s might be still serviceable, until

>> Len with a rib from the Heath Parasol 'Miss Sandgate' at the Sandgate Museum

>> Heath first flight day October 15, 1995

I discovered mice had invaded the wings and chewed off all the balloon stitching thread to make nests. Off came the fabric and I completely re-glued all wing joints. The wings' original case in glue had deteriorated significantly. The biscuits joining the ¼ inch square spruce rib frames were originally made from a red fibre material, attached with brass tacks. These were all removed and replaced with aircraft plywood webs and glued with epoxy.

An example of an original rib from 'Miss Sandgate' can now be seen displayed in the Sandgate Historical Museum. A new rib was constructed to replace it.

It was around this time our youngest son was born, and he was named Cameron Heath, as a reminder that there was a restoration project waiting to be completed. It was also around this time I formally purchased the aircraft, minus the Henderson engine. This was because of Kev's trust in me to restore one of his treasures and his recognition of my effort for doing so.

Two new fuel tanks with a total capacity of 36 litres were fabricated from galvanised iron and installed between the spars. The wings were then covered with Stits Polyfiber fabric, balloon stitched and silver doped in the traditional method. The wings and controls were installed and rigged. On checking the wing chord incidence against the top fuselage longeron datum line, I found the incidence to be an excessive eight degrees. This went a long way to explain the slewing on takeoff characteristics Slusar experienced and also the aircraft's reluctance to get up and go under limited power.

It must have sat there and mushed until the tail got well up. My solution was to fabricate new rear carbane struts and provide rear main strut adjusters, thus reducing the incidence to four degrees. This improved the flying characteristics of the aircraft remarkably.

Some taxi test runs were conducted then came the final application for registration with the Ultralight Federation of Australia. This involved proof of weight and balance and verification of type with photographs. The Heath Parasol 'Miss Sandgate' was registered for the first time in its sixty-year history as 10-1474.

I considered further taxi-runs without steering and brakes to be a little unsafe, so with the philosophy of 'a faint heart never won a fair maiden'. I lined the Heath up and opened the throttle fully, conducting the first post-restoration test flight on October 15, 1995. The aircraft flew perfectly with only minor trim adjustments necessary to make it fly hands-off.

The initial testing was conducted without engine cowls, giving a cruise speed of around 55kts. This was improved to an honest 60kts by the addition of cowls. A remarkable 25kt stall speed was also achieved. The little machine, now powered by a modern lightweight engine, became a delight to fly.

Heath Parasol 10-1474 'Miss Sandgate' instantly became one of the oldest Australian built aeroplanes still flying.

ROAD TRIP USA

by John Gilpin

I'D flown pretty much all over Australia. See the map?

Those were great adventures, but I'd kind of worn out Australia and needed wider horizons. I'm a restless character and I'd been hanging out with the same flying mates for too long. Really good mates, but I'd heard all their stories and they were sick of hearing mine, so it was time to go find some new stories.

For some years I'd dreamed of flying the western USA, especially the high deserts. I had thought of buying an LSA and getting an LSA licence over there (my Australian licence and 2400hrs experience aren't recognised there), but it's not so easy. Turns out you must be a US citizen or a green card resident to register an aircraft there.

Also, travelling around in such an aircraft and living in a pup tent under the wing, like I do here, is okay for a couple of weeks, but for several months in all weather it would get a bit tiring. So I'd already started to dream of a transportable aircraft I could tow on a trailer behind a campervan and so have a good bed and an aircraft to fly locally.

At Oshkosh 2011, I spotted a little Kolb FireFly ultralight and knew I had the answer. A cute little ultralight with folding wings which fit in a compact trailer. And it complied with the Part 103 category, so no registration or licence was required in the US. Just what I needed! So planning started right then, and this trip was the result.

Once I get an idea in my head of something I want to do, I can't just sit around and dream about it. I have to get into action. I'm retired, with no wife these days, so it's a whole lot easier for me than it is for others. So I make the most of it. In November 2012, I found a suitable FireFly in Barnstormers. It was in southern Mississippi, but friend Joe in northern Mississippi flew down in his Zenith 701, inspected it, gave it the OK and arranged for it to be stored for me. Next I wanted a light trailer instead of one of those heavy car haulers. A friend in Las Vegas found me a derelict Airstream Argosy trailer in New Mexico, so I bought it sight unseen. I was now committed to the adventure, and to a long road trip as well. Sometimes it's an advantage to be so impulsive and get ahead of myself; if I'd thought more about all the hassles such a project could involve I might have backed out.

> *"The US is such an excellent place for a road trip"*

But just as well I didn't. I was 73 already, so at any time I might start feeling old. These days I feel an urge to get as many adventures and memories as I can, while I can. And I'm sure glad I did this one!

The US is such an excellent place for a road trip adventure. Spectacular scenery, excellent highways, fuel less than a dollar a litre, low cost food and beer and free camping sites. The interstate highway system is superb, and easy-flowing right through and over the cities (sometimes three levels of elevated freeways in those spaghetti bowl interchanges). I usually just programmed the GPS for a destination beyond the city and paid attention to the lady in the GPS. No reason to stop in the cities; they're uninspiring at best and some are downright dangerous if you blunder into the wrong areas. Exits and interchanges are very well sign-posted, and courteous drivers nearly always ease back to let you into their lane when you signal - don't count on that here, eh? Heaps of low cost food everywhere, and it's not all bad these days; even the old greasy fat food chains offer lots of healthy options. i.e.- $5 for a foot-long Subway, which is two healthy light meals. A six-pack costs less than $7, and not all the beer is as bad as you've heard either. There's lots of variety to suit all tastes. Just about every Walmart allows free overnight parking for campervans and motorhomes, open 24hrs for toilets and supplies for anything you could ever need. Americans, especially out in the country, are open and welcoming, and have a special affection for Aussies, so it's really easy to strike up a friendly conversation. I really enjoyed my road trip, and would highly recommend such a holiday to other Aussies.

