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RECREATIONAL AVIATION AUSTRALIA / JANUARY 2017 VOL 65 [1]

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ONE MAGAZINE TWO FORMATS

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Email RAAus headquarters at admin@raa.asn.au.
Prices include GST.

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PSB Insurance Brokers is pleased to provide a new insurance program for RAAus members, underwritten by QBE Insurance and Allianz Insurance with the Members Liability Insurance at its centre.

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A pretty good deal

BY MICHAEL MONCK

I often get asked what RAAus does. Some people think we exist simply because the rules say you have to be a member. There are a few things to consider about that.

Recently we prepared a response to the latest round of consultation on CASA's proposed new Part 149 regulations (see *Sport Pilot* December 2016)'. Under this regulation CASA would require "an ASAO to provide affiliation arrangements to persons who wish to engage in the activities overseen by the ASAO, without necessarily requiring that they become members". Under this definition, RAAus would become an Approved Self-Administering Aviation Organisation, which means we wouldn't be able force anyone to become a member. We wouldn't be a monopoly and we couldn't make someone do something they didn't want to do. What it means is that we would need to create a reason for someone to become a member.

It would be a big change, but there are a number of ways we already do this.

A huge part of why RAAus membership is attractive is often overlooked – insurance. As far as I am aware, no other organisation offers insurance coverage as part of its ordinary membership fees. When you join RAAus it is included. You get $10m public liability insurance and $250k passenger cover. That's peace of mind.

I recently did a comparison of the membership fees for joining other sport aviation organisations. As someone who resides in the ACT it would cost me $369 every year to be a member of the Hang Gliding Federation. To join my local gliding club it costs $665 per year (on top of that I have to pay an insurance levy of $20). That's more than three times the cost of an RAAus membership fee.

In addition to the insurance cover, you have the right to maintain your own aircraft. In most cases, it will cost several thousand dollars to do an annual inspection on an aircraft. If you fly more often, it can cost multiples of that. Of course, under the RAAus system you don't have to incur these costs. You can simply maintain your aircraft yourself and use the money you save to go flying.

And we're always creating material to help you understand how to go about these tasks. Recently we released videos dealing with weight and balance as well as the problems associated with runway loss of control. This library of material will grow over time and add even more value to your membership.

Perhaps the other important thing you get is someone on your side. As mentioned above, we put in a submission to CASA about the proposed Part 149 changes. We're generally supportive of the new regulation because it gives us more flexibility in the way we operate but, at the same time, we are concerned it might result in negative outcomes for some members. RAAus advocates for you, so you don't have to.

We're also working in other areas to protect your interests. One of these is medicals. There is mounting pressure from some corners of the industry to have the regulations tightened, but we don't believe it is necessary. In the Eureka Report published by AOPA this year it proposed a system which would require "any RAAus pilot who suffers from a condition currently listed under the CASA list of medical conditions must see a Designated Aviation Medical Examiner (DAME) for medical certification". This contrasts with our current model where you can simply see your local GP and get a letter.

We have been doing research in order to demonstrate our current system is not broken and we are looking at clarifying what standard is required, to make it easier for doctors to understand what we need. This doesn't mean a change, just a clearer statement of the requirements.

So I hope you can see RAAus is doing a lot for you. And is that all you get? No. We have around 15 full time staff dealing with member issues on a daily basis. Because I get to speak with them all fairly regularly, I get to see the positive side of what they do. But for a lot of members, though, the interaction is often the same as they have with their local GP – it only happens when something has gone wrong.

Imagine being a doctor. Every day their customers come into their office and there really isn't much point asking how their day is going. It's obviously not great - otherwise they wouldn't be there!

To make matters worse, once the doctor has prescribed a remedy, the patient goes on their merry way and likely doesn't come back until they are sick again. I have a lot of time for doctors and really appreciate the work they do, but thinking about their contact with people makes me appreciate them even more. And in a way our staff are similar. Rarely does anyone in the office receive a call, an email or a letter congratulating them on a job well done. It is mostly members with a problem who get in contact. They want their problems fixed right away and they are often not happy about it. To add insult to injury they often forget that our staff can make mistakes too. Our staff are the front line interface between RAAus and you the customer. They work hard to create an environment which puts you first. They get crucified when things don't go right, but it is easy to forget how dedicated they are to making a difference to RAAus. So dedicated they often give up their own time to look after your interests. We're lucky to have them.

So that's the value we offer - a simple but valuable range of benefits. A collective voice which advocates for your interests on issues such as Part 149. And we offer service delivered by some of the best people who want to improve the experience you have with RAAus every day. I think that's a pretty good deal.

DIGITAL DIRECTIONS

There are many ways to interact with RAAus these days.

Website: www.raa.asn.au
Member portal: www.members.raa.asn.au/login
Lodge an occurrence: www.oms.raa.asn.au/lodge
Back issues of Sport Pilot: www.raa.asn.au/sport-pilot-magazine
Subscribe to printed Sport Pilot: www.raa.asn.au/sport-pilot-magazine-application
RAAus shop: www.shop.raa.asn.au
Sport Pilot online: www.raa.asn.au/sport-pilot-magazine
ENewsletter: www.raa.asn.au/become-a-member/member-benefits/e-news

A. 7-8 JANUARY
GREAT EASTERN FLY-IN

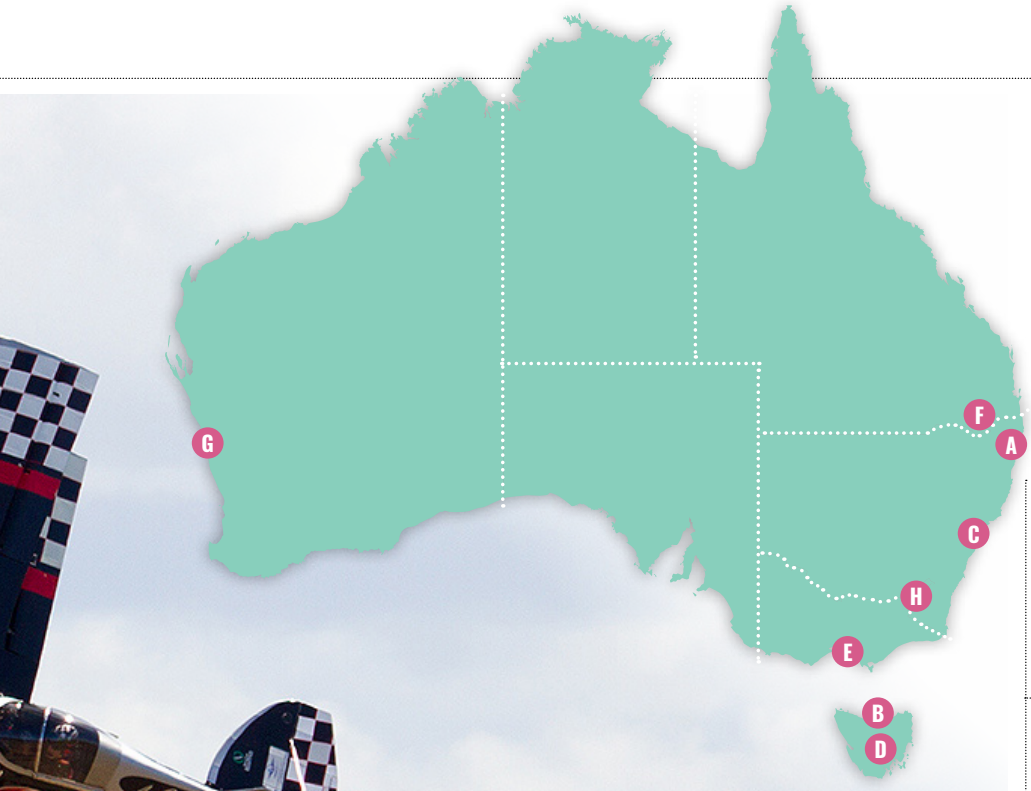
A unique Australian aviation event. Pilots, their families and friends, fly in from all over the country to enjoy a great summer holiday with a difference. Locals, young and old, come to marvel at the latest in aircraft, air displays, and have the ride of their lives. For more information www.greateasternflyin.com or email info@greateasternflyin.com.

B. 26 JANUARY
THE VALE AUSTRALIA DAY BBQ

11am to 4pm. The Vale Airstrip, 864 Claude Rd, Sheffield, Tasmania. Includes BBQ lunch, tea, coffee, live music. No landing fees. Limited accommodation available on the property. More accommodation in the nearby town. Transport to Sheffield available. Proceeds to Mates4Mates. Join us at this spectacular airstrip located at the base of Mt Roland in north west Tasmania and help support Mates4Mates which assists returned ADF personnel suffering physical and mental injuries sustained while serving. For more information, Barry Bransden or Sandra Southwell, braysrd@hotmail.com, 0400 141 420 or 0428 141 420.

C. 28-29 JANUARY
HUNTER VALLEY AIRSHOW

The airshow returns. A great family weekend with displays from vintage, warbird and aerobatics. Kids' rides and entertainment. Maitland Airfield's largest aviation event. Not to be missed. For more information, www.huntervalleyairshow.com.au or Facebook.



F. 12 MARCH
CLIFTON FLY-IN

The Lone Eagle Flying School annual fly-in will include International Women in Aviation Week. The 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 types, shapes, sizes and models of recreational, ultralight and homebuilt aircraft including sport, vintage, general aviation and any other flying machine. Come late PM Saturday for BBQ, drinks and hangar talk. Fly or drive in, see ERSA. On field camping, bring your swag. For more information, http://www.loneeagleflyingschool.org.au, https://www.facebook.com/LoneEagleFlyingSchool/, email admin@loneeagleflyingschool.org.au or Trevor Bange 0429 378 370.

G. 8 APRIL
VALLEY VIEW AIR DISPLAY

Valley View Farm, Northern Gully (23kms East of Geraldton Airport). Will feature joy flights, military equipment, skydivers, model aircraft, Light Horse display, 11th Battalion AIF - Leane's Trench Tours, produce, food and drink stalls, bouncy castle and face painting, free camping. For more details, www.valleyviewvintage.com.au or our Facebook page.

E. 3-5 MARCH
AUSTRALIAN INTERNATIONAL AIR SHOW

Avalon airport gets noisy again as heavy metal from all over the world comes to Victoria to roar over your head and send you deaf. If you haven't been to Avalon, you should. All shapes and sizes of flying machines on display and in the air. Get up close to the latest RAAF muscle. Lots of RAAus pilots and their machines fly in. RAAus will also be there in force to promote recreational aviation. For more information, www.airshow.com.au.

D. 25-26 FEBRUARY
CIRCUM-TASMANIA CHALLENGE

The two day coastal course starts and finishes at Wynyard with an overnight stay at Adventure Bay on amazing Bruny Island. The route covers 685nm of the Tasmanian coastline. Competing aircraft will overfly numerous coastal features with actual flight paths recorded by supplied GPS trackers. Before departure, competitors will be required to estimate their flight time for each leg and then score penalties for arriving early or late. Missing waypoints or undertaking time wasting orbits will also be penalised. A handsome trophy awaits the winning aircraft.For more information, www.wynyardaeroclub.com.au

H. 15-16 APRIL
BACK TO HOLBROOK FLY-IN

Holbrook Ultralight Club invites ultralight and recreational aircraft owners and pilots to Holbrook Airfield for its annual fly-in at Easter. Forums Saturday afternoon which will include an RAAus member,s forum. A local fly-out is planned for Sunday morning. Fly-in dinner Saturday night and BBQ breakfast Sunday morning. Underwing camping and transport to and from the Holbrook township for accommodation and fuel available. For more information, John Harley 0456 357 735 or visit www.holbrookultralightclub.asn.au.

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Managing Director

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WORKING TOGETHER

Firstly, I write in praise of the December issue of *Sport Pilot*. I'm a student pilot new to aviation, and articles like "CASA pops the question" enlightened me on the background and issues behind civilian aviation in general and recreational aviation in particular. What a fine job RAAus does.

I'd like to raise these points.

1. As a member of both RAAus and AOPA, it seems to me both tirelessly lobby for changes and improvements to general aviation, with special focus on recreational aviation. The elephant in the room for this newbie is, 'Why does each organisation pay so little credit to the other in their publications? Is it historical or political rivalry? Both pitching for members and support from the same audience?
Or is it deeper than that?" As I said, I'm new to these here parts.


LEARNING TO FLY

The Wiradjuri fly-in

BY ANTHONY SIBARY

2. Aviation, like everything nowadays, is riddled with acronyms, many I've yet to get my head around. There's the V-series (Vx, Vy etc.), then ERSA, CTAF, CAVOK, ATIS and so on. Unless the full words appear somewhere in the article (Page 22 'Playing with the big boys' shows how to do this well), I'm forced to go off Googling its meaning, or read on, not fully understanding the writer's message. Please show each acronym's meaning at the first mention for the benefit of recent arrivals - like me. I suspect I'm not the only one.

3. Finally, I agree with Anthony Sibary's suggestion to change the name Oz-Kosh to something unique, but disagree with his suggestion 'Wiradjuri'. Imagine Sven in Sweden considering attending and trying to look up 'Wiradjuri' in his atlas or GPS. Good luck with that one. So I vote for 'Narromine Fly-In'. It's on every map, and given the community support behind this event, they deserve the national and international recognition

Love the mag.

MARTIN CASTILLA

Ed- *RAAus and AOPA enjoy very cordial relations these days. It wasn't always so. They have the same goals and ambitions for aviation as us and we usually support each other at a regional and national level. Re acronyms. My policy is to spell out the title in full the first time you see it in the magazine then use the acronym thereafter, assuming people read the magazine front to back without stopping – I'm sure everyone does.*

Aviation readers can be beaten to a pulp with acronyms, usually wielded by writers trying to big note themselves. I try and limit their use where possible.

WELLCAMP GROWING FAST

After the successful fly-in I organised last July at Wellcamp in Queensland, I wrote that any pilot wanting to experience landing at Wellcamp should come to our next fly-in on July 17. But I write now with some urgency, to urge all pilots not to delay until then for the following reason.

My forecast was that Wellcamp would get its international status in two years, but they have done it in one! Wellcamp now has international status (regional). The first Cathay Pacific 747 has been and gone to Hong Kong, the first of a regular weekly service.

I now urge all pilots not to wait for July but to come to the Iconic Clifton fly-in in early March and then take the time to flit over to Wellcamp, a mere 25nm away and, by altering course a few times, overfly six pretty little country towns and on the return leg enjoy the richness of the Darling Downs.

Finally, because the airport is reportedly in discussions with four other international airlines, the window of opportunity to land there will probably get smaller and smaller.

Wellcamp International has a great Altitude Cafe with modest charges. Come. Enjoy.

KEVIN MC GRATH

WRITE IN: EDITOR@SPORTPILOT.NET.AU

The state of the organisation is reflected in the Letters to the Editor columns. The more letters – the healthier the organisation. So don't just sit there – get involved. Your contributions are always welcome, even if no one else agrees with your opinion. The Editor makes every effort to run all letters, even if the queue gets long at certain times of the year. (By the way – the Editor reserves the right to edit Letters to the Editor to shorten them to fit the space available, to improve the clarity of the letter or to prevent libel. The opinions and views expressed in the Letters to the Editor are those of the individual writer and neither RA-Aus or *Sport Pilot* magazine endorses or supports the views expressed within them).

OMS TURNS ONE

BY KATIE JENKINS, **NATIONAL SAFETY MANAGER**

The RAAus Occurrence Management System turned over its first year in October.

Since the launch of the OMS in 2015, members and the public have lodged more than 330 occurrences. The data obtained from these reports is crucial to enable RAAus to identify trends and work out ways to prevent serious accidents from happening in the first place.

If you have experienced or witnessed a safety related incident, or identified a potential hazard, for everyone's sake, log onto the website and report it. It's not about blame, it's about making all pilots safer.

STATISTICS AT A GLANCE

	INCIDENT (RRM)	ACCIDENT (IRM)	FORMAL COMPLAINT	COMPLAINT	DEFECT	HAZARD	TOTAL
JANUARY-MARCH	42	10	5	4	13	5	70
APRIL-JUNE	39	9	16	4	7	2	77
JULY-SEPTEMBER	32	13	6	3	5	3	62
TOTAL	113	32	27	11	25	10	218

REOCCURRING TRENDS

INCIDENT TYPE	NUMBER OF REPORTS
CONTROL ISSUE (INCLUDING LOSS OF CONTROL AND R-LOC)	8
AIRCRAFT SEPARATION -ISSUE	5
BIRDSTRIKE	3
HARD LANDING	2
ENGINE FAILURE OR MALFUNCTION	2

SAFETY MONTH A HIT

BY KATIE JENKINS, **NATIONAL SAFETY MANAGER**

The RAAus National Safety Month has been a massive success. As intended, it has successfully raised awareness among members about some of the key factors in the past 12 months which have been causing accidents.

So far, 16 flight training schools and clubs across the country have already hosted, or will host, Hangar Talks and already more than 300 members have attended one of the events scheduled as part of National Safety Month initiatives.

But because National Safety Month is not just about October, but is a continuing conversation, we'd love to hear your thoughts.

We've put together a short survey to gauge your opinion of this year's National Safety Month. It's so we can improve things in the future.

To participate in the survey, go to

http://tinyurl.com/jxyh45p

And because the campaign is keeping the conversation going, we've asked QBE Airmanship Ambassador and RAAus member, Matt Hall, to share a few useful stories and insights on Youtube to help you become a better pilot. Check them out at

http://tinyurl.com/gl9yrfe

WEIGHT AND BALANCE COURSE NOW ONLINE

A new training package for aircraft weight and balance was launched online in November.

The package is still undergoing beta-testing, but everyone is invited to enroll and complete the course during testing. Any member who does complete the course will receive the appropriate qualification (as if they had completed it after the testing period had ended).

Since it went live, more than 200 members have already enrolled. This has been fantastic and we hope to see these numbers increase.

Also continue to provide feedback to assist RAAus to iron out any bugs and make improvements during the testing period. To stay up to date, check the weight and balance online training landing page on the website. It is updated regularly with answers to frequently asked questions.

AVALON GETTING CLOSE

Time's running out to plan for a trip to Australia's premier aviation event, the Australian International Aerospace and Defence Exposition, which will take place at Avalon from February 28 - March 5.

It has to be said, the biennial event is focused on showing off the RAAF's latest heavy metal and the big beasts flown by other air forces with whom we are pals.

And every year, it appears the pilots of these aircraft are determined to send everyone deaf. But there's no questioning the raw appeal of these machines and the way their pilots throw them around the sky.

But Avalon is not only about the big feet of the noisy dinosaurs all weekend. Every year there is a growing number of mammalian RAAus pilots and their aircraft scurrying around the fringes, trying not to get stomped on. RAAus will have an official stand again and staff will be on hand to promote our sport and answer any and all questions about what we do.

At the time of writing this, there was still no information on the website for pilots planning to fly in. But if you are considering flying in, get the briefing when its up and pay special attention to the procedures.

Avalon is not the place to make a mistake when everyone is watching. Also, if it will be your first time, prepare for Melbourne weather – perfect one minute, horrible the next, perfect the next. Bring sunscreen and an umbrella.

If you can organise it, try and go on the trade days rather than the public days. No lines at the food stalls or toilets and you can get up close with every machine. On the public days it's a madhouse.

For more information, https://www.airshow.com.au

NARROMINE LOVES OZ-KOSH

The Narromine Shire Council says it is very happy with the economic boost Oz-Kosh brought to the town in October.

The council reports the aviation spectacular attracted more than 1,800 visitors and injecting hundreds of thousands of dollars into the local economy.

"Over the Oz-Kosh weekend, more than 390 aircraft were parked at the aerodrome, 480 air traffic movements were recorded, 11,000 litres of fuel pumped and a staggering $417,000 (estimated visitor expenditure) was injected into the community through accommodation, cafes and bakeries, clubs, hotels, retail stores and fuel outlets.

Mayor of Narromine Shire, Cr Craig Davies, said "events like Oz-Kosh are lucrative not only for the Shire, but the broader region. They have the capacity to increase visitor nights, encourage return visitation and provide our communities with an opportunity to showcase our attractions, facilities and lifestyle.

