BRISBANE VALLEY FLYER

SEPTEMBER- 2020

BRISBANE VALLEY SPORT AVIATION CLUB INC

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A DH82 over Watts Bridge c2010

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From the Club

Hello everyone,

We had working bee to replace clear panels on hanger last Saturday, Those present were Bill Oats, Ian, David, and yours truly.

Fly-inn attendees at the last meeting

Hello, whose there?

Replacing the clear panels on the hangar

Peter Ratcliffe
BVSAC President

Wind Shear and Wind Gradients –
the Evils of a Changing Wind Component

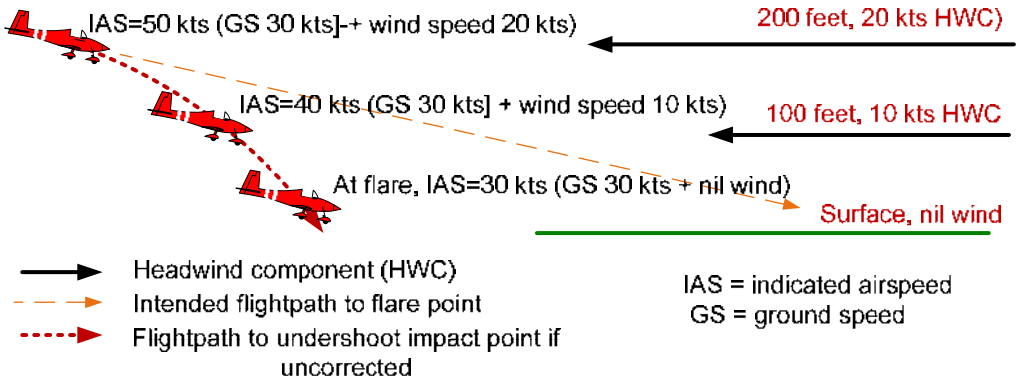
By Rob Knight

According to Janes Aerospace Dictionary, windshear and wind gradient are synonymous – a change in wind velocity with a change in position, usually in height above the runway level. Impossible to see, as air itself has no visible form, the phenomenon can have a profoundly serious effect on the approach (and climb) profiles of aeroplanes operating in their vicinity. Effectively, changes in the wind velocity (either directional, speed, *or both combined*) will quickly change airspeed, approach (or climb) path, power required and influence vital control inputs. Under severe conditions, a wind gradient can create situations that can exceed the power and controllability limits available and put an aeroplane's safety in jeopardy.

For simplicity and for starters let's use just the single term – wind gradient and consider a circumstance relating to a change in headwind *component* during a descent to land. In this case the headwind component is that part of the total wind velocity that is acting on the aeroplane's nose against our direction of motion.

Let's assume that we are approaching to land on runway 36. At 200 feet above the runway the effective wind is 360/20 so we will be experiencing a headwind of 20 knots. The wind at ground level is seldom the same as that experienced at 320 feet because of surface friction and a change in wind speed is also likely to change the wind direction because of a force called Coriolus. Right here we are considering the effects of the wind changes on the aeroplane rather than the cause of those changes.

For the sake of this argument, let's assume headwind component varies as we descend. As stated above, we have a W/V at 200 feet above the runway of 20 knots, and on the runway (on the ground) no wind at all. In other words a steady gradient from 200 feet down to the runway – a wind gradient. In the sketch =below, the aeroplane has a normal approach speed of 50 knots.



Sir Isaac Newton said it all when he gave us his law that objects continue at a uniform speed unless acted upon by an outside force. In the sketch above the aeroplane has a groundspeed of 30 knots and this is modified by the wind speed to give us the 50 knots we see on the ASI. In headwind conditions the IAS comprises the groundspeed PLUS the headwind (IAS = 30 + 20 = 50 knots).

That is good. We have the correct speed, and maintaining the correct approach angle to arrive at the selected flare point which sits just nicely in the right place on the windscreen.

However, at 100 feet above the runway, the wind drops from 20 knots to 10 knots. The aeroplane will continue in its state of uniform motion at 30 knots but now theres only 10 knots of heading. Adding this to the ground speed will only give us 40 knots on the ASI. The pilot has done nothing wrong – it's just the way the air/wind affects the airspeed. With an airspeed now of just 40 knots, below the normal approach speed, the aeroplane will start to sink and the flare point will rise up the windscreen in front of you.