As you can see for the map, I covered a lot of ground and air. 40,000km on the road and I flew from 48 airfields in 14 states. Now I have lots of great memories and new stories. The story of the adventure, and misadventures, and several hundred photos are at http://www.tailwindsplease.com/usa-flyingroad-trip/.

Do come along for the ride.

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First to see will buy. Excellent condition, Flies hands off, genuine 120 knots, one owner, always hangared, serviced every 20hrs, TT445 hrs engine & airframe, Microair radio, transponder,JPI Fuelscan computer, couples to Garmiin 296 GPS, iPad bracket, Garmin Pilot II GPS, 10 ply tyres, Low fuel light, Dual strobes, many extras, can deliver. Reduced to $67 500 + GST. Ph 0418 930 100

3028 FLIGHTSTAR 11 SC

Brand new 2 seater.Protective covering still on doors and windscreen.Airframe 0 hours.Engine 0 hours. HKS 80 HP fuel injected turbo with intercooler.Aerolux 3 blade adjustable prop with spinner and individual blade covers.Hydraulic disc brakes.Carpeted interior. Easy clean Mylar flying surfaces. ASI,VSI,Tacho,Manifold pressure,Slip indicator.$39.500 complete or if desired, $29.500 minus engine and prop.Ph.0419439976.Email formefitness@bigpond.com

3176 STORM 300 SPECIAL

Level 2 owned and maintained. 912S 100hp Rotax 780 hours. In flight adjust prop, KT79 transponder, 2X VHF radios Lightspeed headsets, carb heat, AH (Vac) Garmin 196 GPS, Man pressure, ASI, ALT, CHT,plus heaps more $59,000 no GST for quick sale 0419348288 or pbugg@onthenet.com.au

3203 FLIGHT DESIGN CTSW

435 hrs TT engine and airframe, 7+ hrs endurance @ 18 lph, 110-120kts cruise, VHF, Dynon EFIS, Mode C, 50kg luggage. Owned & maintained by L2. There is no better aircraft advertised here. Looking for sensible offers 0419368696

3209 X-AIR A1 CONDITION

TT 361 nil incidents, Rotax 618eng RAVE) for high altitude. 3 blade Bolly prop. Modified HD undercarriage, wide wheels, always hangared, yellow and green, new tail cloth. Dual headsets, intercom, radio plus UHF. Alt, compass, IAS, slip ball, EG's, eng instruments $16k. Ph 0416204472, rooaroo12@yahoo.com.au

3213 FOR SALE JABIRU J-230D

Airframe 687 hours, latest factory reconditioned engine 106 hours. Dynon 10 Efis, plus analog instruments, Garmon 296 colour GPS. Transponder, external charge connector, external recognition light. Lambswool seat covers, adjustable rudder pedals, wheel spats,fin strobe. L2 maintained, always hangared orginal owners. $79,000 incl GST phone Bill 0429 054 205

3227 JABIRU J120C

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

3249 1/6 SHARE JABIRU J230D

Jabiru j230d 1/6 syndicate share,micro air VHF x 2 ,transponder, avmap insured and hangered at Tooradin VIC, 50 hours on latest engine $13500. ONO.$140 PCM and $70 per hour. Call Glenn Wattie 0418320385

3276 AIRBORNE MICROLIGHT XT

Tourer trike. Rotax 912, 4 stroke engine, Streak 3 wing, Microair M760 dual comms radio, large windscreen, log book, manuals, registered RA-Aus til 27/9/2013, always hangared, always privately owned, excellent condition, lots of extras. $38,900. Ph 0429 61 99 87 flblainey@gmail.com

Selling your Aircraft?

RA-Aus head office & Members' Market enquiries

Ph (02) 6280 4700 Fax (02) 6280 4775
E-mail admin@raa.asn.au Web www.raa.asn.au

3294 JABIRU LSA

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

3301 SAVANNAH - STOL

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

3304 TEXAN TOP CLASS SPORT 550

Texan 2007 top class sport 550 New Duc prop TBO on Rotex motor 2000hr 667 to run Avmap ADI Gramin Transponder Xcom radio New paint plus much more . Currently working out of Caloundra or Cabooture with leading flying school payed weekly for more info call 0418713350 $79.000 +gst

3315 JABIRU - SHARE THE DREAM

Flight Syndicates

Your new Jabiru is closer than you think FLIGHTSYNDICATES.COM.AU Syndicates seeking members based at Caboolture, Cairns / Tablelands, Adelaide environs, Sydney environs, Adelaide / Parafield, Melbourne area, Rockhampton / Hedlow, Jandakot/Northam. 07 32892545 info@flightsyndicates.com.au www.flightsyndicates.com.au

3316 FOR SALE

For Sale BantamB22J Jabiru Engine with oil cooler,89hours,no accidents,always hangered,registered. Price $25000 ONO Contact Gloria Armbrust Ph 0740943080 e-mail garmbrust@activ8.net.au

3329 BUSHBABY

2 Seater Rotax 582. Complete instrument panel with Icom radio, intercom, FM/CD radio and leather seats. Ideal for short field operations and touring.Always hangered. Urgent sale due to moving interstate. Price: $ 22000.00 Neg. Call Etienne for more info or pictures on 0409 768 370

3339 LIGHTNING LSA

LIGHTNING LSA GRT Glass cockpit, GRT Engine monitor, Auto pilot, Garmin radio, Transponder, Garmin 695 GPS, PS Intercom, Kannad ELT, Park brake, Electric trim and flap, Jabiru 3300 engine. Always hangared and in excellent condition. $105,000 ono Phone 0408813501 South Australia

3380 SKYRANGER V- MAX U K.

Own a share in a 3,000ft all weather bitumen runway and taxi ways with pal lighting 15/x14/metre hangar, 3 bedroom house on 2.5 acres , establisled lawns and gardens. no body corp. fees. sale due to ill health. $595.000. phone 0741290651or donlee@y7mail.com.