"Narromine Aerodrome, with its long aviation history has again risen to the challenge of hosting a major event. The local organisations, clubs and individuals who worked tirelessly to ensure the event's success should be applauded", Mayor Davies added.

Council reported it had received a tentative booking to host Oz-Kosh again in 2017. Council's Manager Events, Tourism and Economic Development, Robyn Ryan, was to have participated in the event's strategic planning workshop in Canberra in mid-December.

FAKE CALLER

A Victorian man was charged by police in November with making hoax calls to aircraft and air traffic control at Melbourne and Avalon airports.

Paul Sant, 19, faced the Melbourne Magistrates' Court charged with four counts of endangering the safety of aircraft and one count of interference likely to endanger safety or cause loss or damage.

He was questioned over 16 alleged unauthorised radio transmissions between September 5 and November 3. Sant's lawyer told the court Sant had autism and depression. He was remanded in custody and was expected to appear again in court in December. If proven, the offences carry a maximum of 20 years' jail.

TIMES UP FOR OLD TECH MANUAL

Version 3 of the RAAus Technical Manual ends its long run at the end of the month. Version 4 has been operating concurrently with Version 3 since its release in August. That ends on February 1.

The key changes are:

1. In order to continue to maintain your own aircraft, you must have completed the L1 training module before February 1. This doesn't apply to members completing line maintenance only.
2. In addition to the recently released weight and balance Hangar Talk video, RAAus has released Weight and Balance online education package for beta-testing.

This online education package is a requirement of Version 4 for anyone who plans to weigh RAAus registered aircraft (including L2s).

3. The process for initial registration of amateur built aircraft has changed. New amateur built aircraft where the construction commenced after August 1, 2016 will need to comply with the process outlined in Version 4, section 3.1. Staged inspections and the Permit-to-Fly scheme have been introduced.
4. Processes for major and minor modifications are clearly outlined in section 6 of Version 4.
5. A number of new registration prefixes may apply for newly registered aircraft under Version 4 of the manual. More information about registration numbers can be found in Section 5.1.

A feedback form and more information about the new manual can be found by logging into the member portal.

(Left to right) Lilydale Shire councillor, Mike Clark; Evelyn MP Christine Fyffe; former chairman of the Melbourne Branch of the RAeS Australian Division, Dom Lombardo; Lilydale Airport CEO Roger Merridew; Lilydale Shire councillor Tony Stevenson.

LILYDALE WINS AWARD

Lilydale Flying School has won the Royal Aeronautical Society's annual Flying Training Organisation of the Year award.

The award was open to all flying schools nationally. Lilydale Airport CEO, Roger Merridew was presented with the award during the Lilydale Air Show in November from Dom Lombardo, former chairman of the Melbourne Branch of the RAeS Australian Division. Also present at the ceremony were Evelyn MP, Christine Fyffe, and Lilydale Shire councilors, Mike Clark and Tony Stevenson.

Roger said the award was a prestigious testament to the hard work and continuous improvement philosophy of past and present management and staff over the past four decades.

"We have an enviable safety record and are extremely proud of the achievements of our many graduate pilots", he said.

WARNING ABOUT STRIPS

CASA has issued a warning to pilots about landing and taking off from the grass beside runways.

"Concerns have been raised with CASA about pilots using the grass or dirt surface next to a sealed runway surface, inside the gable markers, for standard operations.

"The purpose of the runway strip is to reduce the risk of damage to an aircraft if it runs off a runway and to protect aircraft flying over it during take-off or landing operations. This purpose is set out in the Civil Aviation Safety Regulation Part 139 manual of standards. Clearly, this does not imply suitability for normal aircraft operations. However, this does not prevent an aerodrome operator preparing a runway strip for landings and take-offs if they choose. When considering using a runway strip for landings or take-offs pilots should first check in the ERSA if the runway strip is suitable for operations or directly contact the aerodrome operator.

"Unless it is clear the runway strip is suitable for normal operations it should not be used. An example of where a runway strip can be used for normal operations is Temora. This runway strip has been prepared and maintained for glider operations and is also available for use by tailwheel aircraft. The availability of the runway strip for these operations is notified in ERSA."

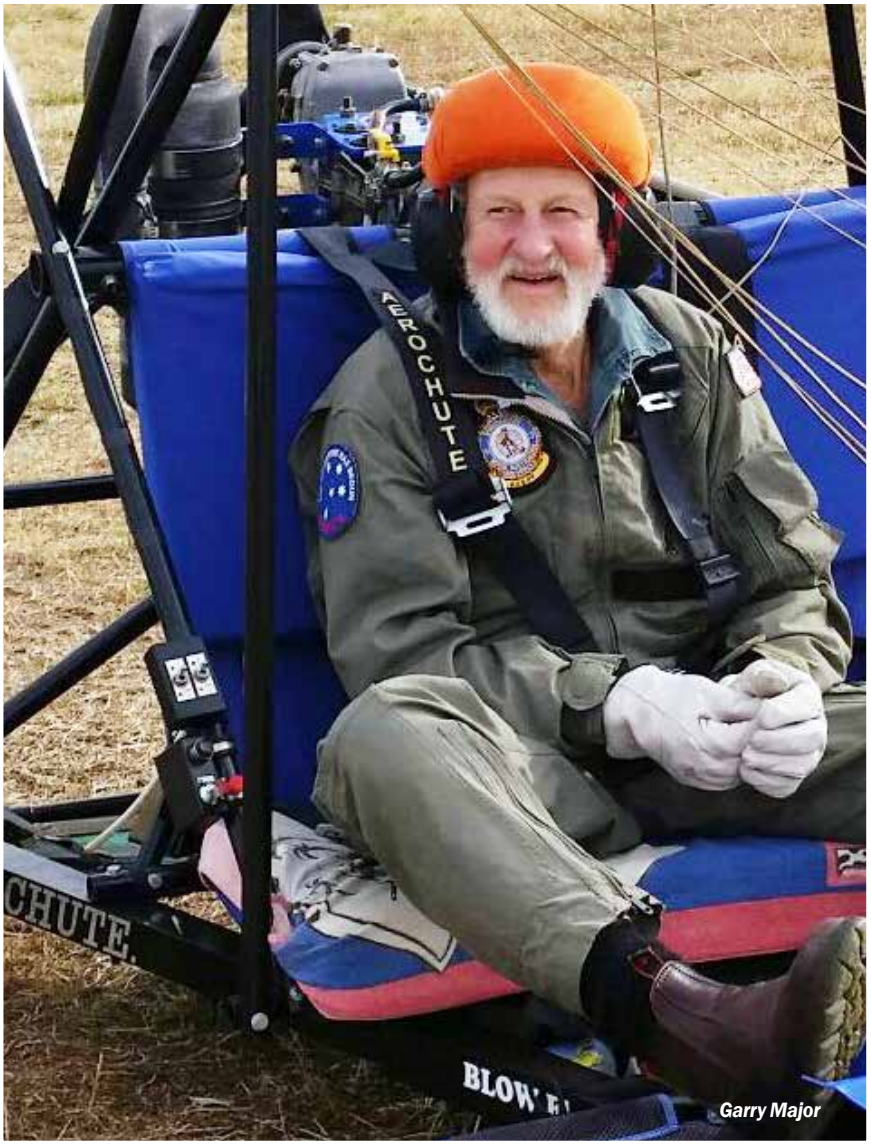

Keith Bange

LONE EAGLE LEAVES

Long term RAAus member and stalwart of the Lone Eagle Flying School, Keith Bange, passed away in December.

Thoughts and prayers from all RAAus members go out to Keith's family Noreen, Helen, Cathy, Brendan, Damien, Michael, Janeen, Allison and Christopher. And to Keith's brothers and their families, Ray and Maureen Bange and Trevor and Janet Bange.

And passing in November, Garry Major who featured on the Happy Landings section of *Sport Pilot* in November 2016.



Garry Major


John Cresswell

ANOTHER LOSS

RAAus was saddened to advise members in November of a dual fatality involving John Cresswell, CFI of Caboolture Microlights, and Jason Caswell in Queensland.

The two men were flying a Rotax-powered Airborne XT-912 weight shift aircraft.

In a statement to members in the days after the accident, RAAus reported that it had sent an accident consultant to the scene to assist police with the investigation into the cause of the crash.

"At this stage, we cannot speculate as to the cause of the accident, however, if any areas of immediate safety concern are determined, we will advise pilots and operators as soon as practicable. We will continue to work with police and provide a formal report to the Coroner in due course.

"Our thoughts go out to the friends and families of those involved at this very difficult time.

"While this incident is a devastating reminder of how unforgiving our sport can be, RAAus remains committed to keeping our sport safe and fun. We ask that members maintain strong levels of diligence and continue to adhere to our core safety messages".

Life member

DURING THE OCTOBER 2016 BOARD MEETING, RAAUS VOTED TO BESTOW COVETED LIFE MEMBERSHIP AWARDS ON TWO LONG TIME MEMBERS - DAVID EYRE AND GRAEME HUTCHINSON. IN ANNOUNCING THE AWARDS, THE BOARD SAID THE TWO MEN HAD CONTRIBUTED SIGNIFICANTLY TO THE ORGANISATION BY GIVING UP PERSONAL TIME TO PROMOTE, SUPPORT AND ENCOURAGE RAAUS ACTIVITIES WITHIN THE AVIATION COMMUNITY AND THE BROADER COMMUNITY AT LARGE. A STORY ON DAVID APPEARED IN THE DECEMBER 2016 EDITION OF *SPORT PILOT.*

GRAEME HUTCHINSON - A BRIEF CAREER

Anyone who attended Natfly at Narromine or Temora of recent years would be familiar with Graeme's main contribution to RAAus.

He was the one on the Gator every year, darting around the flightline making sure everything ran smoothly on the ground. He bought his own Gator along, earned himself an accident investigator's ticket and a firefighter's ticket so he could help out with the safety of the event, he organised the ground marshals and even bought a caravan which he set up for volunteers to use for meals and relaxing between jobs. And most years he was also a judge for the Natfly awards.

It's fair to say that he shouldered the burden of a lot of the organisation for the big fly-in every year - and never asked for anything in return.

Graeme got into flying about 15 years ago through Aerochutes. He had done some of his early flying in LightWings, but came to the conclusion that with a young family and the costs of running his own business, he was never going to get off the ground without a cheaper way of doing it. And powered parachutes gave him that. He learned under Oliver Males in Victoria and went on to instructor level. He then became a CFI and now has three senior instructors on his books.

He is one of the investigators sent out whenever there is a crash and he often flies at his own expense around Australia to help provide BFR's for pilots living in remote areas.

Graeme has a standing offer to train any fixed wing RAAus instructor onto powered parachutes for free. He knows they need more of them.

He also bought a property at Cowra in western New South Wales where every month he and a group of other pilots take children from Barnardos Charity to give them a taste of aviation and a holiday in the bush.

The kids get to go flying in a variety of aeroplanes.

Every two months he takes a group of pilots there to train them to fly powered parachutes. On the property where the trainees stay for a week, they get all the flying they can handle and the theory exams all in one go.

When he's not giving of himself to RAAus, Graeme runs a steel fabrication business in South Windsor on the outskirts of Sydney.

He says he got a big surprise when he was nominated and awarded life membership. "I just like helping out," he said. "I want to make sure RAAus grows and becomes a better organisation. So I help where I can."

NOTE *At the October meeting, the board agreed to accept guidelines for the awarding of life membership , as well as develop guidelines for meritorious service and the pioneer awards. The guidelines will be made available to all members on the RAAus website.*

FEBRUARY MEMBERS' MAR
CLASSIFIEDS ARE BA

RAAus members can now start their listing with the click of a button in the members' portal. What's even more exciting is that members also receive FREE advertising in Sport Pilot magazine for every ad placed in the new classifieds.

CEO Michael Linke said bring our members wh their feedback and we It's clean, it's simple to systems and it's very a mouse and your ad can

Aviation Classifieds is wholly run by RAAus so all revenue stays with RAAus.
Aviation Classifieds, www.aviationclassifieds.com.au is a new, purpose built website seamlessly integrated the with RAAus' database of registered aircraft.

THREE STEPS TO LIST YOUR AIRCRAFT FOR SALE:

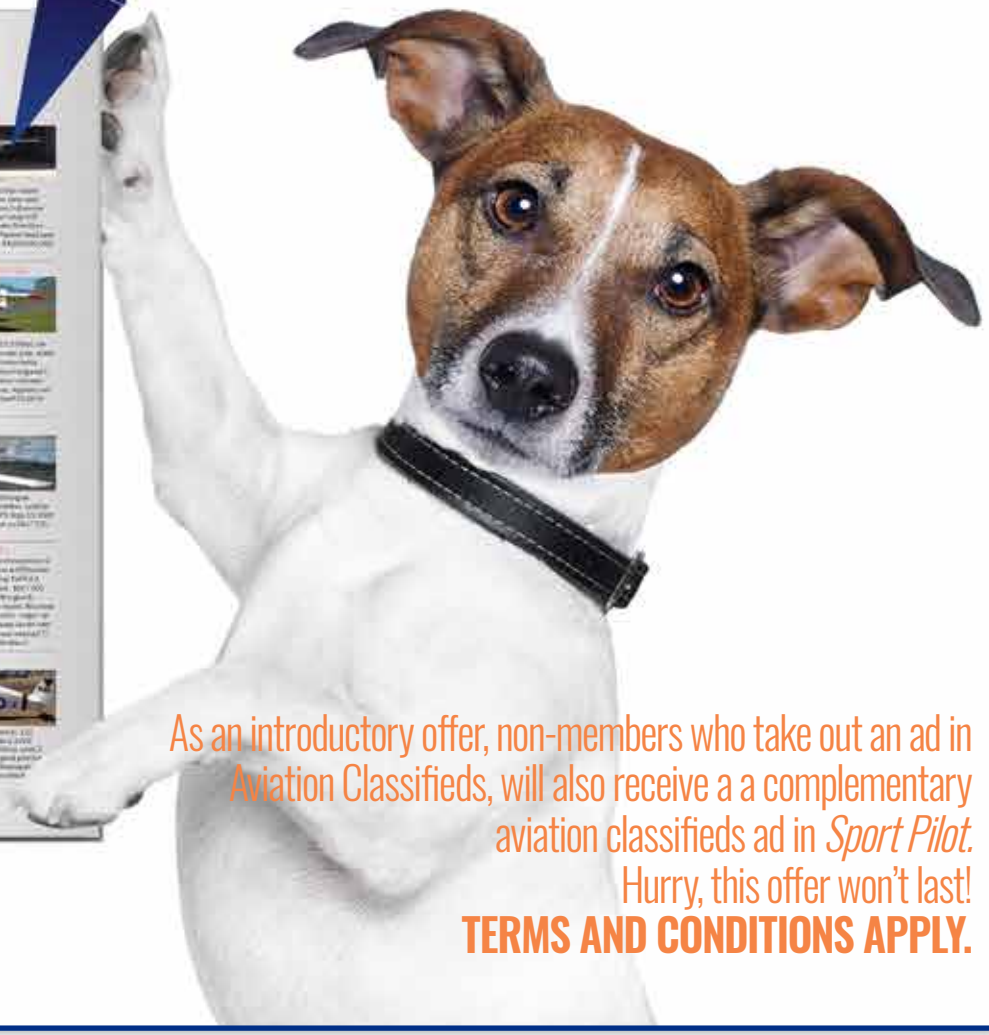
1. Once you have logged in to the member portal on the website, navigate to 'Manage your Membership' page.
2. Go to 'Your Aircraft' information and click 'Sell My Aircraft'.
3. Confirm the details to be placed in your ad and pay the small listing fee of $33.

It's that simple.
Your advertisement will automatically appear on the classifieds website and an ad will also be placed in the next available edition of *Sport Pilot* magazine
AT NO EXTRA COST!

RKET SIMPLER, BRIGHTER AND BETTER THAN EVER BEFORE.
WITHOUT THE CLUTTER AND WITHOUT THE HASSLE.
ACK! CHEAPER THAN EVER!
COMPLETELY OWNED AND OPERATED BY RAAUS.

d, "We are excited to be able to
at they want. We've listened to
've built a product we think they'll love.
o use, it's linked to our existing
ffordable. With two clicks of the
n be online also in *Sport Pilot*.

Sport Pilot is enjoying tremendous success again. Members and non-members alike are subscribing and our online version is receiving thousands of views per month. If you want to sell your light sport or recreational aircraft or anything at all aviation, Aviation Classifieds, powered by RAAus, is the place to advertise."



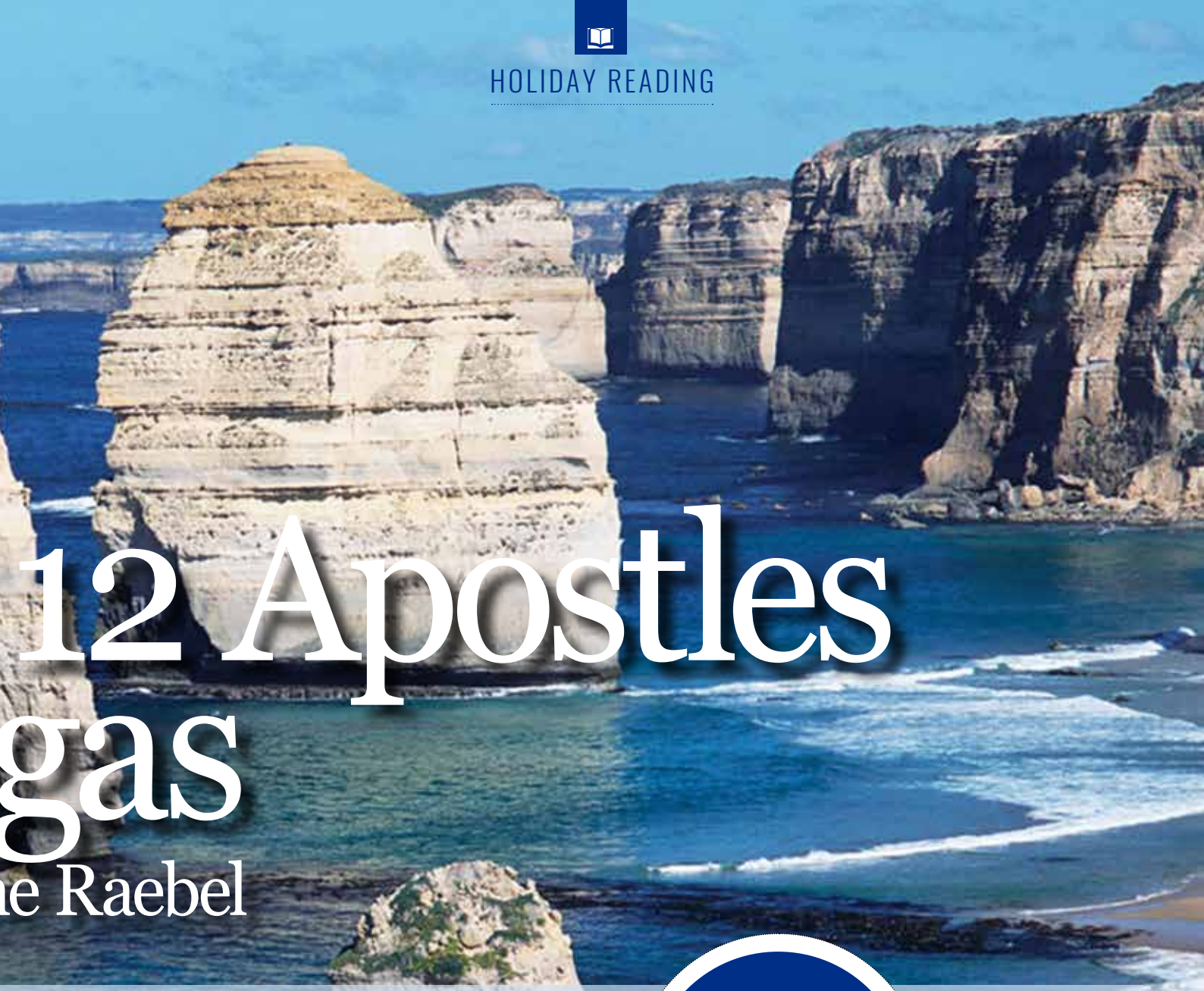
As an introductory offer, non-members who take out an ad in Aviation Classifieds, will also receive a a complementary aviation classifieds ad in *Sport Pilot.*
Hurry, this offer won't last!
TERMS AND CONDITIONS APPLY.