A keen pilot, always anticipating a gradient on approach, and being prepared to correct for such an event, will immediately lower the nose to correct and maintain the required 50 knots airspeed AND will ADD sufficient power to maintain/regain the desired approach path. However, let's assume that, in this case, no corrective actions are undertaken and follow this scenario to its conclusion

With now just 40 knots on the ASI the aeroplane settles on a steep descent path towards the ground. Under Sir Isaac's direction, the aeroplane maintains just 30 knots of ground speed and the airspeed will continue to decay until the aircraft arrives at the point where the flare must begin. By now its airspeed will have fallen to 30 knots (with no headwind the ground speed and airspeed are one and the same). It is far short of the original flare point, perhaps even short of the runway, and insufficient airspeed remains for adequate controllability to flare and to make a safe landing.

What did the pilot do wrong? Well, the speed loss was not of his or her making. But the failure to notice the airspeed decay and not take immediate remedial action is. It is the pilot's duty to maintain a safe airspeed appropriate to the flight conditions at all times. It raises the two primary adages yelled by instructors for over 100 years, "Airspeed, airspeed, airspeed", and, " Thou shalt maintain thy airspeed lest the ground arise and smite thee".

So what should the pilot have done? Let's spell it out. As soon as the airspeed started to decay at 200 feet the pilot SHOULD have moved the stick forward just enough to lower the nose and increase the ground speed to 40 knots to restore the airspeed of 50 knots 40 + 10 = 50 knots airspeed. Simultaneously the pilot should have added sufficient power to maintain/regain the approach angle to flare at the selected point. Thus the corrective action is stick forward (just enough) and add power, just enough. Not one or the other, or a little bit of each – BUT BOTH!

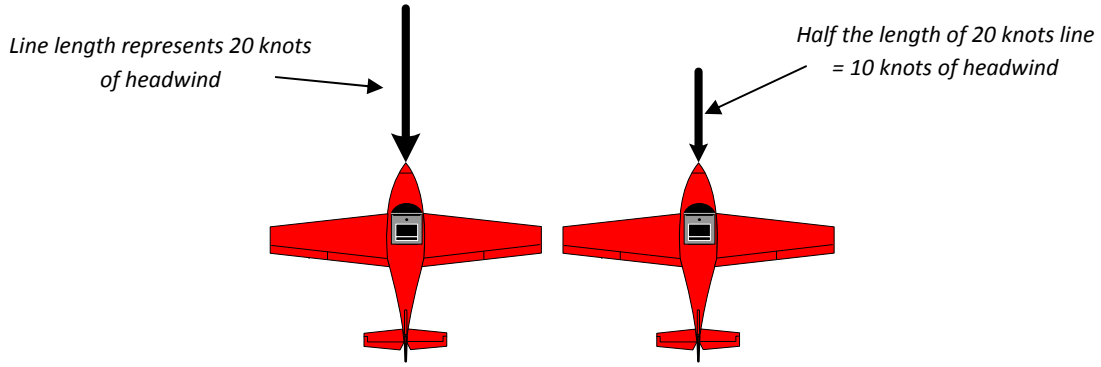
In the continuing descent towards ground level the wind speed continues to fall ultimately to zero so more and continuing corrective action will be necessary to keep the ground speed rising as the wind speed is falling to maintain the correct, required, and necessary airspeed as well as additional power being added progressively. This will get the aeroplane to the desired flare point with the correct airspeed. Note that by the time, the ground speed must have been raised by 20 knots to cover that 20 knots loss in wind speed and considerable power may have been required to get to the flare point.