3385 SKYFOX GAZELLE

T/T Airframe and Engine 1457hrs Paint and Interior 9/10 VHF radio Garmin 296 GPS with panel mount. Navman fuel monitor. 2 Headsets. Punkin Head camp cover. Original Timber Prop and Spinner both in excellent condition also included. $35,000 Contact Harold 0433892292

3396 SKYFOX GAZELLE

Comes with fresh 100 hourly. New motor out of box just installed. Inside and outside 9/10. Very tight and tidy airframe. Icom radio, King transponder, full instrument panel. NDH. Always hangared and LAME maintained. New side and roof perspex. $43000 + GST ONO kjeffs@bigpond.net.au 0438508576

3398 THRUSTER T500

Thruster T500 Rotax 582, 230 hours since overhaul. UHF and ICOM VHF radio. 2 seater with long range fuel tank, doors. Flies great, well maintained. Located Lockyer Valley with own hanger on private airstrip. $14,500 Phone Paul 0427622176

3408 JABIRU UL 2.2

TT 790hrs A & E as at 23.07.13, Long wing with winglets & vortex generators. Excellent STOL performance. Cruise 95-100 knots @ 12 lph. Electric T & B, strobe, Garmin aera 500 GPS. Spare prop. Always hangared. Sth Aust. phone John 0400865868. Reduced to $35,000.

3409 STREAK SHADOW 618

1999 T T 280 HRS ROTEX 618,L2 Maintained, good condition,safe aircraft to fly, does not bite, good low hour pilot aircraft, 2 headsets, intercom, complete set of aircraft covers, spare prop, and some spare. Price reduction $17500 ono mrbadgertea@gmail.com

3425 JABIRU

Very nice aircraft great endurance easy to fly lots of room. Working too much not enough time to fly. All work done by level two. $80,0000 0411 123 669

3426 CHEETAH XLS

Cheetah XLS 24-7072. 76 hrs airframe and engine. Jabiru 2200 PP. Single owner always hangared. Easy to fly and maintaine. 110ltr tank, spacious cockpit. Digital inst with analogue backup. 75kts cruise. Based Bunbury, WA. Half share considered. $39,500

Contact George on janspo@westnet.com.au or 0406226566

3428 JABIRU J230C

Great aircraft latest engine updates completed, too much work not enough time fly. New prop no accidents great touring aircraft, mains spats not shown in pic. $88k 0411 123 669

3432 JABIRU LSA55

For Sale Jabiru LSA55/3J One owner , always hangered 1400 hours TT . 2.2 solid lifter engine , Garmin 495 & 195 Micro Air radio & transponder , fuel flow , landing lights , 85 litres fuel , cruise 105 kts 13 litres . $36000 Contact Steve Lenne 0428732267

3436 X-AIR NEEDS TO FLY

Only 6 hrs total time on airframe and Rotax 582 blue top. 80L fuel tank, 5 hrs endurance. Electronic and analogue instruments. Xcom VHF radio/intercom with music and UHF radio. Wide entry doors. Hangared. $18,500 ONO. Phone 0417612414 or email wbowkett@bigpond.com.

3439 JABIRU J230

Jabiru J230, 2008, 520hrs, A-1 condition, twin Becker radios, transponder, built-in GPS system with back-up Garmin 296, plenty of extras, $59,000 ono must sell. Phone James 0458519296

3451 RANS S-14

Single seat high performance ultralight. Rotax 912, full instrumentation. Fighter-like agility and performance. No vices, and will trim hands-off, probably not for the very low hour pilot. A sea change means I have no time to fly it. Inspection will not dissapoint Located near Gatton Qld. $25,000 Ph Ian 0418880257

3460 SEAREY

Searey "C" Hull, 912 Rotax, Electric Gear, Dynon 180 instruments, GPS, Stobes, Nav Lights, 66 hours total time, VHF ,VOR, Transponder. Alum fuel tank, tundra tyres and more. LAME /L2 owned and always hangared.$72,000. ono. Located VIC Ph:0419 727077

3467 SPORTSTAR MAX

Delivered 2010, Excellent condition, leather seats, Garmin Aera 500 GPS, Icom Radio, intercom, Garmin Mode C Transponder, Toe brakes and great to fly. Currently online in Qld. $85 000 Contact- 0402 660 077

3471 STING S3 LSA

TTIS 740Hrs engine 560Hrs Excellent condition,a dream to fly at 110-115kn with a near new Sensenich ground adjustable prop,full set of round gauges including ADI,Zaon traffic alert,Garman 496 GPS,GTX 327 Mode C transponder,SL 40 com and greenline EMS. Based at YBNS. $97,000 Ph Mark on 0417222692 or 0429390131 AH

3480 RANS S65 COYOTE 2

Rotax 912 80HP, TT 1036 hours. Engine and airframe. One L2 owner, builder, maintainer since new. Always hangared. 2 place, 36kg luggage plus 5 hours fuel. Round Instruments, icom radio, lowrance GPS. Offers around $48,000 Phone Dave King 0429 042 740 for info brouchure. Hangared at Holbrook, Southern NSW

3485 JABIRU J160C FACTORY BUILT

J160C factory built 2006. Option 2 Panel with Dynon EFIS, Garmin 296 GPS, Micro Radio & Transponder.10 hours since engine overhaul & upgrade. Always hangered, beautiful to fly. $58,550. Call Alan 0427 763 375 or more info at www.jabcor.com

3487 JABIRU SPT-6 TAILDRAGGGER

Jabiru SPT-6 Taildragger, Zero hrs, Never flown. Factory new 3.3 hydraulic fine finned engine, 85 litre tank, STD Jabiru dash, ready to register. Gloss white ready for your decals. One of only four Jab 6cyl taildraggers. YBNS airport. $68000. Make an offer, must go. Phone Martin 0412 617110

3489 JABIRU SP6

Regd 19-3845 to 27/6/14; TTIS A/F 451 HRS ENGINE 20 HOURS (3300/120HP) HYDRAULIC LIFTER. GARMIN 126/8GPS, ICOMA200 RADIO/ INTERCOM,ASI,ALT,RPM,EGT,TURN CO-ORD, OIL PRESSURE AND LIGHT, VSI, CHT, OIL TEMP, ELEC FUEL PUMP, COMPASS, LOCK, WHEEL PANTS, TWO PLACE, BUILD BOOKS/ EXTRAS VNE 132 RAY 0411 956734/ 03 51555181 rjwheels@gmail.com ASKING $45000 O.N.O.