To the
on Mo

By Geoff and Lynn

We RAAus pilots have flown for years on 98 octane Mogas with no fuel related issues. Things were different more than 35 years ago when Ray Hodges, an academic of Chemistry was granted approval from DCA (or CAA then CASA) to experiment and test Mogas for GA use. He soon confirmed the real issue was related to volatility of winter blends of petrol. Some hot conditions caused vapour lock where the fuel pressure fell to zero (lean mixture). But an unexpected one occurred with this winter blend when still cold in the tank, but used on a hot day. Under pump pressure, this petrol remained liquid in the lines until it entered the float bowl of the carburetor at atmospheric pressure – some vaporised to gas and gave pressure pushing excess fuel through the main jet (over rich mixture).

Ray experimented with modifications to his Beech Musketeer until DCA accepted cooling static ducts etc. and issued a Supplemental Type Certificate (STC) for his Musketeer. Since 1989, via a US partner, Ray has been supplying STCs for over 100 GA types to run on Mogas, as well as a Fuel Volatility Tester he designed.



12 Apostles gas

ıe Raebel

Ray and I arrived with our wives (old school friends) at Latrobe Valley airport in Morwell to fuel and pre-flight for a flight over the famous 12 Apostles. These spectacular rock formations along the Victorian coast were originally called the Sow and Piglets. The Sow is Mutton Bird Island and the Piglets were the surrounding rock formations to the east. But locals call them the Apostles and have done so for a long time.

Lining up on runway 03 at YLTV, we took off for a left crosswind departure to the west. Due to heavy smoke haze we maintained 1,000ft AGL to stay visual. Navigation was easy at first as we stayed in touch with the Princes Highway until it diverged to the northwest and the Strzelecki hills gave way to flatter country as we approached Western Port Bay. With the tide out in the bay, it looked like a vast swamp. French Island is vast but flat and scrubby with a few perpendicular roads. At our level, we had to track north of R332 to cross into Port Phillip south of Martha Point. The bay was calm, but we encountered a light norwesterly. Port Phillip Heads was spectacular, with shades of blue, boiling water and rocks. Passing Barwon Heads we checked out the parachute field there. Ray had earlier called for permission to land there in case we needed a stop on the return leg.

The eastern side of Cape Otway down to Lorne was a picture of small beachside villages and some evidence of the bushfires of thr previous year. From that point we made a steady climb to 5,500ft to get over the tiger country to the north of the cape before descending over the coast to 1,000ft, changed to the Port Campbell CTAF, listened for helicopters and broadcast our intentions. The heliport there had three arms reaching out to the six or more individual helipads; a big operation and the car park was full. The Apostles occur over about eight miles of coast and we passed them to the seaward, looking at the marvelous shapes and structures. With the tide out, there were beaches and caves to see.

> "With the tide out, there were beaches and caves to see"

Once at Port Campbell we made a left 180° turn to pass back along the spectacle for a second look before commencing a climb due east to remeet the coast at Lorne and then proceed to Barwon Heads. The ladies thought it worth $10 for a comfort stop (for loo access, the radar frequency of 135.7 is needed). Having checked for parachute traffic on CTAF, we made a high steep approach to runway 18. This required 'S' turns to dump height which would have made every Oaks flyer proud.

Barwon Heads has an adequate but narrower tar strip 36 – 18 with Avalon airspace close overhead and a main road plus power lines at the south end. We had lunch near the aero club, waited for more parachutists to land before continuing on to Latrobe Valley at the top of the inversion layer, with blue sky above and a smudgy false horizon. Too soon it was time to call inbound to YLTV and plan a descent to join left crosswind for 03. A wonderful flight with great sightseeing and a chance to get out of The Oaks circuit.

A fairly smooth sea

BY ALAN BETTERIDGE

LITTLE did Australians know that just over 12 months after the disappearance of C210 VH-MDX with five people aboard in the Barrington Tops area of NSW, the country would experience another tragic aviation mystery.

It was September 30, 1982 when the pilot of C205, BPQ submitted a flight plan which indicated he would be flying direct from the Queensland city of Mt Isa to the town of Atherton to the west of Cairns.

The planned duration of the flight was to be three hours and seven minutes and there would be four people on board.

Although the weather forecast at time indicated VFR would be possible, the pilot could expect areas of reduced visibility due to smoke caused by bush fires and extensive burning off which are common for the region at that time of the year.

The track would take them over featureless terrain, with many of the rivers shown on maps just dry water courses after the long dry season, making the task of visual navigation difficult.

Adding to the pilot's list of problems, his departure time was delayed and the aircraft didn't leave Mt Isa until 1500 EST, giving them a planned arrival time of 1807.

Last light at Atherton was 1836, giving the pilot a narrow 29 minute window of light.

At 1727, the pilot contacted Cairns Fight Service and amended his arrival time to 1830, but gave no indication as to the reason for the delay.

At 1810 he further advised FS that he was descending from 9,500ft to "about 6,000" due to smoke haze.

At 1817 he advised that he was about 20nm from Atherton but expressed concern he would be unable to land there due to the increasing smoke haze.

At this point Cairns FS was becoming concerned for the welfare of the aircraft and declared an 'Uncertainty' phase.

In response to queries from FS the pilot advised that he believed the radio navigation aids in the aircraft were not operating correctly and, although he had undergone some training, he was not qualified for night cross country operations.

Atherton aerodrome is not equipped with airport lighting and FS relayed a suggestion to the pilot from the Townsville Senior Operations Controller that the aircraft proceed to Cairns, the nearest aerodrome with runway lighting and an aerodrome beacon.

The pilot accepted the suggestion and proceeded on a heading calculated by the SOC.

Efforts to determine the position of the aircraft were hampered by the fact the pilot had not kept an accurate log.

"No trace of the aircraft or its occupants has ever been found"

At 1834, the pilot reported he was passing between two towns and advised three minutes later he thought the towns could have been Atherton and Mareeba.

Why he, or indeed the SOC, never considered the option of diverting the aircraft and circling over one of the towns to positively identify its position will never be known.

Mareeba is serviced by a large and well used WWII aerodrome and, in any case, the lights of Cairns, only 10 minutes flying time away, would have been clearly visible.

At 1859 the pilot was told to orbit while discussion took place between the FS operator and the SOC on the possibility the aircraft had crossed the coast and was over the sea.

The SOC instigated the 'Distress' phase of search and rescue procedures at 1900 and at 1905 he gave instructions for the pilot to take up a westerly heading,

Shortly after this direction the pilot established contact with the Cairns Control Tower.

During the next 90 minutes numerous messages were relayed to the pilot of BPQ including advice from a senior Cairns based pilot who was familiar with C205 type aircraft on how to get the maximum endurance.

Runway and airport lighting was activated at all airports between Cairns and Townsville to give the pilot the best chance of seeing one of them.

Multiple aircraft became airborne in a vain attempt to sight the missing C205 and guide it back to safety, but all to no avail.

At 2037, with the fuel finally exhausted, the pilot reported he was at 400 feet and descending over a fairly smooth sea.

An intensive search was conducted over the following days and weeks but no trace of the aircraft or its occupants has ever been found.

In the following months, rumours began circulating that the disappearance had been staged and the pilot and passengers had personal reasons to disappear.

The rumours gained strength when it was reported that five people, four adults and a child, were seen to be boarding the aircraft in Mt Isa and not the four POB given in the plan.

Over the years, there have been unconfirmed sightings of the missing aircraft in New Guinea and other areas of Australia.

The fact the pilot of BPQ was able to communicate with Cairns tower for the last period before it ran out fuel would indicate it must have been fairly close to the city because Cairns tower frequency had a limited range.

But until the day when a diver or bush walker chances across the wreckage, we will never know what occurred on that fateful flight.

Out of Africa

BY MICHAEL BAKER

FROM time to time, I borrow the DVD of the film *Out Of Africa* starring Meryl Streep and Robert Redford, from my local library. The movie is based on the book by Karen Blixen. I watch it, not for the dramatisation of the story, for I much prefer her prose to some Hollywood producer's adaptation, but for the flying sequences with the DH 60 Gypsy Moth.

Those who have read the Baroness's compelling narrative about Kenya between the wars will recall the pathos, accentuated by understatement, with which she deals with the death of the remarkable athlete, big game hunter and pilot, Denys Finch Hatton, at the controls of his plane on May 14, 1931 at Voi in southern Kenya.

The Moth had reportedly taken off and circled the field. "After he had left," the Baroness wrote, "he turned and came back quickly, flying low at 200ft. Suddenly the plane swayed, got into a spin and came down like a bird swooping. As it hit the ground it caught fire. The people who ran to it were stopped by the heat" (*Out Of Africa*, 1937, ch 5).

Tom Campbell Black, who had partnered Charles Scott in the DH 88 Comet *Grosvenor House* to win the MacRobertson London to Melbourne Air Race in October 1934, flew in from Nairobi with Major C.A. Hooper to investigate the crash, but the pair were unable to reach any conclusion as to its likely cause. The Gypsy Moth was renowned for its pilot friendly nature and its stability.

Recently I came upon a biography of another aviator of the time, Beryl Markham, by Mary S Lovell (*Straight on till Morning*, London, 1987), which cast light on the probable cause of the crash. Markham had been a friend of the Baroness, of Finch Hatton and of Black, who had taught her to fly. She was the first woman to fly the Atlantic from east to west, in September, 1936, in a Vega Gull.

Lovell had heard about Beryl Markham and her somewhat sensational life at a dinner party in 1985. Markham was still alive, in her 80s, in Kenya. Lovell visited her there and interviewed her over four months, gaining access to her extensive records.

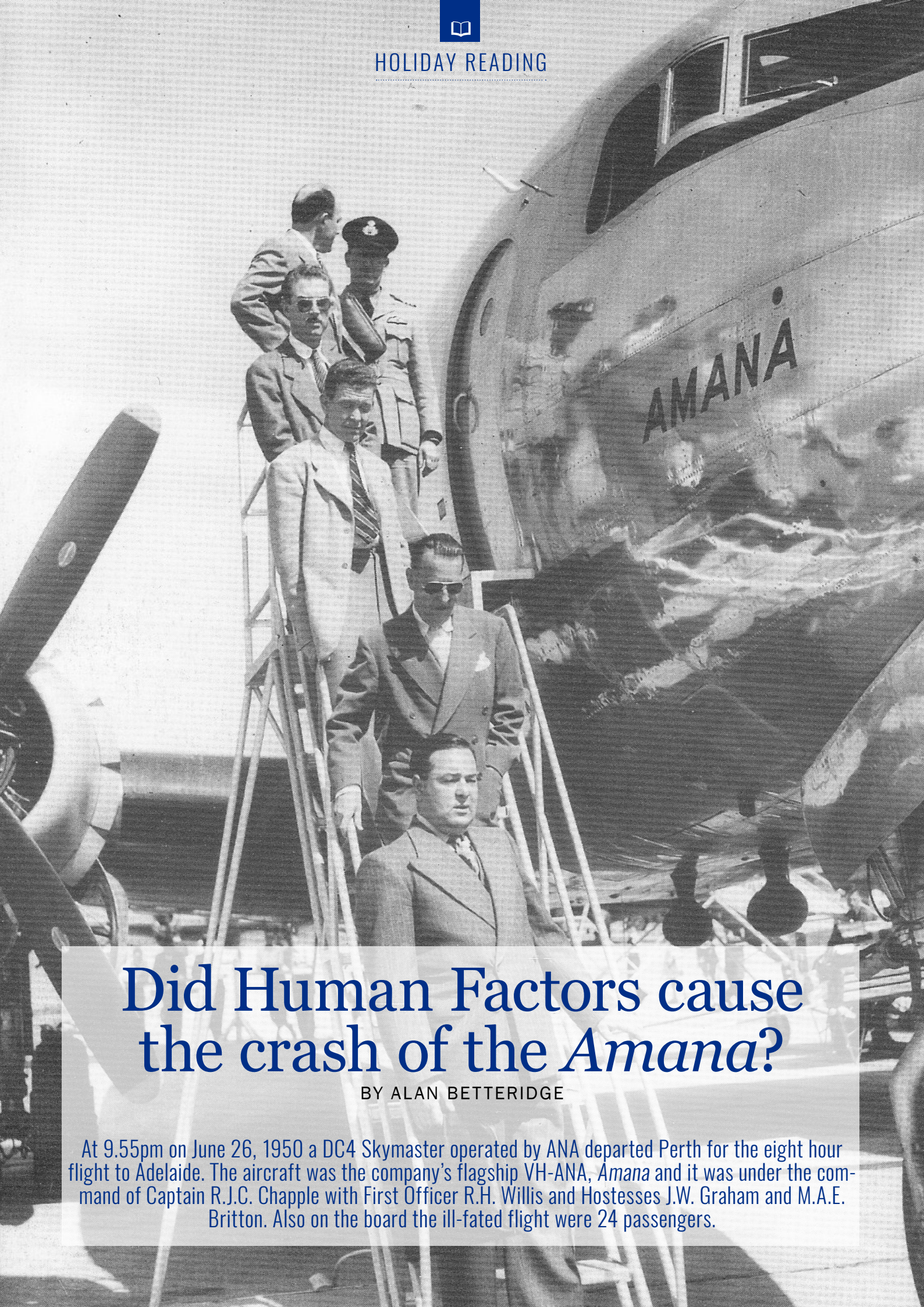
Though the death of Finch Hatton had loomed large in Markham's life, she would not talk of him, so Lovell had to go elsewhere. In a study by a safari operator, J.A. Hunter, published in 1959, she found reference to the events. Hunter wrote, "Denys and I were entertained at a party given by the District Commissioner... Denys told us he was flying up to Nairobi in the morning... To make arrangements for a safari of his own. We left fairly early for we wanted to be away without any delay in the morning.

Denys came and waved us off.

The District Commissioner's wife had given him a great armful of oranges and he stood at the door of the bungalow with the light reflected brightly from the fruit."

The following morning Hunter was preparing to leave Voi at 8am when his attention was drawn to clouds of black smoke rising from the aerodrome. "Fearing the worst, we hurried to the scene. We were too late. Denys had crashed during his takeoff, the plane was a blazing inferno and, as we watched in horror, held off by the intense heat, a few blackened oranges rolled out from the wreckage." (*Straight on till Morning*, chapter 5). The cause of the crash was, I suggest, the oranges, or rather their escape into the fuselage of the plane. It is not difficult to imagine the effect on the centre of gravity of the light aircraft of the quantity of small, but weighty items spherical in shape, moving through the hull, especially if they ran towards the tail. The resulting instability-"the plane swayed"-and uncontrollable nose up pitch would bring on the stall and wing drop, leading to the spin. I doubt there is anything a pilot could have done to remedy the situation. But Finch Hatton may have got close, for the description of the plane "coming down like a bird swooping" rather than, say, a falling leaf, argues that he was endeavouring to gain control before the impact.

"Denys had watched and followed all the ways of the African highlands," the Baroness wrote. "And better than any other white man, he had known this soil and seasons, the vegetation and the wild animals, the winds and the smells... He had taken in the country, and in his eyes and his mind it had been changed, marked by his own individuality and made part of him. Now Africa received him, and would change him, and make him one with herself."



Did Human Factors cause the crash of the *Amana*?

BY ALAN BETTERIDGE

At 9.55pm on June 26, 1950 a DC4 Skymaster operated by ANA departed Perth for the eight hour flight to Adelaide. The aircraft was the company's flagship VH-ANA, *Amana* and it was under the command of Captain R.J.C. Chapple with First Officer R.H. Willis and Hostesses J.W. Graham and M.A.E. Britton. Also on the board the ill-fated flight were 24 passengers.

Did Human Factors cause the crash of the *A*

Little did the crew and passengers realise that 18 minutes after take-off all but one of them would be dead. The sole survivor, Mr Edgar Forwood, would succumb to his injuries six days after the crash. It was to become the worst aviation accident in Australian history up to that time.

As the aircraft flew over the Perth suburbs, a number of witnesses stated the aircraft appeared to be flying lower than other DC4 flights and at least one of the engines appeared to be running roughly and backfiring.

The last radio transmission from the aircraft was received at 10pm stating it was climbing to 9,000ft on track to Kalgoorlie then Adelaide as planned.

Approximately 30nm from Perth, residents on farming properties to the west of York heard a large aircraft flying low over the area.

Some became concerned because the aircraft appeared to be in trouble, with the engine noise changing significantly.

> "One of the engines appeared to be running roughly"

They stated that, at times, the engines appeared normal but on at least one occasion all engine noise stopped abruptly before returning in what they described as a very loud, high pitched scream.

Ten minutes after the *Amana* set course, a Douglas DC-4, operated by Trans Australia Airlines, became airborne at Perth, also heading for Adelaide.

As the TAA aircraft set course for Adelaide, the captain, Douglas MacDonald, saw a vivid white flash on the horizon in precisely the direction in which he was heading.

It lasted about six seconds, long enough for him to draw it to the attention of the two other crew members.

Eight minutes later, the TAA aircraft passed over a band of fire on the ground. MacDonald estimated the fire was 28 nm east of Perth Airport. As MacDonald approached Cunderdin, he was aware the *Amana*, flying about ten minutes ahead of him, had not yet radioed its position report at Cunderdin.

He became concerned that the vivid white flash and the ground fire might indicate some tragedy had befallen the *Amana* so he advised Air Traffic Control about his observations.

Air Traffic Control was also concerned about the *Amana*'s failure to report at Cunderdin, so, on hearing MacDonald's observations of the vivid white flash and the ground fire, they activated emergency procedures.

They asked MacDonald to fly back to the fire and determine its position. MacDonald did so and advised Air Traffic Control of bearings from the fire to York and Northam, the towns nearest the crash site.

Three investigators from DCA began work at the crash scene the day after the accident. They found the *Amana* had crashed in a heavily timbered area on an easterly track between Perth airport and Kalgoorlie, at a point where the elevation was about 1,100ft.

The aircraft struck the tops of trees while descending at an angle of about 15 degrees below horizontal.

Its speed at impact was estimated at 250mph. It crashed through large trees before impacting the ground violently and gouging a long, wide furrow.

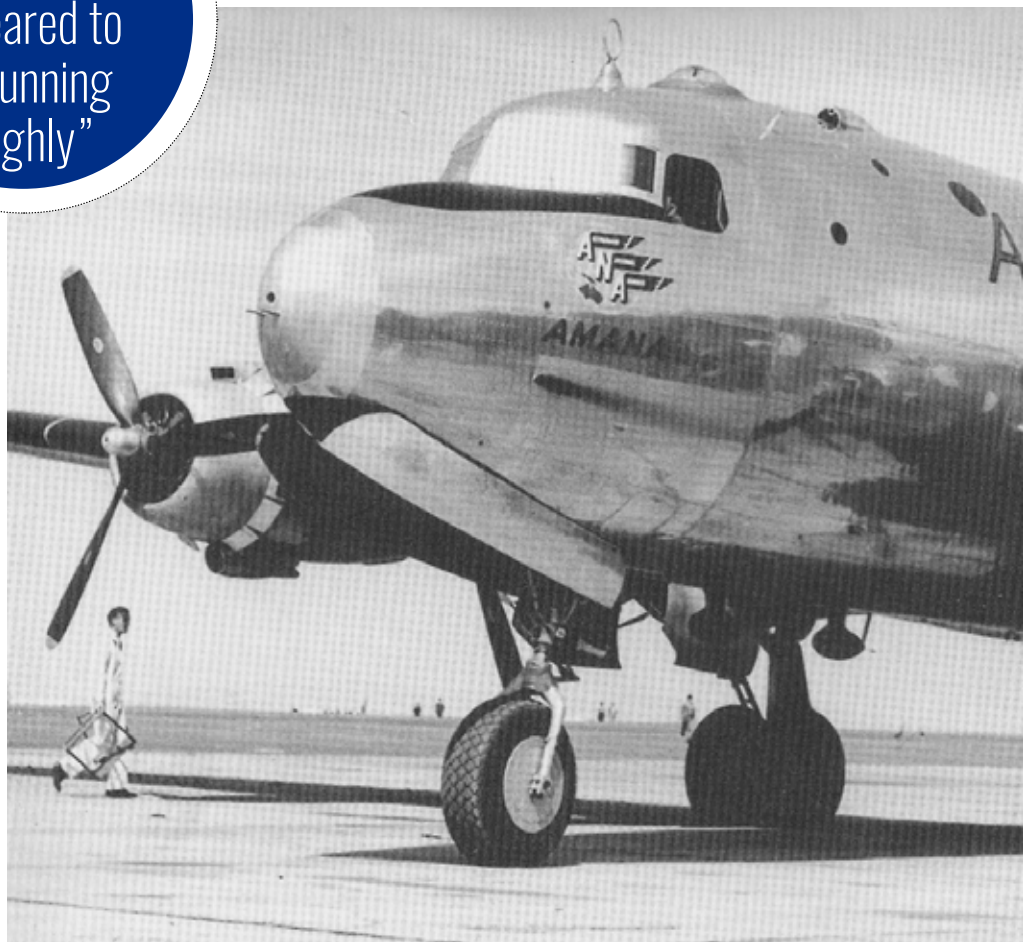
The left wing was torn away from the fuselage, then the aircraft broke up and burst into flames.