In other words, in any wind conditions, the airspeed is directly controlled on approach by the aeroplane's ground speed. The pilot doesn't see the ground speed, only its effect on the airspeed,

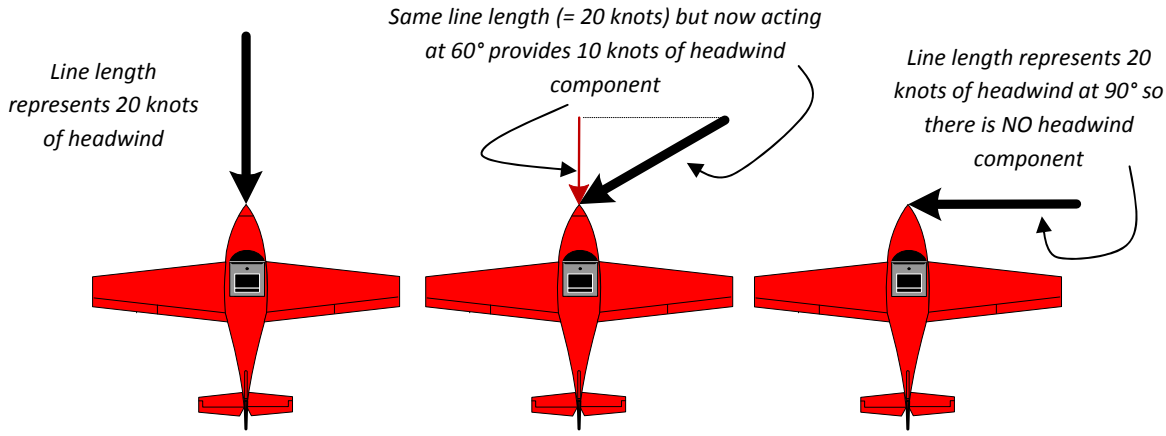
but being attentive to the ASI, and making immediate corrections to restore any airspeed loss or change in the desired approach angle, makes an approach safe from wind gradient effects.

Thus far we have only been considering a loss in actual wind strength, and a situation where the wind remains as a headwind throughout the approach. This is less likely the case in reality where wind speed and wind direction changes occur simultaneously. Thus a headwind component can vary immensely.

To illustrate this point, see the explanatory sketches below. These are drawn as vector diagrams and the length of the thick black line represents the wind speed The first set of two aeroplanes illustrates a halving of the headwind wind speed; a drop in headwind from 20 to 10 knots. In the second set of aeroplanes, the wind speed line is drawn the same length representing the same wind speed in all three cases, but the direction relative to the direction of flight is changed and thus is the headwind component (that part of the wind velocity that is acting against the direction of flight).



Half the headwind speed = half the headwind component.



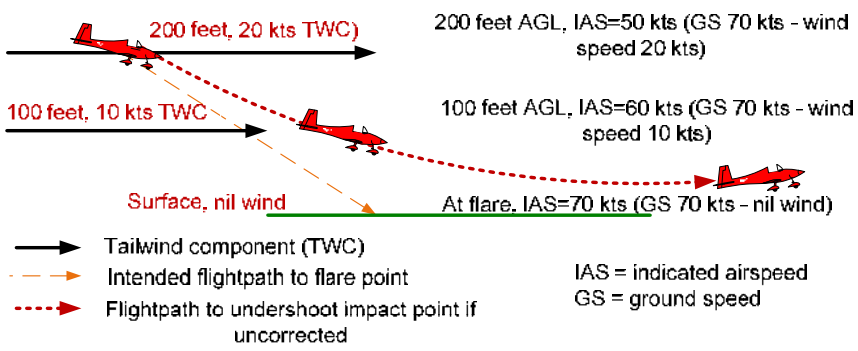
A 20 knot wind acting at varying angle to the aircraft changes the headwind component

In other words, if one was on approach at 50 knots into a 20 knot headwind, a sudden wind direction change of 90 degrees would see one suffering an instant 20 knot reduction in airspeed. In the same way, should the 20 knot wind as suddenly revert back to a headwind – the airspeed would rise again, just as quickly.

So far we have discussed headwinds, and seen the falling headwind component in a headwind gradient drag down the airspeed. But what happens if it's a tailwind?

Exactly the same - only in reverse. A tailwind gradient will causes a RISE in airspeed. I have more difficulty getting people to accept this than the headwind gradient situation but it's no joke – it really happens this way.

To see the situation for what it is, let's look again at a diagram, this time for an aeroplane doing 50 knots IAS, on approach for a runway, and suffering a 20 knot tailwind at 200 feet and a 10 knot tailwind at 100 feet. In keeping with the previous sketch relating to this, again, there is no wind on the runway.