3502 ESQUAL VM1 EUROPA

Esqual VM1 Europa, 6cyl Jabiru 3300 engine (125hp) - 178hrs only. Excellent Condition - Leather Interior, Always hangered, Garmin GPS, Rego 19.3839, $90,000 (No GST) Contact Jim on 0407768701.

3505 PROPERTY WITH AIRSTRIP & HANGAR

Excellent 100 acre property at Cowra NSW with 4BR ES house and garaging, plus large hangar and 700m airstrip, town and tank water and many improvements. Easy flying over picturesque country. Good aviation facilities nearby. Contact owner 0411155855.

3514 SONEX TD & HANGAR

Sonex TD with solid lifter Jabiru 2200J 275 hours, Patroni prop, 10"wheels, Garmin296, ELT, two spare canopies. Internally corrosion-proofed when built. Pro-

fessional pilot owner has flown it to Tassie. $32500. Also insulated hangar with concrete floor at Kilcoy $36000. Or make offer on both. 07 5445 7362 arvicola.amphibius@hotmail.com

3515 STAND OUT FROM THE CROWD.

Only Dova Skylark flying in Oz. Flies as good as it looks. Factory built, All Metal. Rotax 912ULS. 425hrs. Cruise 110kts+, Stall 36kts. Avmap EKP-IV colour GPS, Icom A-200 radio, Garmin GTX320 transponder. L2 owned & maintained. Cost to replace $140k, asking $85,000 inc GST. Can deliver. Phone Mick 0419123933

3521 JABIRU ENGINE

3300 6 cylinder Jabiru motor - Feb 2011, Total 54 hours, Propeller and spinner included, Packaged in a Jabiru box, Reason for sale - changed out motor for another engine $12,000 plus GST Contact Roger 0899430548

3524 STORM 300

Ultralight Storm 300 two seater Aluminium aircraft . 7 hour endurance, Rotax 100 hp engine. Wood Comp variable pitch constant speed prop. Engine recently gone through full 100 hourly maintenance as per RAA requirements. VHF icom radio, Verticle speed & turn coordinator 2 cylinder head temps 2 exhaust temps. Bill 0428176172 $55,000

3526 X-AIR

X-air Standard .Reg 19-3322. Rotax 618. Brolga prop. Zip up doors. Luggage compartment. Full instrumentation with digital compass. X-com radio with intercom & two headsets. Spats not fitted but included. 252 hours TT airframe & engine. Full maintainance log. New Battery. Always hangered & covered. Excellent condition.Peter 0402599306 $19,500

3529 JABIRU SP 500/6

One owner, always hangared, nil accidents, assist built Bundaberg. Fresh from 500 hrs top-end overhaul at Jabiru. New fine-finned heads, through-bolts,engine-mounts,induction system, full airframe check. All AD's completed. Over $10,000 spent. Microair radio, transponder, JPI fuel-flow,Avmap GPS. 10ply Tyres. Quick sale price $47,000 Lismore,NSW, john@jiggi.net Ph John 02 66888231

3531 JABIRU POWERED BOORABEE MK 2

Good local and cross country flyer. 100 litres of fuel (in the wings) at 15 litres per hour. Would deliver to anywhere in NSW or Victoria. 2 seats and all the usual instruments. Good looking aeroplane that has been a past prize recipient at RAA events. $19,500 Phone:0408690738

3532 SONEX

2004 SONEX $37,500.Total Hours: 52.Engine:119 Hours. Serial number 119. GP 2180 engine, with current Full Registration. Sensenich Prop, MicroAir, Garmin GPS, good array instruments 60 litres, 15LPH, 110 Kts. Phone 02 6955 2655. Located near Naranderra NSW.

3534 JABIRU 160 IN WA

2007, always hangared, no accidents,no hard landings,vgc in/out,custom seats, LAME maintained,890TT,200TT on new thin finned engine,Dynon D10A EFIS,Garmin 296 GPS,Microair COM & TXP/C. Must sell due to new aircraft arriving. View and fly in Albany WA. $55,000 incl GST. Ralph Burnett, 0427200673, burnett@comswest.net.au

3535 DEMONSTRATOR ALPI PIONEER 300

Demonstrator Pioneer 300 Kite aircraft with fixed undercarriage registered May 2013 , Rotax 100HP ULS engine, 3 bladed ground adjustable DUC Prop, 112 litre fuel capacity, 115-120kts at 18 litres/hr, toe brakes, GA guages, AvMap IV GPS, Garmin SL40 radio, Garmin GTX 327 Transponder,D10 EFIS system. $call for price Peter 0408 444 335

3536 JABIRU 2200 ENGINE

Solid lifter motor -250 hours still in plane -always run Amsoil synthetic oil-complete instalation kit(air box ,cht egt -sweetapple 58d 48p propeller etc). This is a good motor, only selling to upgrade to larger motor. Phone John 0409 308 232 for more details. $7000.00

3540 CORBY STARLET

Corby Starlet Total Hours: 346 Engine Hours: 346 Rego: 28-1976 Price: $28,000 Posted: 21 Jul 2013 Mosler 1835 cc motor 65 H.P. with injector throttle body has ICOM VHF full maintenance log always hangared delight to fly located Serpentine W.A. contact Tony 0433 33 77 33 or tony.mitchell1943@bigpond.com