The investigators found engines and propellers numbers one to three had been substantially damaged in the crash, but engine and propeller number four had received much less damage.

The number four engine was dismantled by the investigation team in an attempt to determine why it might have been shut down by the crew.

A substantial amount of corrosion was found in the passages of the fuel flow meter.

The corrosion product was identified as mag-



Amana? Cont.

nesium hydroxide. This is formed by reaction of magnesium and water, leading the investigators to believe that the fuel passages had been filled with water in the months between the crash and the detailed examination of the engine.

Investigators formed the opinion that the rough running heard by witnesses on the ground and the crew's decision to shut down engine number four and feather its propeller may have been related to water in the fuel reaching that engine.

Similarly the intermittent loss of power on all engines in the final minutes of the flight may indicate all engines were receiving fuel contaminated with water.

Investigators believed water in some of the fuel tanks of VH-ANA was responsible for rough running of one or more of the engines; and this ultimately led to intermittent failure of all the engines.

An Inquiry led by Mr Justice Simpson found no evidence there was significant water in the fuel tanks. No radio call was received from Amana to indicate the nature of any problem, or even that the crew was aware of a problem. The inquiry concluded without determining the cause of the crash.

In the weeks and months after the conclusion of the inquiry, one possible explanation of the crash began to circulate among employees of ANA. This possibility began with one piece of evidence uncovered by the inquiry during cross-examination of ANA's ground staff.

It was reported that after sunrise on the morning after the crash the one-gallon container used to check Amana's fuel filters was found empty and lying on its side on the apron a short distance from where Amana had been parked.

Employees of ANA believed the container had last been used to drain fuel from the cross-feed drain cock, the fuel cock which serves the pipe in the wing centre-section for cross-feeding of fuel from tanks in one wing to engines in the other wing.

Moments after starting the procedure, the staff member was advised he'd received a telephone call from his wife and he went to answer it. With the cross-feed selector valves closed, little fuel ran out when the drain cock was opened.

Some employees believed that because no fuel was running out, neither the staff member nor anyone else noticed the drain cock was still open. Employees speculated that approximately ten minutes after take-off the crew of *Amana* was aware of the seriousness of rough running on number four engine so decided to shut it down.

Company procedures specified that if an operational problem occurred prior to reaching Kalgoorlie, 290nm east of Perth, the aircraft was to return to Perth; but if a problem occurred after reaching Kalgoorlie, the flight could continue to Adelaide.

The DC-4 was capable of flying from Perth to Adelaide with one engine inoperative.

Did Human Factors cause the crash of the *Amana*? Cont.

The crew of *Amana* on the fatal flight might have decided to wait until past Kalgoorlie before making a radio call to report one engine had been shut down, and then continue to Adelaide.

To manage fuel usage and balance the weight of fuel across the wing, the crew might have selected some of the operating engines to draw fuel from number four tank.

The DC-4 had a complex fuel selection system and, either deliberately or inadvertently, all operating engines might have been connected to number four tank. If the drain cock in the cross-feed pipe was still open to the atmosphere, air would be drawn into the pipe, causing an interruption of fuel supply to the engines, all engines to stop operating and their propellers to move to fine pitch.

When the crew realised engines one, two and three had all suddenly failed and that cross-feeding of fuel was the source of the problem, they would have changed the fuel selections and restored fuel to the engines, causing the sudden screaming noise heard by witnesses as the engines burst back into life with their propellers in fine pitch.

Amana had been flying at a lower altitude than usual, so there was inadequate height for the crew to arrest the high rate of descent before the aircraft struck high ground.

> "The DC-4 had a complex fuel selection system"

The Flight Superintendent and the Technical Superintendent of ANA simulated some of these events during a test flight in another DC4.

They were satisfied that the time intervals between events were compatible with the likely sequence of events leading to the crash, and that it was a plausible explanation of the accident.

Australian National Airways (ANA) never recovered from the crash of the *Amana*

The loss of its reputation as a safe airline, together with the unblemished safety record and growing commercial success of its rival Trans Australia Airlines, sent ANA into decline. In 1957 ANA was taken over by Ansett Transport Industries Limited and merged with Ansett Airways to form the domestic airline Ansett-ANA.

Spitfire down

BY CLIVE CUNNINGHAM

IT was a perfect day. Sun shining, light breeze, small tufts of cloud. Why would you want to do anything but fly an aeroplane?
After months of rain and nasty wind - finally a day made just for it.

True, there had been the odd day over winter where I could have committed aviation but, as every opportunity arose, my work or other commitments kept me grounded. What was worse, my workplace is under the flightpath of my local airport and I can clearly hear the happy crackle of aero engines frolicking overhead.

I was sick of being down here, wishing I was up there. At last the time had come. I performed the morning ritual, the three S's then coffee and kissed the missus, grabbed the flight bag and headed off to the airfield.

The drive usually takes about 30 minutes. On the way I normally like to go through a mental pre-flight briefing. I try to visualise my checks and emergency procedures, so I am already in flight mode when I open the hangar door. This morning, as I was doing this, I let out a huge yawn. I shook my head a bit to clear it out and realised I had a bit of a fuzzy brain feeling. I thought back to the previous night. A nice steak done superbly by the missus. A few smooth reds washed it down. One or two, or maybe four? Not a lot, just an average wine with meal dosage. Then we settled down to watch a movie, which finished about 11.30 and we retired. A bit later than I like to hit the hay, perhaps, but a nice end to a long day. But the yawn had made me wonder if I was firing on all cylinders.

By now. I was sliding open the hangar door. I paused, looking at my baby. She was as keen to go as I was. But somehow I didn't feel quite right. Nothing I could put my finger on, I was just not 100% confident in myself.

"I had to make a hard choice"

Maybe the little voice (think Gazoo on Fred Flintstone's shoulder) was the decider, but I had to make a hard choice. I shrugged my shoulders, let out a long sigh and re-closed the hangar door.

I still had the need to fly, just the sense not to. Instead I picked up my little model Spitfire and took little 'Douglas Bader' out for a treat.

She gracefully rose into the air, as always a thing of beauty to watch. A few sweeping turns, a lazy barrel roll, magnificent! Suddenly, it all went pear shaped. It was inverted and heading down. I pulled back stick which, as we know, is usually up, but at this particular point, it was down.

The impact was loud and horrific. I rushed to the scene. There were bits everywhere and I immediately knew it would never grace the skies again.

I still don't know exactly what happened. I just know I wasn't 100% switched on. As I stared at the wreckage, I knew it could have just as easily been me this day.

At the time I chose not to fly, I wasn't happy about it. But I know I made the right choice. I share this with you, so when you hear that little voice, or you have the feeling in your gut, you might take heed. If something had gone wrong for me that day, maybe I wouldn't have acted quickly or correctly enough to save my bacon? And maybe more than just my beautiful little model Douglas Bader might have faced the consequences.

Into the w

BY IKE GOODWIN

THE plan for me and my wife/navigator, Rhonda was to depart Cowra in our J230 and head up to Broken Hill and Leigh Creek for a look at Lake Eyre.

We would be joined on the way from Holbrook by Bruce Avery in his Jabiru SP5, Dave King with his wife/navigator, Lynette (Netty) in a Rans S-19 and Ralph Walker with his wife/navigator, Jan in a CT.

We got away later than planned because of low cloud west of Cowra, but we finally broke free of it a little east of Lake Cargelligo. A very well laid out town on a beautiful big lake with a well maintained dirt strip. We stopped for lunch before getting airborne again and tracking for Ivanhoe.

The cropping scenery changed to a drier and more barren landscape. Soon Ivanhoe airstrip was in front of us, so we overflew the town, then put down for a refresh and to stretch our legs. Thirty minutes later the 230 was back in the sky and we tracked via the big and dry Menindee Lake on towards Broken Hill.

SILVER CITY

We did an orbit over the city and prepared for our landing. Broken Hill has a very nice long runway for ultralights. We met Lawrie Hutton and John MacLeod from the Broken Hill Aero Club. After refueling, Lawrie showed us to our accommodation next to the clubhouse. The flyers from Holbrook were also on their way, tracking Holbrook, Hay (to refuel), to Lake Mungo and Mungo Lodge, where they would stay the night.

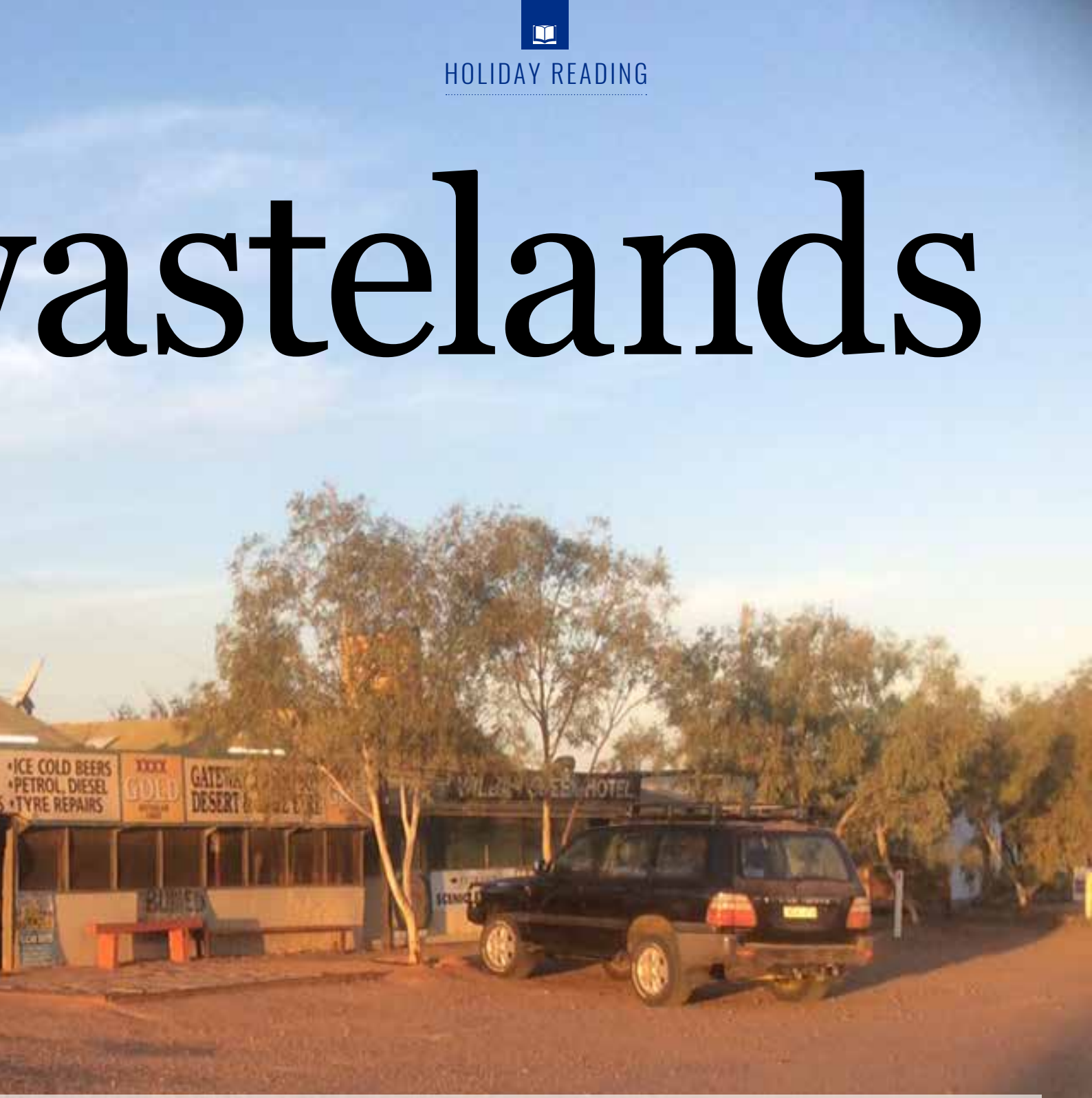
The other three aircraft arrived after lunch next day and we carried out a briefing for the trip ahead.

Dave was christened the Flight Commander because, after all, he had come up with the idea for the adventure.

Early the next day, our J230 did an intersection departure and was first off the mark. We tracked to Hawker in South Australia, with Bruce following us in his Jab. Ralph and Jan took off next in the CT, then Dave and Lyn in the Rans. Then we heard Ralph report a problem with his CT, apparently his charging system wasn't working properly.

He opted to return to YBHI and Dave decided to go back with him and both soon reported they were safely on the ground. The two Jabs flew on to Hawker. Tracking over the desert wasteland, we could see homesteads with

wastelands



runways, as well as dirt tracks, made by the 4WD rock hoppers below us. Pumping out their little puffs of dust from their wheels and tracks running in all directions. It was obvious we had safe landing sites, if needed. As we tracked on for an hour or so, the Flinders Range loomed into view. We proceeded closer, they became higher and more spectacular with an eye catching array of colour in their stonework. Climbing to 6,500ft we flew over their tops until Wilpena Pound, off to the north, commanded our attention. A massive crater-like formation full of colour reflecting in the sunlight. To the south west we could see a cold front heading our way. Hawker was dead ahead and soon on the nose. Descent was a little bumpy. The wind had certainly picked up. Shortly after touch-down, we could hear Bruce in his Jab.

Then over the range he came, joined the circuit and put down safely.

The plan was to proceed north over The Pound and then on to Leigh Creek, but first we had to find out what was going with Ralph's CT and Dave. We called them and learned the CT had a loose wire in the charging circuit which was quickly rectified. They decided to spend another night in YBHI because the front made things too turbulent.

Bruce got a lift into town with a touring West Australian couple kind enough to give him a lift the three or four kilometers to get his fuel. They even brought him back. How's that for generosity?

We left Hawker in a good norwesterly and climbed until we found smooth air at 6,500ft. Wilpena Pound was off our right quarter. We tracked to the north of the Pound, checked for up-and-down droughts, then circled the rim and flew back across the centre from south to north to catch Bruce in his Jab.

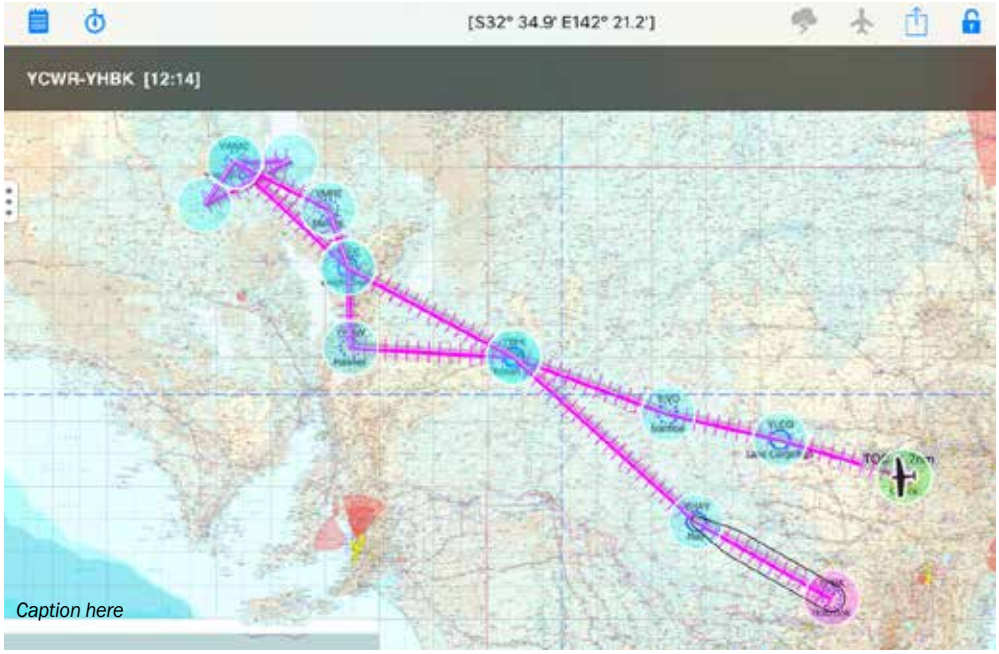
The two Jabs then flew on to Leigh Creek, landed, refueled and headed to our pre-arranged accommodation at the Caravan Park. The room was immaculate, well presented, comfortable and affordable. $80 a double per night per unit. Highly recommended.

The next day Dave and Ralph finally arrived. The Rans and the CT had flown the course we had travelled the day before.

The planned departure early the next morning was delayed until the strong south easterly wind subsided. An hour and a half behind schedule, the J230 climbed out over the top of the field and found smooth air at 4,500ft.

"Desolate wastelands with curious mountain outcrops filled our eyes as we tracked to the northwest"

Left to Right: Rhonda Goodwin, Bruce Avery, Jan andRalph Walker, Dave and Lynette King at Leigh Creek



Caption here

Broken Hill Aero Club

Hawker, hub of the Flinders


All aircraft refueled and lined Up at Leigh Creek ready to depart for William Creek and The Lakes

Into the wastelands cont.

We radioed the others that it was fine to buckle up and take-off.

Desolate wastelands with curious mountain outcrops filled our eyes as we tracked to the northwest. Closer and closer, the expanse of the southern lake came into view. Then the amazement of the North and South Lakes of Eyre. It was a spectacular sight. After a while William Creek arrived on the pointy end.

A 10 mile inbound call and minutes later we were stepping out from our plane at William Creek to be totally swamped by flies. They filled so much of the cabin of the plane we thought we would exceed MTOW. Buggers of things they were.

Jason from YWMC gave me all the info and directions we needed to track to the Painted Hills and the procedures for touring around the North Lake to avoid conflict with tourist aircraft and the masses of bird life. Very helpful, hospitable and friendly the staff at YWMC. Spectacular sights were there to be had and the cameras were in action for the entire flight. A must-do on every pilot's bucket list.

The weather looked a bit worrying for the coming days so we all decided to make haste to our home bases. Ike and Rhonda in the J230 from Cowra, Dave and Lyn in their Rans, with Bruce Avery in his Jab from Holbrook. Bruce worried he'd be grounded if the weather closed in.

The next morning we departed bright and early. The track chosen was direct YLEC to YBHI over the southern end of the Strzelecki Desert. Wasteland, but plenty of tracks and homesteads with runways available, if and when needed. The J230 didn't miss a beat.

We were all scooting ahead of the weather coming up from the south west.

On we flew until the expanse of the Silver City came into view. Then we spread out, each heading to our own home bases. Great experience. Jabs rule.

BROKEN HILL AERO CLUB
Ph: 0488 971 614
Accommodation: Two rooms available with shared toilet, bathroom. $25 per person, plus $5 per person for linen.
ASIC: None
Landing Fee: None
Services: Taxi (08) 8087-2222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Loehle Sport Parasol

LOEHLE SPORT PARASOL

PHOTO BY WAYNE LANGLEY

Loehle Sport Parasol on the tarmac at Brisbane West Wellcamp airport on July 31 last year. One of 32 which flew in from Clifton as part of the Darling Downs Sport Aircraft Assn. fly-in.