In the sketch to the left, the IAS is equal to the ground speed MINUS the wind speed. So, at 200 feet the IAS is 70 - 20 = 50 knots. Remember, when the wind speed changes so will the airspeed. So, at 100 feet above the runway, the groundspeed will still be 70 knots, but 70 - 10 will provide an IAS of 60 knots – the aeroplane has gained 10 unwanted knots. Also, the selected flare point will be fast moving down the windscreen; perhaps disappearing below the aircraft as its approach profile rapidly becomes too shallow to make that point on the runway.

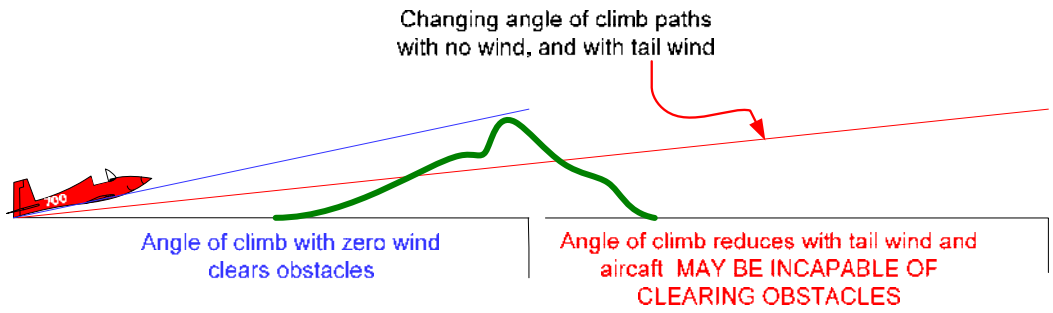
Continuing this approach will see the aircraft descend onto the runway, further down its length than the original flare point, with 70 knots written accusingly on the airspeed indicator. With no tailwind the airspeed will be the same as the ground speed.

A headwind condition allows a pilot to make corrections to the approach path using power but a tailwind has no such remedy. Once the throttle is closed, a change in approach profile cannot safely be modified from its state of being too high. Some have argued that pulling the nose up to reduce speed to accommodate the increase at the flare would work but there is no safety in this. What mortal pilot will actually be able to ensure the airspeed will rise to the required value – they place their destiny into the hands of fate, they play Russian roulette with two chambers loaded.

We have covered the required response to a headwind gradient, but what about a tailwind gradient? There is really no response once the throttle is closed and all power is removed. The pilot must decide to overshoot as soon as possible, before the second effect of a tailwind gradient can become overpowering in the climb out.

This second effect relates to the effect the tailwind gradient will have on the aeroplane's ability to climb. Not in terms of rate of climb, that is simply a matter of surplus horsepower, but the angle of climb that specific aeroplane can achieve at its maximum thrust, at that load , and in the prevailing pressure and temperature conditions and with that tailwind gradient even if Vx, the airspeed for the best angle of climb, is maintained.

Note that the angle of climb will be adversely affected in ANY tailwind climb out, but remember that a tailwind gradient is likely to exacerbate the loss in angle of climb performance substantially.



In the sketch above (not to scale) I have provided the same height climbed, but doubled the distance travelled to climb to that height in a tailwind situation. It can be impossible to remain clear of terrain in a severe tailwind gradient situation and accident statistic archives contain many such calamities. The best answer as to how best to handle this situation is not to get into it in the first place.

Conversely, a headwind gradient in a climb, or an overshoot situation, will see the airspeed tending to rise, often very substantially, causing the angle of climb to be increased dramatically. This is caused by the headwind component increasing. A potential hazard in this situation is holding a very high nose attitude to gain the advantage of the headwind gradient and suffering an engine failure. There is a large arc indeed to get the nose attitude reduced to maintain an adequate airspeed. A stall is possible in this case.

How can we calculate the headwind component?