3545 BRUMBY 610

Brumby 610 highwing, Lycoming 0233, Dynon D100 and Autopilot, Backup steam gauges, Microair radio and transponder,CHT, EGT, Fuel flow, LED lights, Large wheels, sensenich prop, Yoke not stick,140ltrs= 6hrs endurance, 100 hour completed Price $130000 steve; 0412621212; steve@lifttrucks.net.au

3547 SKYFOX GAZELLE CA25N

Skyfox Gazelle CA25N Reg.24-3569, Lamey maintaned, 80HP Rotax, 912A powered, Bolly 3 bladed prop fitted, folding wings, Factory fitted GPS, Total hours = 1919, Engine hours = 1350. All ADs up to date. Hangared at Tyabb Victoria. Priced to sell at $33,000.00 Contact Roger 0419 891 431.

3548 JABIRU J160

Hanger ed in Bundaberg has 2 x Icom radio's 1 com system Garmin transponder Efis Altimeter Airspeed VSI (vertical speed idicator) Tacho Oil pressure Oil temp CHT (cylinder head temp) Volt Cargo door call Rod 0747485502 $50,000.

3551 JABIRU 230D

Jabiru230D, '09,Factory,TTIS360hrs.Reg8/14, own hangar, immac as new, L2 LAME maint, Redleather, EFISD100, AVMAP EKP IV GPS, 2axis AP, MicroairVHF & Xponder, remote ext plug, MP3 music, full covers nose to tail, wing strobes, all updates, new prop, rotors & pads, MLG wheel bearings, many spares. $98,000 incl GST, 0419555726

3552 JABIRU J230-D 24-5490

Factory built 2008, Airframe & engine 94hrs, Maintained every 25hrs, Nil accidents, Analogue instruments, Icom IC-200 radio, Garmin GTZ-320a transponder, Booster seats, Sensenich prop, Garmin 295 GPS. Always hangared & runs great. Contact Kevin: 02 4283 2671 or 0408 427 458 Email: kaybee@exemail.com.au $85,000

3553 JABIRU-400 IN WA

J-400 $76000 Built & maintain by L2 Jabiru builder . Excellent condition.No accident .No hard landing.Only 160hrs airframe and engine since new. Always hangered.Invest $86000 include wingtip lamp king transponder,vacumsystem,Garmin GPS .....with beautiful sea oak panel .It has been 2 pack painted by professionals and upholstered Steve Hancock stevehancock10@bigpond.com 0400722035

3557 WANTED - WINGS OF AMERICAN A/C CHAMPION

Wanted- Wings of American Aircraft Champion, or other models. Don't want the fuselage. Think Aeronca is the same? Advise location, price and condition of wings. Phone Ron - 02 6682 6599 has answering facility please leave message.

3558 2008 AIRBOURNE XT-912 TOURER

STREAK 3 WING 412 HOURS AND BASE 515 HOURS INCLUDED IS, LARGE WINDSCREEN, BOLLY SPINNER, ENGINE COWL, MICROAIR M760 DUAL COM RADIO, 1 NEAR NEW MICROAVIONICS HELMET AND A GARMIN AERA 550 GPS. ALWAYS HANGERED, EXCELLENT CONDITION. REGISTERED TRAILER AT EXTRA COST. LOCATED IN ALBURY NSW. PHONE 0416657705 EMAIL heinjus1@hotmail.com $36,500

3560 FOXBAT A22LS

TT 95 Hrs, Rotax 912ULS, 100hp, Warp Drive Prop Dynon FlightDEK-D180 Combined EFIS and EMS Dynon 2-Axis Auto Pilot, Twin Control Yokes Garmin Aera 500 GPS, Nav/Strobe lights, oil thermo JPS fuel flow meter, Micro Air landing lightsTundra Tyres Airtracs books covers sheepskins. As New Peter 0418 833072, mpcstreaky@bigpond.com $95k

3564 RANS S12S SUPER AIRAILE

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

3565 HANGAR FOR SALE

5 year old,12mtr by 9 mtrs, 2.4 mtr door height. Crushed rock floor. power connected. Folding doors, 4 skylights. Located Colac, 45 minutes Gelong and Surf coast, 1.5 hours West gate bridge. Only 1 hangar site remaining at Colac airfield. $28.000-00 ono. 03 52338244

3566 SONEX

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

3570 TERRIER 200

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

3572 TECNAM EAGLET

2009 Tecnam Eaglet, $100,000 Arriving Sydney Oct/ Nov 2013 after completing a flight from Europe. See www.ridingtheskies.com Will have approx 720 TT upon arrival in Australia. Owner/pilot is looking to sell in Australia rather than ship back to Europe. Good avionics and panel. See on-line add for more photos. Contact roberto.b@publicolorsrl.it

3573 TEXAN TOP CLASS

2006 TexanTopClass 100, $100,000 Arriving Sydney Oct/Nov 2013 from Europe. See www.ridingtheskies.com Approx 380 TT upon arrival in Australia. Owner/ pilot is looking to sell in Australia rather than ship back to Europe. Good avionics and panel. Flight controls on right hand side. See on-line ad for more photos. Contact roberto.b@publicolorsrl.it

3574 THE GREEN HORNET

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

3575 DRIFTER 582

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

3577 IVO INFLITE ADJUST 3 BLADE PROP

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

3578 REFURBISHED 503 MAXAIR DRIFTER

650hrs, 19-3443, Refurbished by Wayne fisher at start of year, new skins, new 69l fuel tank, new tail post and wheel and landing gear. New Icom radio fitted selling with new microavionics helmet with builtin headsets located dalby, good condition, great fun to fly QLD $12000 Jamie 0448610103 jamiefbacon@hotmail.com