POSTER OPPORTUNITY

Want to see yourself or your aircraft larger than life on your clubhouse or bedroom wall?

Sport Pilot is offering subscribers the chance to show off their favourite aviation photo in this double page centre spread of the magazine each month.

Each edition one photo will be chosen (We will try and make sure every photo sent in gets a run). If you are an aircraft seller, it's a great chance to show off your product.

If you have a fancy paint job, now is the time to show it off. And if you have a great photograph of you and your mates at a fly-in, it will make a good memento.

Send your photos (As separate jpeg attachments please) to editor@sportpilot.net.au. It obviously has to be in landscape, not portrait, mode and be as big a file as possible please.

Singing our own songs

BY BRIAN BIGG

ONE of the things I have been banging on about for many years is our need to sell ourselves better.

I get heartily sick of having to explain to my friends and relatives that I'm not a mad scientist intent on burning a smoking hole in a paddock on a Sunday afternoon in time to make the evening news. I also get heartily sick having to explain to them that what I love doing is not akin to Evil Knievel jumping 20 buses on a motorcycle shooting flames from its exhaust. And that the success or failure of what I do does not, like Evil Knievel, just depend on luck. That's how they think of us, you know, an image reinforced by the almost moronic coverage in the mainstream media of our occasional failures.

I've spent half my life in newsrooms and have lost count of the number of times I've had to explain to a young reporter that, despite what the police officer told them (because most cops don't know either) that the aeroplane didn't crash because its engine stalled. (How can it stall', I ask them. "When the engine doesn't have any gears?")

And I get angry explaining the fact that just because a plane is "hand built" or "homemade" does not automatically mean it's two bits of wood tied together with string holding up a bath tub.

If the media covered car accidents as sensationally as they cover recreational pilot accidents, everyone would be too scared to drive.

Trying to convince people by explaining the theory of aerodynamics doesn't work either, let me tell you. As soon as you get to the Bernoulli Principle their eyes glaze over and they start telling you about an episode of Air Crash Investigation they watched a year or two before.

Sometimes in a bid to change their minds, I get them to come for a fly with me. When they get over the fact that my machine doesn't suddenly drop out of the sky for no reason, killing all on board, I see them change their minds, just a little bit. Sometimes I even get them to think, for a moment, that maybe one day they could do what I do. It's a small victory each time and one which I savour.

Over the years I may have changed the minds of 40 or 50 people I know, but there are just as many friends and relatives still convinced that what I do for love is plane crazy.

The bigger challenge for all of us has always been to change the attitude of the general community.

I had some success a few years ago when I wrote an editorial advising organisers of fly-ins and airshows not to keep the public on the other side of the fence. We do it, of course, so that we can feel we're somehow more special than them and that they should worship us from behind the rope. The trap, I explained, was that because they thought of us as different to them, they were unsympathetic towards us when we required their help or support to protect our sport from real estate developers and dunderheaded politicians. We were so special, they thought, we probably didn't need their help.

"The bigger challenge has always been to change the attitude of the community"

The solution, I suggested, was to bring them onto our side of the fence. Let them crawl over our aeroplanes, sit in the cockpit, try on the headphones and begin to imagine that they could one day be on our side of the fence too. Since that editorial I've had a lot of good feedback from people who said they tried it, that it had been universally accepted by the public and that their fly-in had been a huge hit as a result. In a lot of places these days, getting the public on our side of the fence is a normal part of every fly-in.

The current administration of RAAus is doing its bit. There is a YouTube channel which is increasing its reach every month. Facebook is playing a growing part and I notice that whenever there is an accident these days, someone from the executive, usually the CEO, sticks his head up on the TV news to put our side of the story. So it's not just the "they are all crazy" reporters who the public get to see and hear.

But if the obvious success of the large and powerful lobbyists in Canberra is anything to go by, there's more to be done. We need to be more proactive in changing the communities' view of us. We need a strategic plan.

Rather than wait to be asked, we need to push out stories into the media about our fantastic pilots - going solo for the first time at 80, flying around the world in a small amphibian or learning to fly at 15, years before the state trusts them to drive a car.

We need to start pushing the idea that pilots are more like Capt. Sullenberger than Doc from 'Back to the Future'.

That our aeroplanes, far from being bathtubs and bits of wood, are actually marvels of modern engineering that can turn an enormous continent into a weekend adventure.

So the general public gets to hear about our sport 50 times a year (most of it positive and uplifting) and not just the few times when there's been an accident.

That push needs to be organised by RAAus, with money set aside so it's done professionally with achievable and reportable goals. It also needs to be supported at the grassroots level by all of us.

The success or failure of many fly-ins is determined by how good the committee is at letting everybody know it's on and what the public can expect to see and do if they turn up and pay to go through the gate.

But it's hit and miss. Some places do it well but some don't. I sometimes get the secretary of an organising committee call me just a fortnight before their fly-in, because they've only just realised it's not even been in the Events Calendar of the magazine. How can they expect people to turn up if no one knows it's on? And often, if I don't remind them, no one bothers to take photos and give me information so I can do a story to tell the world how successful the event was. It's all part of the same promotional song.

We can't expect the public to understand us or like us if we don't sell ourselves to them much more professionally than we normally do.

DESTINATION Narromine

NARROMINE TOURIST PARK

The big drawcard for the Narromine Tourist Park is that it's a lazy few metres from the runway, perfect for pilots transitioning and needing a convenient and comfortable stopover.

The Park has 11 ensuite rooms, each with air-conditioning. There is a well equipped kitchen, dining room, TV lounge and BBQ.

The Services Club is located on the main street in the centre of the town, 1.8kms from the motel. Taxies cost $10 - $12 each way but the owners often give you a lift.

PILOTS

The accommodation is located within the aerodrome precinct, approximately 200m from the Avgas bowser. The bowser accepts both VISA and MasterCard with a PIN.

The Aviation Museum, Aero Club and Gliding Club are located 50metres from the park. On Friday nights, the Aero Club is open for bistro meals with a full bar service.

MUSEUM

The museum is a must see. It brings to life the aviation story of Narromine. In its prime, many pilots learned to fly there and some famous aviators were based there. Narromine is also the home of the Wright Flyer Replica, reported to be the only one in the world which has flown.

The museum is open Wednesday to Monday from 10am to 4.00pm, and is manned by local volunteers who would love to see you. www.narromineaviationmuseum.org.au.

On weekends the Narromine Gliding Club operates and joy flights are available in gliders. Sunday nights the club puts on a BBQ. www.narromineglidingclub.com.au.

THE AREA

Narromine has some interesting sites to visit, showcasing its agriculture.

The Narromine Iris Farm has over 800 different tall bearded Iris on display (It is closed on Saturdays).

Narromine Craft shop sells local hand made products (pickles, cakes, bags, rugs, clothes etc).

The Macquarie River is very picturesque, with its sprawling willows and huge gum trees. Narromine is a top fishing spot.

Macquarie River Trails initiative www.rivertrails.com.au

Wondai

UPCOUNTRY B&B WONDAI

If you are looking for a weekend getaway in the South East Queensland region, Wandai could be the place for a visit. Just an hour's flight or so from Brisbane, Chad Morgan's birthplace has a lot to see and do if you are active or a lot of quiet if you require more relaxing.
The B and B is just a short stroll from the terrific little airstrip, but the owners, Donna & Chris Kennedy, will collect you and your gear and drop you back there if you don't need the exercise.

THE B AND B

All ensuite rooms have air-conditioning and open onto the patio area. Dressing gowns, TVs, bar & fridge/freezer facilities, country breakfast. In winter a log fire.

BIRDS

While relaxing on the patio and enjoying a glass of local wine with a cheese platter using local produce, it's fun to watch the birds eating and playing on the wheel.

THE AREA

The wine trail (bookings on request) is very popular and there's an art gallery (different exhibitions each month) and timber museum. Nearby is the Bjelke Petersen dam (boating, skiing, swimming, fishing and 4WD trails) and Lake Boondooma. Bunya Mountains are nearby and the Boat Mountain Conservation Park is for exploring.
Eskdale Lavender Farm is also on the list.

EVENTS

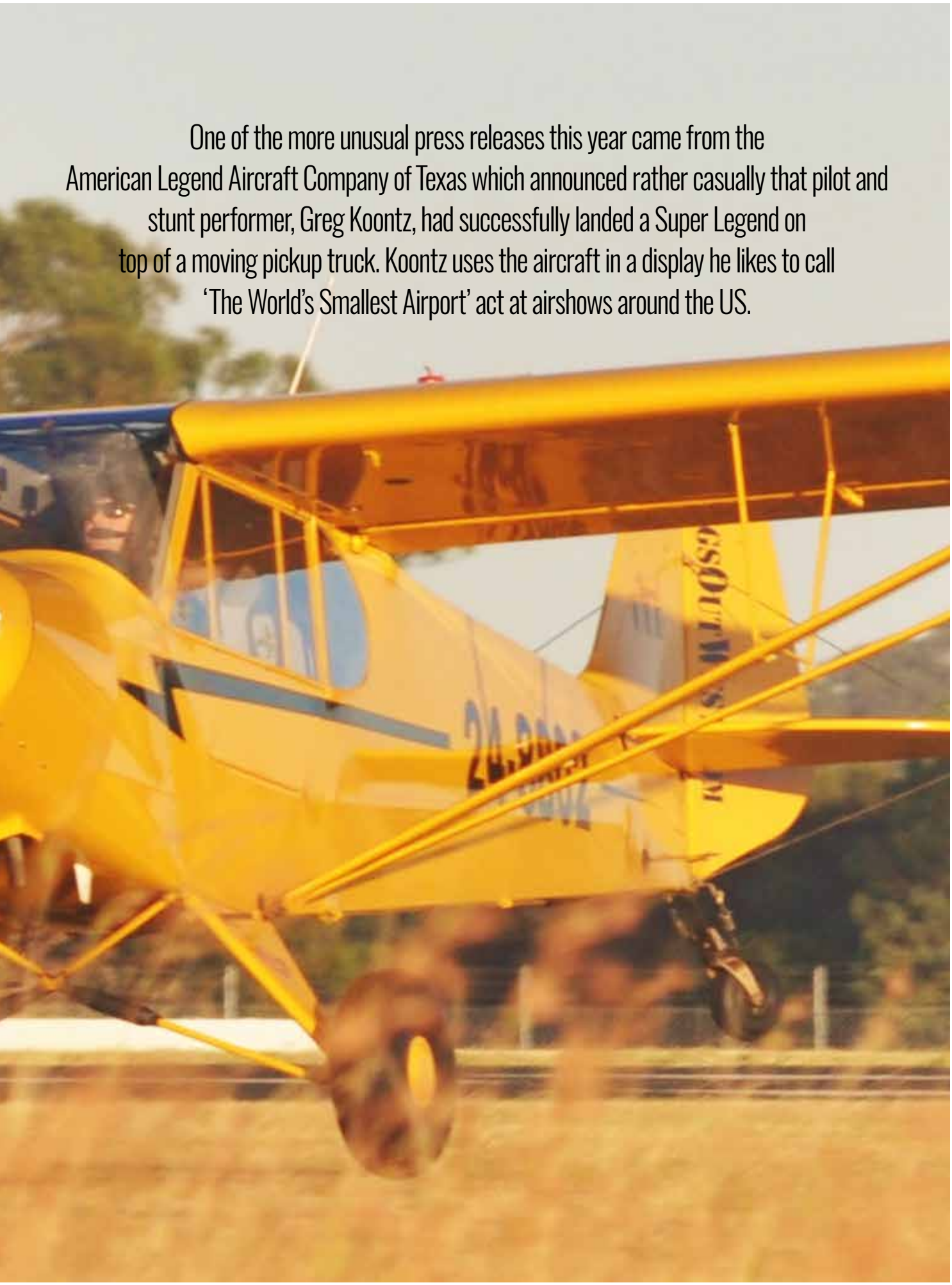
Wondai Country Races are a hoot and for the more refined, there's the Wondai Garden Festival in April and September each year or the Goomeri Pumpkin Festival in May. There's a big horse ride in June.
For more information, http://www.upcountry.com.au

What a Super Legend

BY BRIAN BIGG

Dan Compton

One of the more unusual press releases this year came from the American Legend Aircraft Company of Texas which announced rather casually that pilot and stunt performer, Greg Koontz, had successfully landed a Super Legend on top of a moving pickup truck. Koontz uses the aircraft in a display he likes to call 'The World's Smallest Airport' act at airshows around the US.



What a Super Legend

We don't often get to hear much about the Super Legend in Australia. Because there is only one of them here. Dan Compton, who you may remember was a runner-up in the RAAus Maintainer of the year award announced in October, has been a Cub fan since forever.

He's been flying since the 1980s, first in the air force then for fun. When it came time to buy his own aircraft, he read extensively, discovered the Super Cub was well regarded and decided he wanted one. He heard about a bloke in Caloundra with one for sale and he bought it sight unseen.

Later, when he moved to Dubbo, the Super Cub became the basis for his new flying training school Wings Out West.

Sometime later, when a student dropped the lovely machine into the dirt, Dan reached out to Legend Cub in the US, bought one of their Super Legends and agreed to be the Australian distributor for the aircraft.

The Super Legend is pretty much identical to the Super Cub but it's 10 cm wider down the fuselage and the wing spars meet at the wing roots rather than overhead. But the wings are the same and it flies the same, albeit a bit faster because of the bigger power plant.

Dan says the Super Cub, like the Piper Cub before it, was always considered to be the world's best training aircraft.

The Super Legend, he says, is probably not as good because it is too easy to fly and too forgiving for students to learn properly.

"It's very hard to stall and it has no flaps. So at least students learn how to sideslip properly."

For an aircraft this pretty, which can travel the country at a sedate 85kts (the Legend Cub trundles along at 75kts) and is this forgiving, why are we not seeing the sky full of them?

"The Aussie dollar," says Dan. "A properly fitted out Legend will set you back $200,000 these days. When I took it on the dollar was much better value."

But for purists, the Super Legend is a special aircraft. It's been built very much as per the original Piper Cub, with the same flying characteristics and the same look and feel - of a long gone aviation era.

In recognition of the changing times, Legend Aircraft has put in a whole bunch of safety mods, mostly for the people who use it in Alaska, including doors on both sides of the fuselage, but otherwise it's like flying was in the 1930s.

You should go along to Dubbo and ask Dan for a flight. You might find you want to start your own Legend.

WHICH CUB IS WHICH?

The new Super Legend from American Legend Aircraft Company was inspired by one of the most useful and imitated aircraft in all aviation, the legendary Super Cub.

The Super Legend is built to be dependable and reliable, with an open cabin feel, exceptional slow flight, and docile handling.

The Super Legend has the same power-to-weight ratio as a 150-horsepower Piper Super Cub. A Lycoming YIO-233 provides 115hp.

SUPER LEGEND SPECIFICATIONS

POWERPLANT	115HP LYCOMING YIO-233
CLIMB, SEA LEVEL	900FPM
TAKEOFF, GROUND ROLL	280FT
SPEED, MAX. LEVEL	100 KTAS
STALL SPEED	32MPH (28 MPH W/ FLAPS)
RANGE, ECONOMY	5.5 HOURS
FUEL BURN, OPTIMUM	4.5 GPH
FUEL TYPE	100LL OR AUTO GAS
WING SPAN	35' 6"
LENGTH	22' 5"
HEIGHT	6' 7" (9' 8" ON FLOATS)
LSA GROSS WEIGHT	1,320 LBS (1,430 ON FLOATS)
EMPTY WEIGHT	845 LBS
FUEL CAPACITY	32 GAL (30 GAL USEABLE)

It offers increased performance, no power setting restrictions and greater payload capabilities over comparable aircraft.

It has the same airfoil and 35'6" wing span as Piper Super Cub, is 10cms wider, has a classic PA-18 pressure carbon fibre cowling, carbon fibre doors, floorboards, interior and baggage panels, spinner and wingtip bows.

AND THEN THERE WAS ONE

Every salesman talks about how safe their aircraft is, how the designers have done their darndest to make sure the pilot and passenger will walk away in the event of an accident.

But it's not until you actually go through one that you get to prove or disprove those claims.

Dan can tell you how safe the Cub is sure in the knowledge that no one can contradict him. He's walked away from two serious accidents in Cubs now.

The first, a few years ago, destroyed the Super Cub he was using for training students. He and the student walked away without a scratch.

The second happened at Dubbo in November and made media headlines. Again, he and his student walked away without injury.

"It was only the students' second ever takeoff", says Dan. "The day before we'd been over and over the briefing. We'd walked through the circuit in the hangar and had discussed every eventuality.

"On the morning of the accident, we headed out to the runway about 10:30. An RPT Dash 8 had just taken off down the other end of the runway. We planned an intersection departure and we gave him way more than the standard two minutes to avoid the possibility of wake turbulence.

"Then we accelerated. At liftoff we had only gone one or two metres into the air when a gust of some sort flipped the aircraft onto its back. It bounced on its engine and came to rest facing back the way we had come, off to one side of the runway.

"We were unhurt. I grabbed the student, we climbed out immediately and moved away from the wreckage, which immediately caught fire. On the footage you can see we were outside the aircraft in just a couple of seconds. We were very lucky."

Dan expected the student to decide that aviation was no longer in his future, but he turned up a few days later and said "let's go." He told Dan that he wanted to keep flying in a Cub because it had proven its safety record to him.

"Dubbo is known for Willy Willy's between 10am and 3pm during the warmer months," says Dan. "I have friends who won't take off from here during those hours just in case."

"We still don't know if it was caused by a Willy Willy or wake turbulence from the Dash 8. "It doesn't really matter. The effect was the same. The other thing I did learn was not to muck around getting away from the wreckage. You see people on television try to take their bags or other belongings when leaving a stricken aircraft. We only had seconds. Don't screw around getting out."

After the fire

Lone Eagle open day flies above expectations

STORY BY IWAN JONES
(REPRODUCED WITH PERMISSION FROM THE CLIFTON COURIER)

THE inaugural Open Day for the Lone Eagle Flying School at Clifton exceeded the expectations of organisers. The school completed 125 flights and the Toowoomba Hospice received donations to the value of $3,125 for the day.

LEFS President, Kevin McGrath, said the response to the event was overwhelming.

"It was beyond our wildest dreams. We were expecting a turn-out of about 20 people and it is safe to say more than 100 attended on the day, including a bus full.

They turned out in droves to support the Toowoomba Hospice and that is really heartwarming," Mr McGrath said.

"LEFS donated use of the runway and club facilities, as well as pilots and aircraft, for the cause with all donations going directly towards the Hospice.

"The feedback about the band, food and drinks and, of course, the flights was excellent. Based on our success, this is something we will look at organising again."

Toowoomba Hospice Manager for Promotions and Fundraising, Mark Munro, said the palliative care providers were amazed by the generosity of the locally-based flying school.

"We are incredibly grateful LEFS members decided to show support for us on their open day," Mr Munro said. "In the first three hours of the event, we had over 97 donors, which was absolutely incredible. This is the first time LEFS had an open day to promote the school and it worked out really well for both of us.

"I would like to thank everyone who came along and supported the open day."

Karl Schultz from Greenmount displays his 2/3 scale replica Super Marine Spitfire

Justin Hill showcases his unique gyrocopter

Simon Johnson, Alison Summerville, Garry Summerville and Joy Summerville enjoyed the open day

Toowoomba Hospice Manager for Promotions and Fundraising Mark Munro with Lone Eagle Flying School PR officer James Bange and President Kevin McGrath

Airmanship saves lives PART 3

BY OWEN BARTROP

PART TWO IN THIS SERIES COVERED ENGINE FAILURE AND HOW TO PREPARE YOURSELF FOR SUCH AN EMERGENCY. THIS ARTICLE WILL DISCUSS WHAT YOU CAN DO TO MAKE THE MOST OUT OF A BAD SITUATION WHEN A PARTIAL POWER FAILURE OCCURS AND WILL SUGGEST ACTIONS TO TAKE AND HOW YOU SHOULD PRACTICE FOR IT WHICH, BY THE WAY, IS COMPLETELY DIFFERENT THAN FOR TOTAL POWER FAILURE.