Crosswind Correction

Angle Between Wind Direction and True Course

Wind Speed Knots	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°
10	10 / 0	10 / 2	9 / 3	9 / 5	8 / 6	6 / 8	5 / 9	3 / 9	2 / 10	0 / 10
20	20 / 0	20 / 3	19 / 7	17 / 10	15 / 13	13 / 15	10 / 17	7 / 19	3 / 20	0 / 20
30	30 / 0	30 / 5	28 / 10	26 / 15	23 / 19	19 / 23	15 / 26	10 / 28	5 / 30	0 / 30
40	40 / 0	39 / 7	38 / 14	35 / 20	31 / 26	26 / 31	20 / 35	14 / 38	7 / 39	0 / 40
50	50 / 0	49 / 9	47 / 17	43 / 25	38 / 32	32 / 38	25 / 43	17 / 47	9 / 49	0 / 50
60	60 / 0	59 / 10	56 / 21	52 / 30	46 / 39	39 / 46	30 / 52	21 / 56	10 / 59	0 / 60
70	70 / 0	69 / 12	66 / 24	61 / 35	54 / 45	45 / 54	35 / 61	24 / 66	12 / 69	0 / 70

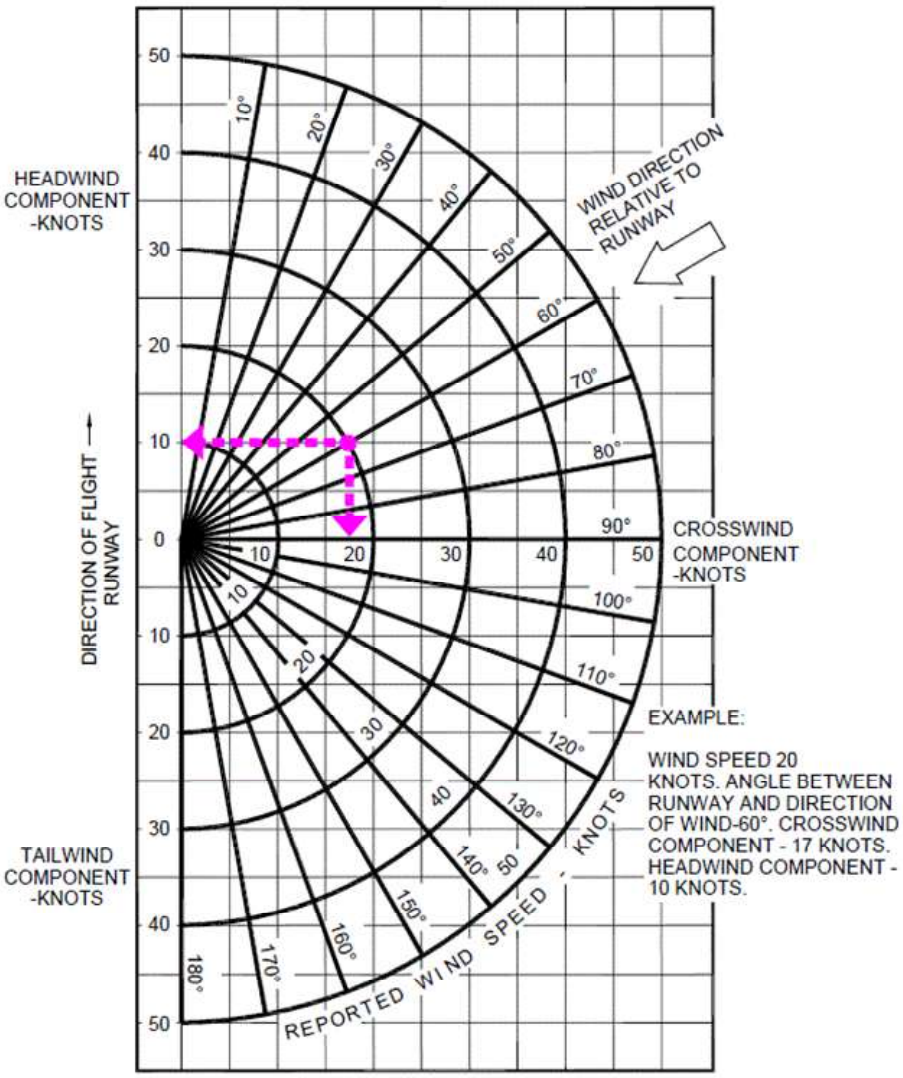
Headwind 0 / 0 Crosswind

Headwind/crosswind table

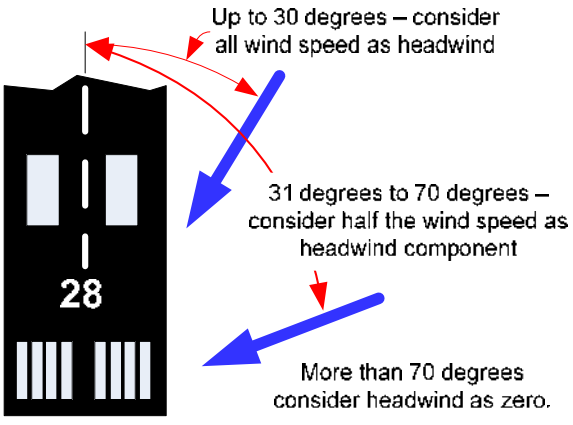
For practical purposes, for angles exceeding 70 degrees, consider wind components to be entirely cross wind and zero headwind.

The table on the left is a common means of ascertaining the two components of any wind direction. If the angle between the runway and the wind direction is known, the components can be read off. For example, given runway 28 and a wind 240/20 (note, it will need to be a magnetic wind direction for the comparison) the angular difference is 270-230 = 40 degrees and 20 knots. From the table read down the 40 degree column until you reach the 20 knot row. Read 15 knots headwind and 13 knots of crosswind. Naturally, this table can be used for any comparison of directions to get the head and cross wind components. If, on flying a track (for Americans among us, “course”) of 140° with a W/V of 090/30, the offset is 50° so the components are headwind 23 knots and cross wind 19 knots. Warning – the directional units must be same, either true or magnetic.

Another means of obtaining the wind components is using a graphical presentation.



These are all for the calculation of a headwind component. But only aeroplanes carrying two pilots can do these calculations whilst being on approach so we can look to some rules of thumb to assist. Be very clear that any rule of thumb is not as good as actual figure values, but merely serves as being better than nothing in the situation.