3579 CARBON CUB SS 180HP

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

3581 EVEKTOR SPORTSTAR 2004

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

3582 JABIRU 230 D 2007

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

3583 SAVANNAH 19-4189

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

3586 THRUSTER T300

NO ENGINE. Icom IC-A210, king mode C transponder, electric DI, sigtronics intercom installed 31/5/13. (Cost $6000). Last flew 27/7/13. Needs new main springs pod repair and new windscreen. $7500 as is, $5000 no avionics, or $16000 repairs done and a new rotax 582. Ring Matthew on 64962997 or 0410208111 allenmf@optusnet.com.au

3587 AIRBORNE OUTBACK TRIKE

Tundra, Year: 2004 Total Hours: 248hrs, Price: $20,000. Rotax 582 blue head, Streak 2B wing, new 3 blade tuff edge Bolly prop, trailer, heaps of accessories, helmets, intercom and radio, GPS, 3 flight suits much much more. All in exellent condition Very regretful sale. Robinvale, Victoria. Trevor - phone 0457279673

3588 SKYFOX CA22 (CASA CERTIFIED)

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

3590 INSTRUCTOR NEEDED

Senior Instructor for sport aviation flight training needed for our flying school located north west of Melbourne. We need a capable, reliable, personable senior instructor available 2-3 days pw (including min 1 weekend day). AirSports Flying School (03) 9744-1305.

3592 NOOSA AIRSTRIP PROPERTY

NOOSA AIRSTRIP PRPOPERTY Modern 560sqm designer residence with pool on 10 acres. Aircraft hangar (15x18m) with self contained unit, office and workshop. Access (Easement) to 850m and 600m airstrip and taxiways . 35 min. drive to Noosa main beach. Contact : tschoenh@bigpond.net.au 07 5485 3034

3593 LIGHTWING TAIL DRAGGER PLUS TRAINING

Factory built Lightwing, 25-0158. Rotax 912 engine. ICOM 200 radio. Full instruments, currently certified and used for training. Always hangared, guaranteed rust free. Level 2 maintained from new. TTIS 4311, engine 763 hours TSO. $30,000 ono including training Phone 0410 003 905 or 0425 251 939. More info www.srfc.org.au/blog

3594 JABIRU CYLINDER HEADS

Jabiru 3300 Bare 6 cylinder Fine Finned Heads.Bing Carby to suit Jab 6cyl.Both factory run time only. Located Nowra NSW.Contact Doug:0438642225 or doug@scdcs.com.au

3595 JABIRU LSA55

Factory Built 55/3J, 2002, TTIS 919 hours, 2.2 solid lifter engine, 80 hours since top end overhaul. Standard instruments including Garmin 196, VHF and UHF radios. Strobe and landing light, 85 litres fuel and spare prop. Cruise 100 knots. $30,000 ono, hangared Moruya. Contact Steve on stephen@renbury.com.au or 0421032197

3596 TYRO MK 2

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

3598 LIGHTWING 582

Lightwing 582. Blue head motor, Brolga prop and gearbox all 532 hrs TTIS. Unregistered and needs some patch repair. 3077 TT. Two other 582 motors, 1000 hrs on each, reconditioned starter motor and numerous spares and tools included. email; wattsquilpie@bigpond.com Ph 0746561333 Duncan Watts $16900 ONO

3599 WANTED SONERAI UNDERCART

Wanted Sonerai undercart , if available wheels and brakes included, John Edwards 0408891159 E mail johnedwards5275@gmail.com Kingston S.A.

3600 TEXAN 600 FLYSYNTHESIS 1/4 SHARE

2X1/4 shares for sale.Dec 2007,TT:850Hrs 2000TBO,L4 maintained,Garmin SL40 comm,Garmin GTX327 transponder,Trutrak ADI3 artificial horizon,Trio Avionics 2 axis autopilot coupled to Garmin 695 GPSMAP,ballistic parachute,Rotax 912ULS 100Hp,100l fuel,cruise speed 115/120Kts,carby heat,electric trim,toe brakes,wheel spat,wings and tail strobe,nav light,noise cancelling headsets,immaculate aircraft always hangared at Tyabb,Vic. $27,500 each share Ph:Luc 0417371871

3603 AIRBORNE XT TUNDRA 912 S3

2008, 199 hrs *Always hangered *Excellent condition *Skydat GX2 *Two helmets/ headsets *Microair transceiver *Tall windscreen *Maintenance log *Reg. 26/03/14 *Extras incl: *Custom heavy duty trailer *Heavy duty covers *All cross-country bags *Training bars** $44,000. Test flight avail. w/qualified instructor. Contact Geoff 0409913858.

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Great aircraft, fly anywhere so reliable, just had a full service and inspection of all equipment on the aircraft. It is priced to sell and is one on price. Reason for sale, moved on with my flying! Jeffrey 0427 361 515 Price - $40,000

3607 ZENITH701 STOL

Perfect condition, well maintained, always hangered, 912 rotax, 80 hp, beautiful stol performance aircraft. $38,000 Interested? Contact Phil on 0407050211

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Single seat, one off scratch built aircraft. Complete aircraft less engine and prop(jabiru 2200). Won most innovative design Natfly 2006, comes with purpose built unregistered trailer. Can be assembled by one person in ten minutes. Aircraft located at Cobram Victoria. Call Colin Jamieson evenings 03 5872 2893. $6,800

3609 PROTECH PT2 PROSTAR

PROTECH PT2 PROSTAR PART BUILT KIT. 2seats side by side, Chrome Molly fuselage, Volkswagon engine and instruments, alum. folding wings (one part built). all necessary materials to complete except fuselage fabric. Package price $10.000- Owner going overseas. Location- Kentville, Qld. Ashley tel. 0428170732. ashleymartin70@live.com.au