THE cause of partial loss of power can be many and varied, fuel starvation, carby icing, mechanical failure of the engine or its accessories, electrical and the list goes on. Any of these may be hard to determine while flying and will normally need proper diagnostic treatment to fix. So what can we, as pilots, do in the air to get back safely on the ground?

Firstly, remember any action comes second to flying your aircraft and it is important to fly it accurately while attempting to cope with partial loss of power. Speed and altitude are precious and accurate flying is necessary to preserve what you have. The workload will be quite high, so take your time and do what has to be done correctly and thoroughly. Do it once and do it right. Adjust the nose position of your aircraft to gain the best lift/drag ratio speed as published in your Pilot Operating Handbook. At the same time, turn towards a landing area, be it an airfield or paddock, just in case the engine fails completely or you are unable to maintain height. Leave the engine controls alone until you work out if you have sufficient power to stay airborne. The secret is to maintain the best lift/drag ratio speed and see if the aircraft gains or loses height.

The golden rule when partial loss of power occurs is to leave the throttle where it is unless the power being produced from the sick engine is insufficient to maintain altitude or make it to a safe landing area. The reason is that, while the engine is producing some power, that's better than no power at all. Engines which output partial power have the habit of stopping completely when the throttle is opened or closed. And, if it does stop, the chances of restarting it are usually not good.

If the power reduction is caused by a catastrophic failure of the engine, or there are signs of fluid escaping, you should shut down the engine immediately before a fire occurs or there is further engine damage.

The next step is very important. Before doing anything else, tell someone about your predicament - declare an emergence if you need to. The people you tell may not be able to help you but, if you are forced down in hostile territory, at least someone is aware of your predicament and can initiate a rescue. There was a case of a partial power loss over Bass Strait a few years ago where a Mayday call allowed a helicopter pilot who heard the Mayday call, to locate the stricken aircraft and shadow it until it made the circuit at Latrobe Valley airport in Victoria. The helicopter pilot was even able to offer the struggling other pilot advice about to where to land. Because a person giving advice is under less stress than the pilot in distress, every little bit of help should be assessed before being discarded.

One drawback in declaring an emergency is that AirServices will pester you for more information. Keep them happy by telling them who you are, where you are, what the problem is, what you intend to do about it and how many people are on board. If you find their calls for information distracting, tell them to standby. Only answer them when you have stabilised the situation and have time to divert your attention elsewhere.

> "Do not believe for a second the problem has been solved"

The next step is to check what engine instruments are saying - for a clue to the cause of power reduction. Are these instruments giving the normal reading or is there a clue to the fault? Obviously the RPM setting will not be normal, but what about the others? On every flight you should periodically check these instruments anyway. You never know, they may give an early warning of a problem.

If nothing stands out as a possible cause, try and diagnose the cause of the partial loss of power by asking yourself, "Have I recently made a change to the engine operating conditions, such as changing fuel tanks?" If so, reverse what you have just done and see if that fixes the problem. If no changes were made, select all fuel pumps on and select another fuel tank. Check all ignition switches are on. Check the aircraft's voltage is normal. While doing all this don't forget to fly the aircraft.

If at any time the engine appears to have recovered from its hiatus, do not believe for a second the problem has been solved. Land as soon as possible because the problem could come back at any time and be more devastating than before.

If the power is insufficient to remain airborne and there is nowhere safe to land, move the throttle to increase power, but only in very small increments until you have enough power to retain altitude.

Part three of a multi part series on one of the most mysterious aspects of becoming a good pilot

Move it a bit and observe the result. Is that what you would expect or is it behaving oddly? If increasing the throttle causes a further power loss, try decreasing the throttle. Once again in very small increments and observe the result.

Aim to get your aircraft into a position from which you can do a glide approach and landing, then at least if there is a complete failure you will make your landing area. Don't forget to close the throttle when you reach the glide approach area, you don't want the engine suddenly coming to life and causing an overshoot.

Partial loss of power will come as a surprise and practicing this type of emergency will not prevent it, but practice will make it easier to cope with.

The best way to practice this type of emergency is this - when returning to the circuit area, set what you consider to be sufficient power to get you to your destination and land. Having done that, do not to touch the throttle again until you close it on final approach or are in a position to do a dead stick landing.

Fly the aircraft by adjusting your flight path. If there are other aircraft in the circuit, do not impose on them to make way for you. Instead carry out the exercise on another day when traffic is not a problem. Remember, you will be doing non-standard circuits that could endanger other aircraft.

If your approach is unsuccessful, overshoot and fly away from the circuit and have another go. This exercise is reasonably safe unless you press on, trying to prove to yourself that you could have made it.

If your approach is poorly executed, you might end up with two situations - unsafe flying and lack of power. Under no circumstances go there. Remember, having a fatal accident while practicing a manoeuvre is silly.

If your POH states the engine should be run up every so often when descending from altitude, do so during this practice partial loss of power. Also use carby heating if required, then set the revs back to their original reduced setting. Be careful not to exceed VNE or maneuvering speed in turbulent conditions. Also, the throttle must be closed when you are satisfied you can land where you planned.

Many years ago in a four engined aircraft, the pilot thought it unnecessary to clear the engines during a night descent. The engines needed to be run up every 2,000ft to prevent the spark plugs from oiling up. When the pilot eventually put on power for the final approach, all four engines stopped dead. It was more good luck than good judgment that two of the engines were restarted in time for him to make a safe landing.

Practicing this emergency will show you how difficult it is to judge the correct power settings to get you home safely. It will also show you it can be done if you have the skill. Practice will give you that skill. If you really want to have fun, why not take another pilot up as a passenger and have a contest as to who can do the best recovery

UNDO

In Part two of the Airmanship series (Sport Pilot December 2016) it stated, "Don't forget that the higher the speed, the more height you will lose and your calculated turn back height will have to be higher." It should have read 'Don't forget that the lower the speed, the more height you will lose and your calculated turn back height will have to be higher." This error was the editor's, not the writer's.

How are you feeling?

CASA HAS RELEASED A NEW RESOURCE PAGE TO HELP PILOTS MANAGE THEIR HEALTH AND WELLBEING.

The page covers topics such as fatigue, diet, hydration, mental health and alcohol and substance abuse; issues all with the potential for a negative effect on performance and safety.

The new page also dispels some of the myths, misconceptions and fear around how CASA regulates issues such as depression and the excessive consumption of alcohol.

It goes without saying healthy pilots are critical to safety. They are responsible for the lives on board their aircraft, so must have the knowledge and self-awareness to monitor their own performance; addressing any issues which could affect safe operations.

This includes the obvious technical skills and currency, as well as general wellbeing—pilots' physical and mental health.

CASA is also working with industry groups dedicated to helping pilots through issues such as depression and substance abuse.

By working with these organisations, CASA wants to create an environment of trust where pilots, their colleagues and families, have the confidence to report potential issues. In that way issues can be addressed before they affect safety. It also helps to ensure a supported and monitored return to work for the pilots concerned, through transparency, cooperation and coordination.

The alternative—unreported drinking and substance abuse—is simply too dangerous.

One of these organisations is the Human Intervention Motivation Study (HIMS), recently established for anyone in aviation whose use of alcohol or other drugs is of concern. Alcohol problems do not necessarily mean the end of an aviation career.

A cornerstone of HIMS is understanding that substance dependence is a treatable medical condition. It is modelled on well-established overseas programs which have assisted thousands of pilots return to work.

CASA takes a similar approach with mental health, treating every case of depression as unique, and making aeromedical decisions on a case-by-case basis.

Depression is more than just a low mood—it's a serious mental illness that affects physical health, concentration levels, alertness, reaction time and decision-making.

Needless to say, for pilots, the hazards and effects of depression could mean the simple difference between life and death. Being diagnosed doesn't mean the end of your aviation career either.

CASA looks for a good stable recovery even if, in some cases, ongoing medication is required.

Despite the progressive regulatory approach CASA is taking on issues like depression and substance abuse, there remains a genuine hesitation within parts of the pilot community about self-reporting or reporting a colleague, out of fear of losing medical certification. That's why the decision was made to permit pilots who had recovered from depression to resume flying, even though they might still be taking medication.

CASA's Safety Promotion Team is distributing posters encouraging pilots not to ignore mental health and start a conversation with their GP or DAME. The Aviation Medicine section has also developed a series of fact sheets and case studies to help pilots understand how wellbeing and other health conditions could affect aviation safety and their medical certification.

For more information, casa.gov.au/wellbeing.

Drifting into strife

BY DAVID EYRE

I was at a country airstrip attending a local fly-in. The airstrip was grassed and had been perfectly mown. It was situated in a beautiful area of outback Queensland.

The weather on this day was 'fine and beaut' and everybody was enjoying the fun flying and social interaction. There was no indication of the impending misadventure.

An instructor with a passenger on board had become airborne for a scenic flight. The aircraft was an Austflight wire braced Drifter.

About the same time as the Drifter became airborne, another Drifter was being pre-flighted in preparation for some solo circuit practice.

The pilot of the second Drifter was known to be a bit erratic and did not always display good Airmanship. He started up and taxied out onto the runway to commence his take-off roll, little realising the first Drifter was conducting an engine-out practice on base and final approach.

PERFECT SET UP FOR AN ACCIDENT

The pilot of the first Drifter also showed poor Airmanship. First of all, he turned the engine off and the only way to restart it was to pull vigorously on a cord. To do this he had to use both hands and thus the stick would be unattended! Secondly, by conducting a tight base and final and, being behind the second Drifter, he had a limited view of the ground.

Of course, the inevitable happened. The airborne Drifter, in trying to avoid the Drifter on the ground, crashed heavily in a cloud of dust and grass and bad language. The instructor in the Drifter which crashed, tried to blame the pilot of the Drifter on the ground. She claimed he did not carry out a good lookout and failed to give way to an aircraft on approach.

> "A cloud of dust and grass and bad language"

Not one of the Drifters under discussion

SO, WHO WAS AT FAULT?

In my opinion, both pilots. Firstly, if the airstrip had been clear, it is likely a safe dead stick landing would have been made but, if the engine had not been closed down, a go-round could have successfully avoided the crash.

Secondly, the pilot of the Drifter on the threshold obviously should have carried out a better lookout, but he would still have had to crane his neck and look over his shoulder in order to see the Drifter making a close base and final.

LESSONS TO BE LEARNED

Never turn off the engine, especially just to show off. With the engine cut off, there is no back up if something goes awry; Always make sure you keep a good lookout. A brief scan is not enough; Always expect the unexpected.

Even though the Operations Manual 3.02.9 permits this type of operation, it does not imply it should be done. Our days of cowboy behaviour are well behind us and our instructors should be professional enough not to seek self-aggrandisement by showing off questionable skills.

Droning on about drones

BY THE OPS TEAM

RECENT CASA reform includes new legislation and operating requirements for drones. There are a myriad of abbreviations to describe any aerial vehicle without a pilot aboard, including Unmanned Aerial Vehicle (UAV) and Remotely Piloted Aircraft (RPA).

Drones, which is how we will refer to them for the purposes here, are categorised by CASA into five sizes. There is a variety of requirements for operator training, depending on their intended use – for either recreational or commercial purposes. However what is most important for recreational pilots are the tolerances and requirements for drones operating around non-controlled aerodromes, which is where the majority of recreational pilots operate. After all, if you are involved in a near miss or are struck by a drone, the paperwork is really not going to matter as much.

The new rules introduced by CASA in September last year regarding this growing aviation segment therefore have implications for many recreational pilots. CASA says changes to Part 101 (first introduced in 2002) significantly simplify operating requirements and regulation, particularly for drones under 2kgs, and that operations around non controlled aerodromes have not changed. But it is worth noting the potential for conflict at most of the aerodromes used by recreational and general aviation pilots.

As a guide for pilots, the following drone operating conditions apply for unlicensed operators:

- Drones must only be operated during the day and must be kept within visual line-of sight of the operator;
- Drones must not be operated higher than 120m (400ft) AGL;
- Drones must be kept at least 30m away from other people;
- Drones must not operate closer than 5.5kms from controlled aerodromes;
- Drones must not be flown over populous areas, including beaches, parks and sporting ovals;
- Drones must not be flown over or near an area affecting public safety or where emergency operations are underway (without prior approval);
- This could include situations such as car accidents, police operations, fire and associated fire fighting efforts or during search and rescue operations;
- Only one drone can be flown at a time;
- Significantly for operation of drones at non-controlled aerodromes Fig. 1 shows reduced separation minimums for drones and our type of aircraft.

Below is an extract from Advisory Circular AC 101-10, outlining the protection limits to which drone operators must adhere in the vicinity of non-controlled aerodromes. As you can see, a number of situations could occur where a recreational aircraft conducting a non-standard or low level circuit, could be affected.

EXTRACT FROM AC 101-10

As stated above, for slower recreational aircraft conducting circuit operations at 500ft AGL, or 300ft AGL for powered parachutes at non-controlled aerodromes, the potential for increased proximity of drones is significant. RAAus requests any pilot who experiences a near miss or a collision to report the matter immediately via the Occurrence Management system on the RAAus website. ATSB is also collecting statistics about this emerging sector to ensure the current requirements are sufficiently robust.

The evolution of drone use will see them becoming significant airspace users, and the air we share needs to be carefully managed to ensure safety and equity of access. In the new world of drones there is an even more compelling reason for pilots to keep their heads out of the cockpit and be constantly scanning. We should be "Alert but not alarmed". More information is available at www.casa.gov.au/aircraft/landing-page/flying-drones-australia.

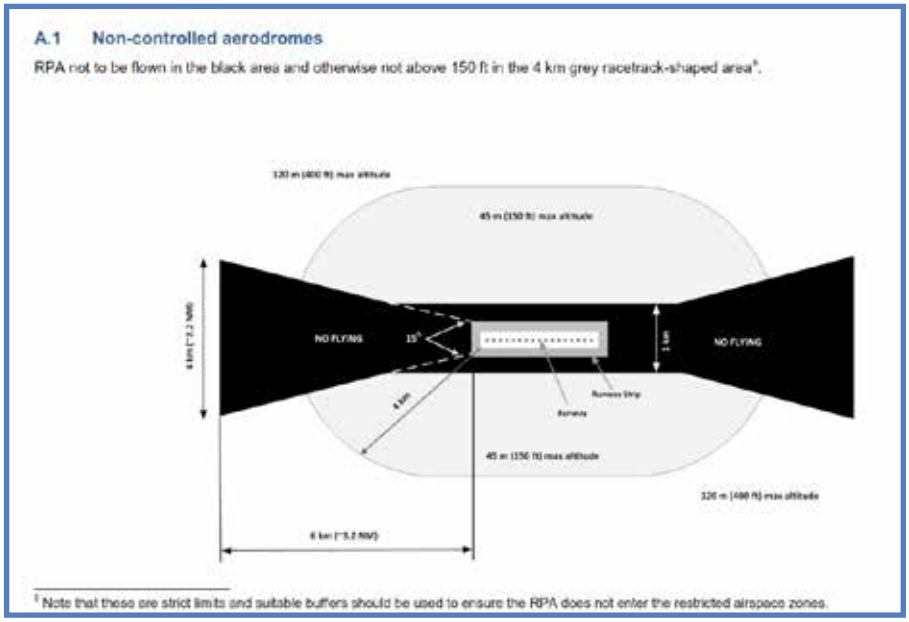
THE FORGOTTEN ENDORSEMENT

In travels and discussion with pilots, the question of how to improve skills often comes up. No doubt when your instructor issued your Pilot Certificate it was accompanied with the words "This is a licence to learn". Of course, aviation is a fantastic and never ending adventure for continuing to learn, and if you ever think you've learned it all and there is nothing left to learn, the warning bells should be ringing.

The Advanced Pilot Award offered for RAAus pilots is the ideal training and assessment tool to have pilots build on basic aircraft handling skills. Many of the syllabus elements are crucial to other endorsement skills, such as Low Level or as a reference for potential instructor candidates. The skills outlined in the APA syllabus are perfect for refreshing pilots control skills relating directly to aircraft management in the most vulnerable parts of the flight envelope. They range from energy management to advanced control applications. Coincidentally, misunderstanding or incorrect use of the skills outlined in this endorsement can often be a contributing factor to Runway - Loss of Control accidents which form the majority of our accidents.

The APA is an ideal 100 hour recalibration tool where a developing pilot can gain confidence, further expand the understanding of basic flight controls with an instructor and focus on Airmanship. Element One of the syllabus can be a perfect opportunity to address over-confidence and invulnerability factors, which can be a hallmark of pilots transitioning through early stages of flying experience.

So if you've got your passenger and cross country endorsements and wondering how you might further your flying development, why not spend some time with an RAAus school and explore the benefits of the Advanced Pilot Award (APA)? It is way more than just a tick and flick exercise for those who think they have arrived.



More on bolts

BY DARREN BARNFIELD **RA-AUS TECHNICAL MANAGER**

CERTAIN standards are to be followed when installing bolts in aircraft. Keep bolt and nuts free from grease and oil when installing and torqueing;
Always use a calibrated torque wrench and correct torque values for the bolt and part;
Torque with smooth even pulls;
To determine the bolt length, a minimum of one thread must be visible outside the nut and no more than one thread can be inside the bolt hole;
Typically you would use a bolt and a nut with a washer under the nut as bearing;
When the bolt is too long you may use no more than three washers, but this increases weight;
Nyloc self-lock nuts should be used with undrilled bolts; when using a drilled bolt, make sure no burrs exist;
A good rule of thumb is to install bolts pointing aft and to the centre of an aircraft.
Remember with all these applications, always follow the manufacturer's Maintenance Schedule where applicable.

Michael Coates writes

"I was looking at your story about bolts in *Sport Pilot* (August 2016) and I thought I would send you in this little PDF which I made up some time ago from several sources and it is now implemented into Pipistrel manuals. It only applies to metric bolts because that's what a lot of LSA aircraft are built with.

STANDARD AVIATION TORQUE VALUES - METRIC SYSTEM

In the absence of specific torque values, the following chart can be used as a guide to the maximum safe torque for a particular size/grade of fastener. There is no torque difference for fine or coarse threads.
Torque values are based on clean, dry threads. Reduce value by 10% if threads are oiled before assembly

Relative Strength Marking		8.8 or 9.8		10.9		12.9	
Bolt Markings							
Diameter	Wrench Size	Maximum Torque		Maximum Torque		Maximum Torque	
		Ft lb	Nm	Ft lb	Nm	Ft lb	Nm
M3	5.5mm	1	1.3	1.5	2	1.5	2
M4	7mm	2	3	3	4.5	4	5
M5	8mm	4.5	6	6.5	9	7.5	10
M6	10mm	7.5	10	11	15	13	18
M8	13mm	18	25	26	35	33	45
M10	16mm	37	50	55	75	63	85
M12	18mm	63	85	97	130	111	150
M14	21mm	103	140	151	205	177	240
M16	24mm	159	215	232	315	273	390
M18	27mm	225	305	321	435	376	510
M20	30mm	321	425	457	620	535	725
M22	33mm	435	590	620	840	726	985
M24	36mm	553	750	789	1070	926	1255
M27	41mm	811	1100	1154	1565	1353	1835
M30	46mm	1103	1495	1571	2130	1837	2490

Riveting stuff

DESIGNING YOUR OWN AIRCRAFT BY DAVE DANIEL

Rivets, in fact metal construction in general, gets a bum deal. Wooden aircraft always trigger bouts of misty-eyed nostalgia, conjuring up images of master craftsmen labouring with hand tools and the evocative smells of sawdust and doped fabric. Composite aircraft, on the other hand, with their sexy compound curves, high speeds and cutting-edge technology have the glamour end of the market pretty much sewn up. So where does that leave the metal aeroplane? Ask most people to name a riveted metal aircraft and they are likely to come up with a Cessna or an airliner; the aeroplane equivalents of a Toyota Corolla and a bus! It's also hard to escape the lingering perception that riveted construction reached its zenith during WW2 and has been becoming increasingly irrelevant ever since.