3610 MK 4 KITFOX

Mark IV Kitfox Raa Aus Reg. 19-1966 TT engine & airframe 339 hours. Basic instruments, 3 blade Bolly Prop, 90 litre wing tanks fuel 14lts/hr. P/hr 582 Rotax electric start aluminium alloy u/carriage bush tyres. always hangerd $22,000.00 ono. phone Dave 08 85222516 davchris1@bigpond.com.au

3611 SIROCCO AVIASUD

10-793 Sirocco 1980's Great little single seat aircraft. Rotax 377. Have learnt to fly on this forgiving plane. Has always been hangared, skins in good condition. Comes with Delcom radio and helmet headset. AIS, Altimeter, single CHT, and tacho. see RAA members market for pics.William 0266828050 fisher42au@yahoo.com.au $3500

3612 SUPER PUP ON TRAILER

Super pup single seater Jabur 2200 motor Air frame approx 500hrs engine approx 350hrs In good cond. $16,000 firm no offers. please contact greg on 0407750325 for more information.

3613 JABIRU J200 19-7169

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

3614 SLEPCEV STORCH

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

3615 J160 YADG SYNDICATE SHARE

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

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

3619 RV3 PROJECT

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

3620 SKYFOX CA21

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

3621 KR2 ALMOST COMPLETE PROJECT

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

3624 JABIRU CYLINDER HEADS

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

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2005 Rotax 912ULS engine, TT 2000 hrs. Has been installed in Flysynthesis Texan since new, LAME maintained, running perfectly well but out of time. Price $6500 Contact Ian 0417402965

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600m private airstrip, Murrumbateman area, 20 mins Canberra, highway access, 12 x 12m hangar, OCTA. House 5 bed, 3 bath, tennis court, 4 car garaging, established gardens. 40ac income producing property, currently running 70 prime lamb ewes. Shearing, machinery, hay, workshop sheds, large cool room, 2 stables. $1.3m. Phone 0402413126.

3628 HUMMERCHUTE WITH ELECTRIC CONTROLS

Hummerchute for sale (77Hrs) In great cond with lots of extras including electric steering,digital display fuel flow computer, spare new Bolly prop and much much more inc custom trailer with rear door ramp, dual axle, hydraulic brakes & 45L water tank. $31,000 the lot Call Nick 0408923710 wildhognick68@gmail.com

3631 CTSW FOR SALE

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

3632 ROTAX 912A

Rotax 912 A, 80hp, 1997 with 1,100h TTIS, good condition with service history. Comes with regulator/rectifier, oil reservoir, oil cooler and new aluminium radiator. All coolant hoses and carby sockets replaced. $6,500 ono, contact Chris on 0418 493989 or chrisoz@gmx.net

3633 WANTED ROTAX 503 DCDI

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

MEMBERS' MARKET PRICE LIST

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TEXT AND PHOTO $30/month

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2012 delivered currently just under 40 Hours fitted with 10" Dynon Skyview and mode S Transponder. Fitted with Carby heat, Oil thermostat and Tundra Tyres with mudguards. Twin Control Yokes with centre Throttle. Includes 2 x Zulu Noise cancelling Headsets. $105,000 Inc GST. Located YMBD Contact Russell on Ph 0412800662

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

3636 THE RECYCLED BEERCAN NEEDS A NEW HOME

Low hour 2007 Sportstar Plus in excellent condition. Standard VFR instrumentation complimented with a Garmin GPS286, electric T&B and solid state AI. Garmin SL40 Radio and GTX327 transponder. No

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Karasport single seat ultralight powered by rotax 582 oil injected electric start. Total airframe hours 504, total engine hours 236 smoh. Always hangered a delight to fly .$17.000 ono phone 0427516151

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

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25 years ago

November 1988

President, Rod Birrell, reported on an incident at an air show in Bendigo. A Melbourne based ultralight flying school was invited to attend. But when the school advised the organisers that 2 two-place training aircraft, piloted by two AUF instructors, would attend, they were told both pilots would need to be PPL qualified and the aircraft must carry approved radios.

A phone call to the then CAA followed before the air show organisers granted approval for the two aircraft and the two pilots - and only them. All other ultralight pilots planning to attend the air show would have needed both radios and PPL.

President Rod made the point that the decision pre-empted the proposed requirements of CAO 95.55 being written at the time and that decision to ban non-PPL rated ultralight pilots from the air show ignored the historical precedent, set over the previous eight years or so, whereby ultralight aircraft had been invited to, and participated in, almost every major air show or fly-in in Victoria without incident.

President Rod also reported that there had been several cases of AUF Pilot Examiners being abused by instructors who believed they were above the need to be rechecked by the Federation.

The problem, Rod reported, was mainly with some instructors who had been given interim approval to teach students under the 'No Need to Prove Yourself' period in the days before the AUF had a formal system in place. Rod said he found it was a pity some people laboured under the load of such large egos.

He appealed to instructors not to allow themselves to develop such a dangerous attitude.

PILOT NOTES

Morgan Sierra 200

CONDITIONS: Light wind, nil turbulence.

After a normal touchdown, the nose wheel was lowered and the tip of the propeller contacted the runway. The pilot raised the nose and the aircraft ballooned before bouncing again and the propeller contacted the ground once more, stopping the engine.

The aircraft then slowed and came to rest on its nose approximately 50m from where the nose wheel had become detached.

The nose gear leg had failed just above the wheel pivot point and also at the top connection point of the shock absorber. Further damage was found where the gear attaches to the engine mount.

Airborne Outback S2

CONDITIONS: Light wind, moderate turbulence.
PILOT EXPERIENCE: 78hrs, all on type.

The aircraft encountered turbulence a few metres above the ground as it was about to land. It ballooned and drifted off the runway and the pilot applied power but was unable to prevent it impacting the ground in a nose down attitude. The left wingtip then struck the ground and the aircraft rolled over, sustaining extensive damage to the wing and base structure. The pilot suffered minor grazing.

Jabiru LSA

PILOT EXPERIENCE: 76hrs, all on type.
CONDITIONS: Light wind, nil turbulence.

The pilot was returning from a weekend trip when the aircraft engine lost power approximately 11nm short of a planned landing point. A forced landing was carried out on a clay pan. The aircraft ran across the pan and into tall saltbush, coming to rest inverted.

Neither of the crew were injured, but the aircraft sustained damage to its propeller, windscreen, nose gear and left wing.

Aeroprakt Foxbat

CONDITIONS: moderate wind and turbulence.
PILOT EXPERIENCE: 55hrs, 28 on type.

As the aircraft flared, it was struck by a wind gust, bounced and landed heavily.
As the pilot taxied off the runway, he noticed the rudder pedals were stiff and that the aircraft was difficult to steer. An investigation revealed there was a slight bend in the nose wheel strut.

Airborne XT 582

INSTRUCTIONAL FLIGHT.

A student was practicing engine failure after take-off. The instructor called for the student to reduce power, which he did, but was slow to lower the nose of the aircraft. The instructor called for power and then applied power himself, using the hand throttle, but the aircraft touched down nose wheel first. The fork carrier failed and the aircraft rolled over. The instructor received a cut from his headset. The aircraft sustained additional damage to the wing and supporting structure.

Morgan Sierra 200

CONDITIONS: Light winds and turbulence.
PILOT EXPERIENCE: 159hrs, 19 on type.

The aircraft bounced on landing and as the pilot attempted to correct it, it bounced again. The aircraft struck the ground and the nose wheel collapsed. The aircraft came to rest on the runway with further damage to the nose wheel spat and propeller. Neither of the crew suffered injury.

Jabiru J160C

ENGINE: Jabiru 2200, 227hrs since overhaul.

As the instructor applied carburettor heat in preparation for a practice forced landing, the engine began to run roughly and then stopped abruptly. The propeller split at the hub and separated from the crankshaft.

The instructor took control and landed the aircraft without further incident. The engine, which had seized, was scheduled for replacement of its gudgeon pin circlips and it is considered likely that failure of the circlips was the cause.

Brumby LSA R600

AIRFRAME: 341hrs ttis.
CONDITIONS: Light winds, moderate turbulence.

After a normal touchdown, the instructor heard two loud bangs and the aircraft pulled hard to the left. He attempted to keep the aircraft straight but it slowed rapidly and veered off the runway, coming to rest with damage to the fuselage, wing and tail. An inspection revealed the left main wheel had broken away from the gear leg which then dug into the grass runway.

Jabiru J200

CONDITIONS: Light winds, moderate turbulence.
PILOT EXPERIENCE: 648hrs, all on type.

The pilot was making an approach to land over some trees at the end of the runway and, as the aircraft touched down, it was hit by severe turbulence. The left main wheel struck the ground heavily followed by the nose wheel. The aircraft came to rest with a fractured main gear leg and damage to the nose gear.

Jabiru UL

ENGINE: Jabiru 2200, 580hrs. ttis.

As the aircraft reached cruise altitude after a continuous climb from take-off, the engine experienced a severe vibration. The pilot shut it down and made a straight-in approach back to the departure strip, landing without further incident.

The vibration was caused by a cylinder head bolt plug which had become dislodged and jammed both inlet and exhaust valve rocker arms.

Advertisers index

HAPPY LANDINGS

A Mother's Inspiration

by Heather Haynes

IN May 2008, a 13 year old boy named Max Zellman encouraged his mother, Sue, to approach the local flying school at Caboolture to see if he could have the opportunity to fly. He was hardly able to contain his excitement while looking at the aircraft. With mum's encouragement, his first flight was booked.

Max took to the air for the first time in Gazelle 24-3223 on May 17. The instructor's notes on his records read:

Max grasped the concept of flight forces and is learning the word 'aileron' very well. After demonstrating the effects of controls, Max completed the exercise well and will make a fine student – given his age of 13 years. Good work Max!

Max's age was the only thing slowing his progress now, so he had a permanent once a month booking. Max and his mum wanted to keep it a secret, so they would tell his father, Dieter, they were heading for the Sunday Caboolture Markets – which they were (with a slight diversion to the airfield first for Max's half hour lesson).

In September 2009, Max was introduced to circuits, the word 'flare' and passed his pre-solo exam. Max's enthusiasm waned a little at this point, but with Sue and his instructor's encouragement, he stayed on track and went solo for the first time at 15 years old on August 8, 2010. More exams followed with more flying exercises. After a three month break overseas, Max was issued with his Pilot's Certificate on July 8, 2012. More solo consolidation was completed and a Passenger Carrying endorsement followed.

> *They would tell his father they were heading for the Sunday Caboolture Market*

Then came the big surprise for his father.

Sue made arrangements with the Caboolture Recreational Aviation Flying School for a gift voucher for Dieter, for a flight around the local area.

On Sunday, September 15, 2013 Max arrived early and pre-flighted the Jabiru J-160D on which he was now endorsed. Everyone at the flying school was in on it. Max sat at a table in the picnic area playing with his phone, pretending not to know anyone and supposedly waiting to see his dad go flying.

Once the paperwork was completed, the instructor and Dieter headed for the aircraft with the family watching on. Max walked with the instructor, showing some interest in the aircraft as dad was strapped in.

The instructor then offered Max the left hand seat to get a 'closer look' while he briefed dad on the passenger procedures. He also answered questions from Max on what each instrument did and what it was like to fly the aircraft.

With Dieter all ready to go, the instructor asked Max, "Do you think you know enough now to take your dad on your own?" Max said yes and to the astonishment of his father the doors were closed and Max taxied the aircraft out.

Dieter couldn't believe it. Tears welled in Sue's eyes as her son's dream became a reality.

Well done, Max from all of us at Caboolture Recreational Aviation.

>> Max and his dad Dieter

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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