It's fair to say riveted construction, much like the aforementioned Toyota, is a victim of its own success. After all, it's difficult to be exciting when you are so ubiquitous. But the very fact riveted metal aircraft are so common speaks volumes. They may not be sexy, but they clearly have something going for them.

I'm going to address some of the features of riveted joints, but before I plough into the details I will point something out. I'm not going to tell you how to buck a rivet or even how to design a riveted joint. You can find that information easily enough elsewhere. What I really want to seek out is what makes riveted construction special and why riveted construction deserves a little more respect.

HAMMERING THE POINT HOME

One thing which is not commonly realised is that for light aircraft, riveted semi-monocoque construction is about as weight-efficient as you can get. Now, before I get shouted at and accused of talking nonsense, there are some caveats. First, I'm talking about GA sized aircraft. If you are willing to limit yourself to high drag and low speed 'minimum aircraft' like a Drifter, or even tube and fabric types, you can certainly go lighter, albeit at a cost in performance. Secondly, I am assuming industry standard factors of safety - composites theoretically have better specific strength and stiffness, but once you add in the additional factors of safety required to cover undetectable defects, damage, moisture absorption and temperature effects, unless the structure is almost entirely carbon fibre (and thus eye-wateringly expensive) riveted aluminium will come out ahead on weight.

WHERE HAVE THE RIVETS GONE?

There was a time when rivets were everywhere. The Sydney Harbour Bridge, for example, contains 6,000,000 of them. And yet these days they have pretty much vanished across all areas of engineering, with the obvious exception of aircraft. So where did they go? The simple answer is welding has completely superseded rivets for steel structures and the vast majority of aluminium ones. The only reason riveted joints still turn up in aircraft is that aircraft are typically made from high strength aluminium alloys, which require heat treatment to obtain their superior properties, a process which

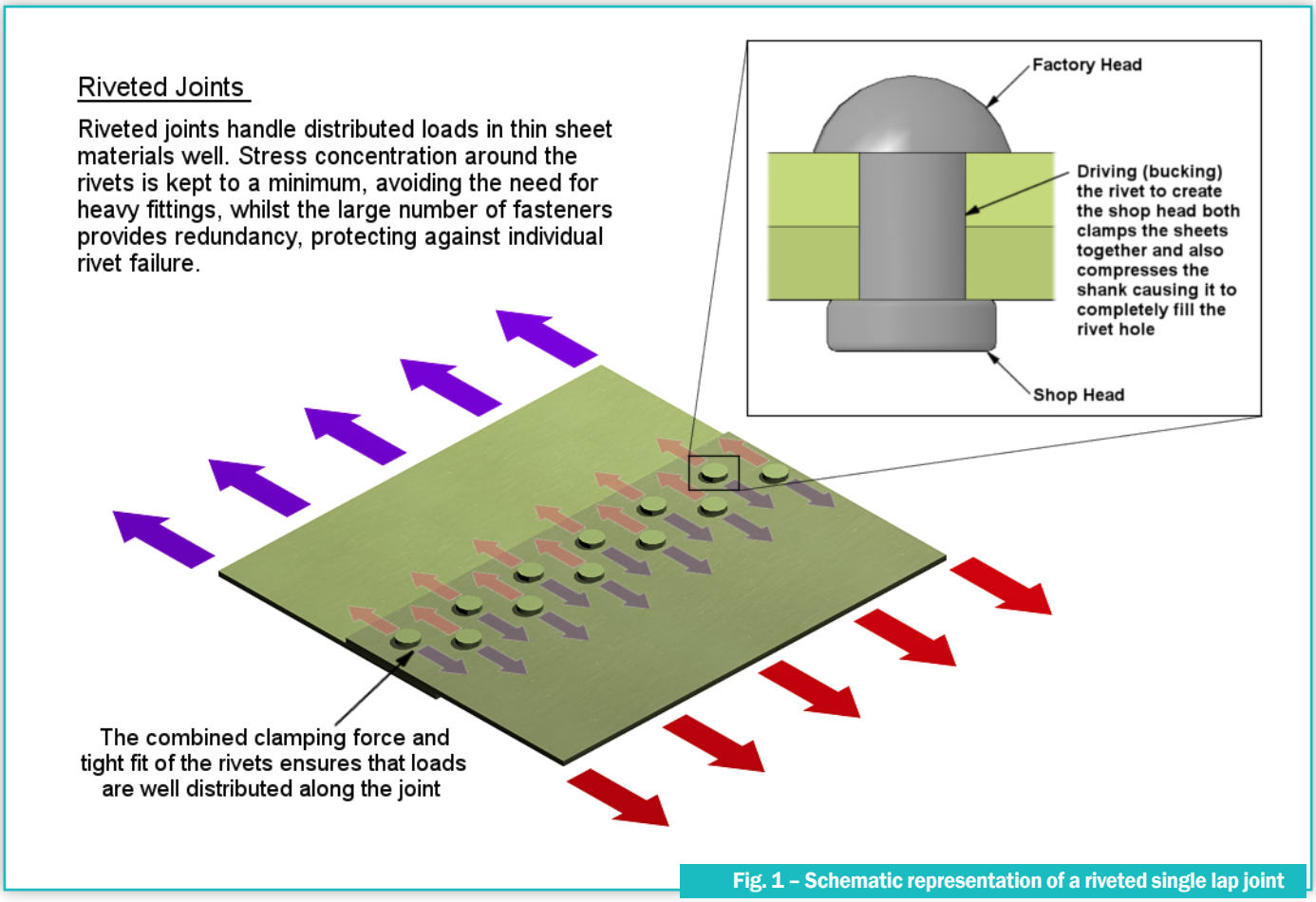


Fig. 1 – Schematic representation of a riveted single lap joint

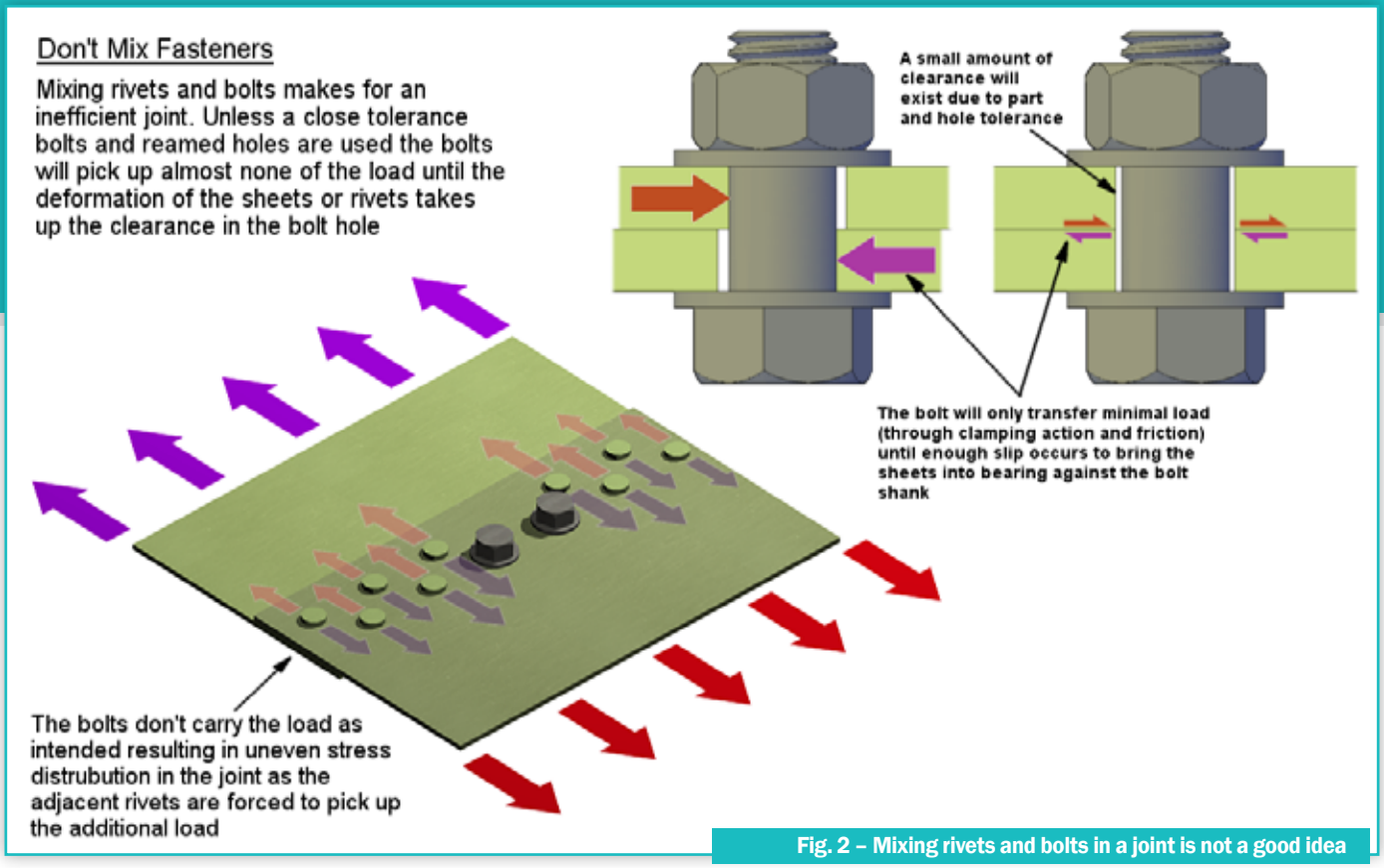


Fig. 2 – Mixing rivets and bolts in a joint is not a good idea

is reversed by the heat involved in welding. This is not too much of a problem for smaller components because they can be welded first and heat treated afterwards, but the same cannot be said for something as bulky as a whole airframe, which won't typically fit in a furnace!

The other main process riveting has to compete with is adhesive bonding. Adhesives have advanced massively in the past 70 years and bonding can now be successfully and reliably achieved even on notoriously difficult substrates like aluminium.

However, for the time being at least, rivets have the edge in terms of reliability, cost and ease of inspection. I have yet to see a bonded metal-to-metal structural joint in a homebuilt aircraft, and if I did I'd probably refuse to fly in it. Not so long ago, the FAA had a requirement that bonded lap joints had to contain sufficient rivets "to carry ultimate design loads without benefit of the adhesive", which must make you wonder why you'd bother using adhesive in the first place.

PROS AND CONS

When it comes to joining thin sheets of aluminium, rivets have a lot going for them. On the manufacturing side they are lightweight, cheap to produce, simple to install and easily inspected afterwards. From a mechanical point of view, large numbers of small fasteners serve to distribute loading over a large area; an essential property when joining thin sheet materials. Rivets also provide a clamping force in the joint area which allows some of the load to be transferred between the riveted sheets by friction, (a property usually conservatively ignored in structural calculations). Combined with the fact that rivet shanks expand when they are bucked to completely fill their installation hole, you can pretty much guarantee a riveted joint will allow almost no relative movement between sheets, this ensures the rivets will share the load in a predictable way (Fig.1). By way of comparison, loose fitting fasteners will allow a joint to move (once the friction due to the clamping force holding the joint together has been exceeded) transferring the load onto the shanks of the fasteners, but not necessarily sharing the load between fasteners in an entirely predictable way. This also highlights why rivets should not be combined with regular bolts in the same joint, or alternatively, why only interference fit fasteners should be used in conjunction with rivets; otherwise the rivets will carry all the load until they have deformed enough to take up the clearance in the bolt holes, at which point the bolts will belatedly start to pick up some of the load (Fig.2).

Just like any fastening system, rivets do have to be used with some thought for their limitations. Their very nature means they are good at carrying shear loads but have poor tensile capacity.

At first glance it's relatively simple to design joints to carry loads in shear but the would-be designer needs to be aware of situations where tensile loads can turn up unexpectedly. The classic example is our old friend the unsupported single lap joint which rotates under load - but there are others: Sheet metal aircraft are often designed such that the skin structure will not visibly buckle below the limit load – this is especially true in commercial aircraft where buckling tends to alarm the passengers! However between limit and ultimate loading, allowing buckling can save considerable weight, while still meeting strength requirements. The designer just needs to be aware a buckled sheet such as a spar shear web can easily place tensile loads on rivets which would normally only see shear.

DOUBLING UP

A single row of rivets is limited in how much load it can transfer, so for heavier loads multiple rows of rivets are often used to increase the number of fasteners sharing the load while avoiding going below the minimum fastener spacing. In many ways multiple rivet rows start to behave like bonded joints. When more than two rows of rivets are used, the first and last rows will bear proportionately more of the load than those in the centre due to uneven strain across the joint. This is only avoidable by stepping down the material thickness across the joint to match the strain, leading to a considerable increase in complexity and cost.

SEPARATION ANXIETY

Riveted joints provide considerable redundancy and have some inherent safety features. A single rivet failure will never cause a catastrophic failure. In a properly designed structure rivet size and spacing are such that adjacent rivets have the capacity to pick up the extra load should a rivet unexpectedly fail at less than the design load. If this design requirement is not met, a progressive failure could occur where the extra load from a failed rivet is passed along a join line, triggering the rivets to fail sequentially effectively 'unzipping' the structure. A similar requirement applies to cracks occurring in the sheet metal between rivets. Fatigue cracks typically initiate from existing holes, so a single crack between rivet holes is a fairly common failure mode, one which obviously must not jeopardise the whole structure.

On the subject of cracks, there is seldom much discussion about fatigue in ultralights, especially compared to the huge issue of ageing GA aircraft. The relative youth of ultralight aviation means the RAAus fleet is, for the most part, quite young but as we and our aircraft mature 'graceful degradation' is going to become a far greater issue, something I'm going to explore next month.

Stories taken from the accident database

THESE STORIES ARE REAL – JUST NAMES AND PLACES HAVE BEEN CHANGED TO PROTECT THE INNOCENT

The day was a beauty and the pilot decided to get off the ground. Not to go anywhere in particular, just round and round over the field in his newly purchased machine.

But after take-off, and without warning, the engine stopped suddenly between 300 and 500ft. The pilot conducted a left hand turn for a landing on the perpendicular grass runway. But the aircraft did not make the runway. It came to rest between two trees in dense scrub surrounding the airfield. The aircraft was severely damaged and the pilot sustained serious injuries. Emergency services were called and treated the pilot at the scene. Because of the severity of the injuries to the pilot, two RAAus Accident Consultants were dispatched to the scene.

HERE'S WHAT THEY LEARNED

The aircraft had 20 hours on the dial and had been recently purchased from the owner-builder without the pilot having inspected the aircraft himself.

When the noise up front stopped, the pilot had used a two part checklist for EFATO and had established a best glide speed, slightly to left of the runway. The pilot was confident the aircraft remained in control and at minimum flight speed right up to impact. He did not attempt to turn back, but he did attempt a restart - unsuccessfully.

Due to bad terrain upwind of the runway centerline and the limited climb performance of his aircraft, the pilot's plan was to veer left to give himself more options.

He was asked if he had ever considered taking off from the alternate grass runway, and reported he had not because of the limited power available from his aircraft's engine.

In their report, the Accident Consultants judged the pilot had conducted all emergency procedures appropriately. They found the limited forced landing options within a satisfactory splay of the runway heading gave the pilot no option but to fly the aircraft to the impact site.

Because the aircraft was destroyed, the cause of the engine failure could not be accurately determined, but the owner suspected that, because the engine stopped instantly, the cause may have been electrical.

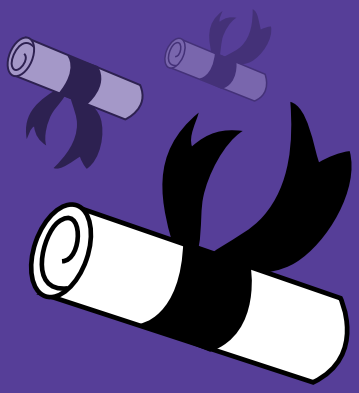
THE CONSULTANTS ALSO MADE THE FOLLOWING GENERAL RECOMMENDATIONS

Mandatory L1 training for all owner-maintainers with the implementation of Version 4 of the Technical Manual.

Safety month 2016 should feature the importance of first aid training for first responders at airfields.

For all members, the message was clear. Because many of our aircraft have marginal climb performance due to configurations or environmental conditions, suitable emergency landing options are often scarce. These elements should be factored into every pilots' pre-flight assessment and considerations before every flight.

If emergency options are limited but the consequences high, pilots should make appropriate command decisions on if, when and where to fly.



A riff on RIFs

BY PROFESSOR AVIUS **AVIATION GURU**

AT RISK	Normalisation of Deviance	Disregard for Rules	Pushes Weather Minimums	Not Current	No Fuel Management - Poor Planning
SAFE	Current Airspace Maps (control areas & PRD's)	Recent Currency	Maintains Competencies (eg: X-wind technique)	Constant and thorough pre-flight inspection	IMSAFE
TRAINING	Operations Manuals	IMSAFE	Pilot Operating Handbook	Compliant and Current Instructors	Safety Management Systems

By the time this hits the press, 2016 will be done and dusted. Hopefully you have all enjoyed the festive season and welcomed the New Year without over doing the celebrations. In consideration of celebrations (and the carry over), how many pilots apply the IMSAFE principles to themselves. And how many of us instructors?

While a health check is important for the pilot, there are other checks that are also important – that of the aircraft (airframe/engine); the fuel; and maybe we should even include the weather (because it can have a significant impact on our health if we don't give it the necessary respect).

The QBE sponsored Matt Hall / RAAus short videos are great and timely reminders of considerations to being a conscientious pilot. If a risk is not identified, it cannot be managed. And when a risk is identified, pilot experience alone may not be enough to guarantee an acceptable outcome. So while you are festive season mode, take some time to review.

www.youtube.com/watch?v=tnRR4d5KaA&feature=youtu.be
www.youtube.com/watch?v=0oeAO9isKNk&feature=youtu.be
www.youtube.com/watch?v=ka002z17F_Q&feature=youtu.be
www.youtube.com/watch?v=Jf7Qte2Cejo&feature=youtu.be

Unfortunately, one of Matt's comments "the rules are written in blood" is all too true. Please promote these videos within your operation.

I recall a driver training program at a mine site some years back. It was really a program about introducing drivers into the new environment of sharing mine roads with heavy equipment. The instructor asked - how many here consider themselves better than average drivers? The response was somewhat staggering – more than 90% raised their hands. On the first rather simple exercise (reversing through 13 witches' hats using only side mirrors) only two managed to do it on their first attempt. Had the majority over-estimated their abilities – it would seem so.

Do pilots exhibit similar confidence? Probably. Flying is not inherently dangerous – just terribly unforgiving.

Flying operations can be considered as being in three performance bands: Training / Safe / At risk.

TRAINING:

The risks can generally be mitigated through referencing:

- Operations manuals
- IMSAFE
- Pilot Operating Handbook
- Compliant and current instructors
- Safety management systems

SAFE:

Individual operators can mitigate risks by being compliant to all the rules.

- Being flight current
- Current airspace maps (control areas and PRDs)
- Maintaining competencies (eg: crosswind landings)
- Constant and thorough pre-flight inspections
- IMSAFE

AT RISK:

Without maintaining discipline it's easy to slide into this performance band.

- Normalisation of deviance
- Disregard for rules
- Pushing weather minimums
- Not current
- No fuel management – poor planning
- Exceed MTOW

The aim is for all pilots to only operate within the Safe band and for training to ensure you adequately manage each and every stage.

Given that 2017 is a new year and an appropriate time for new resolutions; it's never too late for change; so consider the need for change.

The challenge to instructors for 2017 is to initiate a review of peers by the team ie: Senior instructor conducts a review flight of the CFI; a regular flyer conducts a review of the instructor etc. It needs to be conducted with the appropriate spirit – a little bit of fun, but all need to embrace the concept in the manner intended. The overall experience needs to be positive for all involved (no feeling of intimidation or recourse for the junior review pilot) and, be absolutely clear who is flying the aircraft at all times.

This also leads to the future potential of regional instructor forums. Flying instructor panels are not new in large flying schools but perhaps somewhat new in RAAus because most schools don't have multiple instructors, or at least not enough to establish a genuine instructor panel. However, forums (unofficial get-togethers, sharing and solving problems) do have the potential to pave the way to share problems and problem solve.

As a senior instructor it's likely you have had a student at some stage who caused you to explore every limit of your patience, while trying to figure a way for that student to gain understanding and proficiency in a particular exercise - sometimes simple, sometimes not so simple. And, while there may not be any silver bullet, there are always alternatives which will work.

As CFIs and instructors we won't each live long enough to see and / or make all of the mistakes ourselves, hence the potential benefit of instructor forums. Hopefully the location of your school and any immediate competition for flying training in the area can be put aside. The forums at Dubbo and Bundaberg have been well attended but can incur some people significant costs to attend. An informal get-together in your region would be cost minimal (maybe combine it with a NAVEX and take your student) and can be very effective. Draw an 80 or 100nm radius on a map centred on your school and see how many other schools are within that range. Be proactive and initiate a forum in your area, I am confident RAAus OPS will be willing to help you get it organised.

Future plans

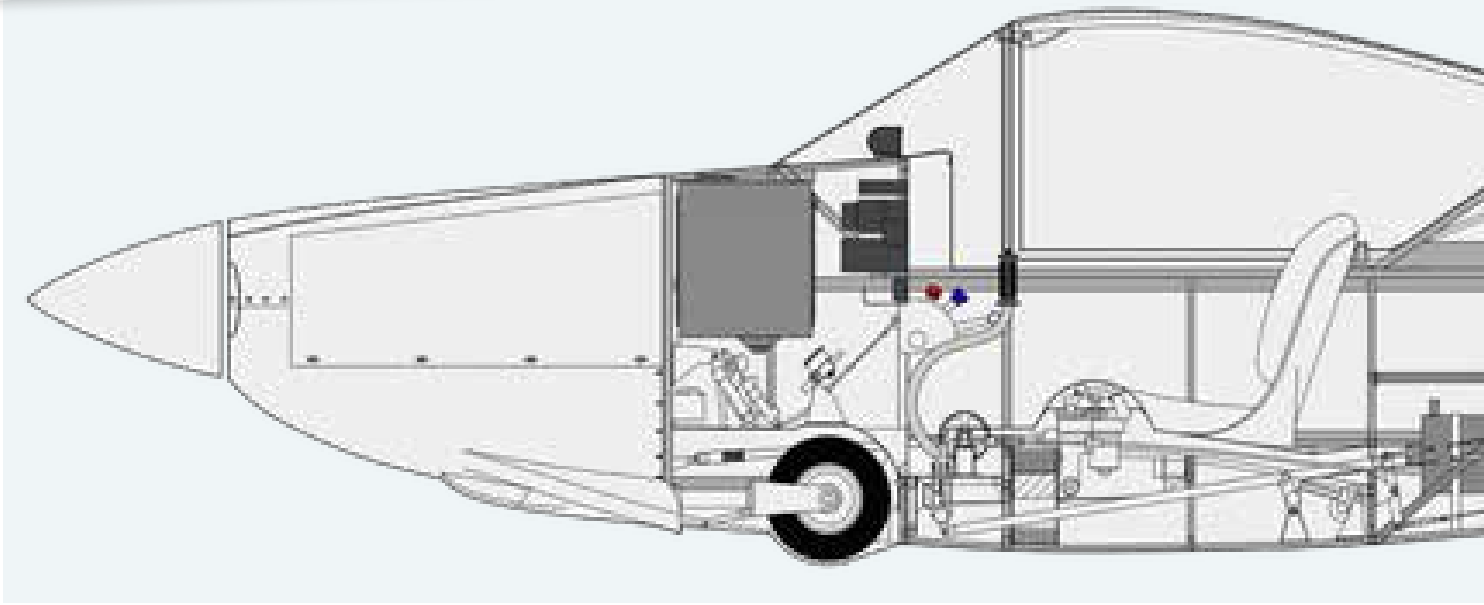
THE BEST BITS ABOUT BUILDING YOUR OWN BY DAVE EDMUNDS

EVERY year Kitplanes magazine publishes its directory of kit and plans-built planes.

There are 74 two-seat sport-pilot compliant aircraft of all types on their database this year.

Plans-built planes seem to be losing popularity. There are only a couple listed. The Aircraft Spruce website lists partial kits of hardware for a number of different aircraft. From what little I can glean, and from research in the past, there is little to be saved by building from scratch than building from a kit, with this caveat.

If you really, really know what you are doing you can probably make considerable savings.



You would have to be a craftsman with a superb workshop, and it would not be your first plane. This is why plans-built aircraft have pretty much disappeared. The kit manufacturers using modern machinery and good buying power can put a kit together for no more than you would pay for one-off purchases of the relevant parts. The kit would be matched hole-drilled so you will not have to make extra jigs to ensure it is straight and true.

In researching this article, I found the Falco Association had a set of Falco plans available free online. This is a truly wonderful high-performance wooden aircraft, which RAAus is never going to register, although you could build one under SAAA supervision. Search "falco openclip".

Have a look at the plans. I will wager most of us are not going to get past page two without realising this is an aircraft we are never going to build. They are very complex and sophisticated, but well worth a look.

One of the more exquisite aircraft I have ever seen was a Falco grand prize winner at Oshkosh last year. It took a very experienced craftsman 30 years to build. He never flew in it, but did see it test flown shortly before he died.

A couple of years ago, writing about this topic, I came across the AMF-Super 14D Maranda which looked to be a kit worth considering. The only problem was that the recommended engine, the certified Lycoming O-320, cost $65,000. It looks to be a lot more affordable if you consider one of the O-320 clone experimental engines. The Superior XP-320 starts at $US24,778 and the fuel injected constant speed engine is $26,000. These are kit engines, but you can go to the US and assemble yours under factory supervision.

Alternatively, you can buy a complete Titan XP-320 for $US24,320. These prices make the lower-powered Rotax 914 look pretty pricey.

What looks like another company also called Titan lists a 400HP GM 6.2l V8 with reduction gearbox for $US6,250. Just saying...

So, in the past few years there does not seem to be much in the way of improved airframes, but the engine market has changed markedly, both in terms of traditional aircraft engines and automobile conversions. I should not leave out of this the redesigned Jabiru engines which will be fitted standard on new Jabs, and available separately, at much more interesting prices from this year.

Also, the range of affordable avionics systems is increasing all the time.

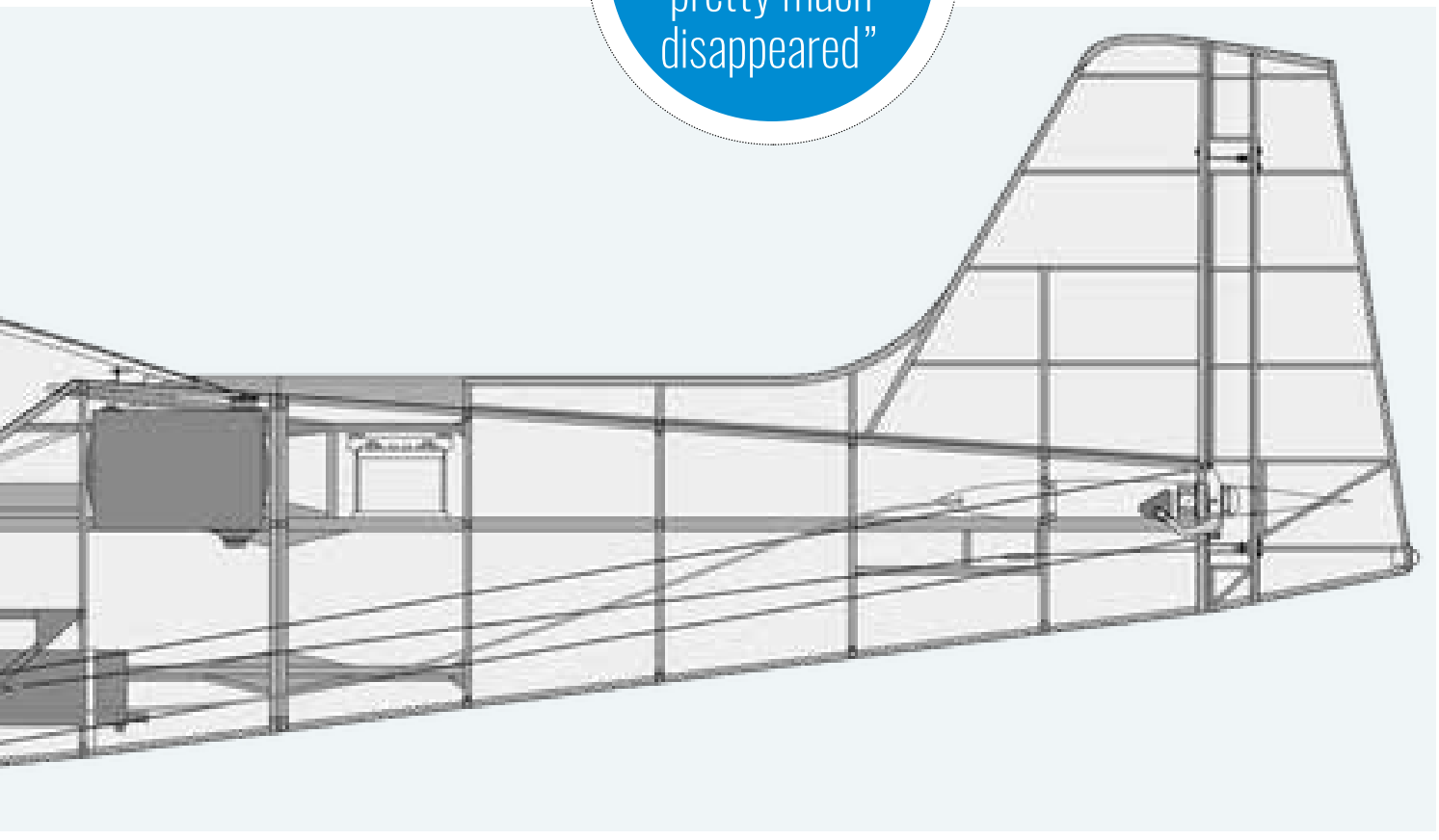
The use of computer design and manufacture for kit aircraft has been around for some time, but intuitively I think there is some way to go to optimise this technology both for improved performance and pricing.

Moving on to something really new. The EAA magazine, *Sport Aviation*, has an article on collaboration between NASA and a number of aerospace companies in the US to develop electric aircraft. This is interesting for two reasons.

> "Plans-built aircraft have pretty much disappeared"

We used Australian electric motor and controller technology, which was the best in the world. This technology is the precursor to the technology which will be used on an electric aircraft. Australia produces airframes which would work superbly well with an electric power plant but, as usual, we have let our technology lead wither and die.

The NASA Sceptor X57 uses a Tecnam P2006T airframe with a new wing. The aircraft was originally designed to use two Rotax engines. Electric engines are very light, so it is possible to fit a number of them along the wing, thereby increasing airflow over the wing and allowing a much smaller wing while retaining excellent slow speed performance.



NASA's X plane project has $4 billion allocated over 10 years to develop a series of demonstrators. This in a country which claims to be red in tooth and claw capitalist. Light electric aircraft are a natural direction for our country, entirely fitting our needs, existing expertise and industrial capacity. Our government would prefer to destroy such industry rather than, as other governments do, pick a winner.

Remember that Airbus is flat out developing light electric aircraft, and they don't pretend to be separate from government.

I spent a lot of my career building and racing a solar car as a student project, so remain intrigued with this technology. At the time we had the best school-based project in the world, proven by race performances both here and in Japan.

The first flight is not planned until 2018, but quite a bit of testing has been done. This suggests the aircraft will use around 20% of the energy of the original Rotax-engined version. The Tecnam is just a test mule and hardly optimised for energy consumption.

Not many issues ago I wrote about advances Chinese researchers have made in battery storage. We are rapidly approaching the point where an electric aircraft can provide similar performance to a standard light aircraft. This is occurring much faster than we might have anticipated just a few years ago, and no doubt I will be revisiting this issue within a few months as yet another advance is announced.

So, you want to learn to fly?

BY KEN NICHOLAS

SPORT PILOT WELCOMES NOT ONE, BUT TWO, NEW STUDENT PILOT CORRESPONDENTS THIS YEAR. HAVING TWO PEOPLE WRITE ABOUT THEIR ADVENTURES, LIGHTEN THE LOAD ON EACH TO PROVIDE STORIES EACH MONTH AND GIVES US SOME CONTRAST IN WHAT THEY ARE LEARNING. KEN AND MARTIN WILL ALTERNATE EACH MONTH. BUT HERE ARE THEIR FIRST STORIES TO INTRODUCE THEM TO YOU.

IT'S the opening line we often hear when we take our first steps towards getting our pilot's licence, "So you want to learn to fly?" Another thing many of us take into consideration is when. 'It would seem that you either start young or, as in my situation, later in life.

I'm 62 and a bit years young. A change in my working hours, from rotating shifts to full-time afternoon shift, saw my long time hobby of astronomy go out the window. I found myself at work when I should have been star gazing.

While that change was a lifestyle change, it was also a godsend when it came to my next choice – fulfilling my lifelong wish to fly.

As I am no different to most of you. I started dreaming as a child. My father was an ex-RAAF WWII veteran and I got into model aircraft, radio controlled aircraft, then progressed to flying with friends and having a feel of the controls in both powered flight and gliding.

I always told myself it was too expensive to fly but if I added up what I've spent on all the other hobbies over the years, I could have easily done my powered, gliding and possibly even commercial licences. But I enjoyed all those excursions and don't regret doing them. Flying has been on my bucket list for a long time.

The spark which set it off happened when my wife and I were talking about regrets we had in life. I commented, "not getting my commercial pilot's licence when I was 30 years younger". At the time I'd been retrenched after 10 years at Avalon with the Government Aircraft Factory. I'd spent time as a LAME on the Nomad twin turbo prop and about seven years on the mighty Mirage III, prior to twelve months on the first FA18A's.

My lovely wife had talked me out of it back then, but now couldn't remember having done so and was now adamant she would not have done that. I didn't need any more prompting.

Ken (R) with instructor, David Mackay, Golden Planes Aviation, during his TIF

My instructor, David, and I hit it off right from the word go, a fortunate turn of events. I've read that others have had different experiences with their instructors, some not so good, but I think they are exceptions. You need to get along because you're going to spend a lot of time close together, so I was off to a flying start.

Day one involved a Trial Instructional Flight.

I'd been interviewed by the CFI but he was about to head off on extended leave, which is how I wound up with David. This was basically a joy flight where I got to fly the plane but with no real pressure. It was a basic lesson on how the aeroplane worked, taxied and took-off. We did a few turns and had a look around just see how it felt.

The TIF is an exercise to find out if this is really what you want to do and if your fears or anxieties will stop you. Is it just a rush of blood you'll regret later? If you're lucky enough to be close to home, like I am, you can have a look at your house from the air, take a camera and get a couple of happy snaps. It's meant to be an enjoyable experience, because when it all boils down to it, the flying school wants the business and you want to learn to fly. So it's great if everyone is happy with the first experience.

After we returned, we sat and talked about the journey ahead – the costs, time and the commitment I would need. I asked to delay my decision. I wanted to think about it for a few days just to make sure it wasn't just a rush of blood. At 62 my answer to myself was "yes, I really wanted to do this". I think what helped with the decision was what David told me after the TIF, "That was very surprising", he said to me. "You are the most relaxed first time flyer I have ever had with me".

Feeling quite chuffed with myself, I reminded him that really it wasn't my first time. I'd flown in a light plane 20 years before. He said it didn't matter. It was an experience I think both he and I enjoyed and the start of very good student/instructor relationship. It something you will need for your training to be a successful and pleasant journey.

What a blast

BY MARTIN CASTILLA

IN 1983, I shared a house in Canberra with an RAAF electronics engineer who also was a recreational pilot. He took me up once in a Cessna C172 (or maybe a C152 – I remember it was small and our shoulders rubbed together). I reckon that's when the flying bug got me, because over the next 35 years I've thought about, looked at and longed to fly small aircraft.

I'd been interested in motor racing since the mid-1970s. My next door neighbour raced enormous winged sprint cars in speedway and I got to tinker with, and occasionally drive, his many motorised toys.

I bought a motorcycle at 17 as soon as I had my licence and have ridden dirt and road bikes and loved motorcycling since.

When I moved to Adelaide in 1984 I raced go-karts then Formula Ford open wheel cars. I developed a rabid interest in all things Formula 1, which involve cutting edge aerodynamics and engineering. I devoured books and magazines (no internet in those days), as I followed the development of braking systems, carbon fibre, electronics, transmissions and winged appendages on cars.

> "I figured I'd be shown what to and then be off"

And in the back of my mind - always - there was the flying.

My library includes biographies of astronauts and detailed stories of NASA missions. I followed Canadian astronaut Chris Hatfield's Twitter posts from space when he lived for a record time in the International Space Station, orbiting planet earth. I even went and saw him speak live on his world tour.

When flying interstate or overseas I gazed out at the wing flaps in action, listening for and feeling the effects when they were extended or raised. And every time a light aircraft flew overhead my neck got a workout.

On motorcycle tours with my buddies to Tasmania, the Great Ocean Road and Flinders Ranges, I'd request break stops alongside country airfields and stand gazing at the small aircraft parked there or flying in and out.

So after one such tour in March 2016, I went for a Trial Introductory Flight – and got hooked. I sold my bike. I spent the money on flying lessons.

First I read internet articles and opinions about flight lessons, then I visited three schools around Adelaide for a looky-see – and Adelaide Biplanes impressed me most. It had a modern range of nose and tail wheel aircraft. Aldinga Airfield offered me sealed and grass runways for virtually every wind direction and lesson fees were affordable. The people, too, seemed warm yet experienced and professional.

Given my experience with motorsport and on motorcycles, I figured during my flying lessons I'd be shown what to do with the yoke or stick, when to use flaps, and then I'd be off cross-countrying on my own in no time.

Yeah, right.

Some 21 hours in the log book and over 140 landings with an instructor on board later, after another smooth landing, one day my CFI uttered the magic words, "How'd you like to do one more circuit on your own?"

So...I flew my first solo, and a 35 year dream came true. What a blast!

See you at the airfield.

Martin Castilla

Rotax training

KEV AND CAROLE MCNALLY

A 4-stroke WM/Rotax Maintenance course was held over the weekend of November 12 and 13 at Hastings District Flying Club at Port Macquarie, NSW.

This was followed by a WM/Rotax Maintenance course which was held over the weekend of November 19 and 20 at the Airborne Flight Training facility at Lake Macquarie Airport, NSW. Congratulations to all.

Anyone interested in attending a course should contact Kev MacNally email: kmacnally@bigpond.com

Port Macquarie Left to right, Ivan Daniel, Matt Connors, Eric Elsey, Mary Butterfield, Col Hayler, Mark McLachlan, Alex Pursehouse, Dennis Stacey, Greg Connors, Glenn Cleary, Paul Hayler, Steven Smith with Chayanne Harihi in the front.

Lake Macquarie Left to right, Danny Hudswell, Timothy Cray, Dale Jackaman , Craig Sydenham, Peter Hagan and Robert Zwart

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John Crosby handing over the trophy to David and Jen Ford from Esperance

WHERE IS CAGIT?

CAGIT LODGED IN THE WEST

DAVID and Jen Ford from Esperance were on the east coast in October for Oz-Kosh in their Brumby 610. Taking their opportunity, they went a little bit further, lifted the Come and Get It Trophy from Glencoe, where it had paused only briefly, took it back to Narromine and then home where it will no doubt bounce around the west coast for a while.

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

ADVERTISERS INDEX

No more scary jumbos

DUTCH airline, KLM, has put an end to one of the must do adventures for any aviation lover.

In October, according to reports, KLM stopped flying Boeing 747s into the beachside Princess Juliana International Airport on the Caribbean island of St Maarten.

It replaced the jumbos with the more economical Airbus A330, still a reasonable size to scare you if you are lying on the sand.

People have been going to the beach in front of runway 12 for many years to have a 747 roar only metres over their heads. 747s still occasionally land at St. Maarten but no longer regularly enough for you to plan a holiday and guarantee you will have supersonic sand in your face.

SEND IN YOUR STORIES

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

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914 F/UL | 115hp

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582 MOD. 99 | 65hp

912 A/F/UL | 80hp

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