Generalised Rule of Thumb

So let's summarise the issue. Wind gradients occur on most approaches but, because their speed change is usually over an extended height band, their effects are relatively easy to avoid using constant small adjustments to nose attitude and power applied to maintain airspeed and the desired approach path. However, a pilot cannot be complacent and their first defence against wind gradient issues is to be always aware of their potential presence and ever watchful for the

sudden onset of their early symptoms. The second line of defence is to act decisively on recognising their symptoms appearing, and being prepared to go around without hesitation. Remember, if the decision to go around is left too late, in severe cases the go-around may no longer be an option.

If you are concerned about your own performance when experiencing this phenomenon, see your CFI and get some advice or even some practical experience.

Happy Flying

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Book Review

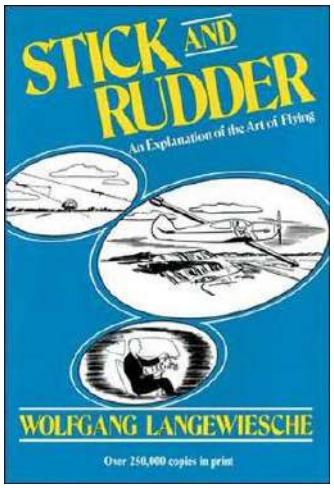
Stick and Rudder: An Explanation of the Art of Flying

by Wolfgang Langewiesche

"Stick and Rudder" is the first exact analysis of the art of flying that I ever read. In the 1960s it was already close to two decades old but presented the techniques and skills to easily understand the foundations necessary to become skilled in the art of flying.

Wolfgang Langewiesche writes in a simple and easy to read manner and this makes it especially easy to improve one's perception of the concepts he is depicting, and to easily remember and copy/imitate them.

Not just me, but many other flight instructors have also found that the book does indeed explain important phases of the art of flying, in a way the student learner can easily absorb and utilize. It shows precisely what the pilot does when he flies, just how he does it, and why. Some of my past students, now qualified instructors in their own rights, are encouraging their students to access this same book, many times reprinted, for their own benefit.



EBay has copies for sale for as little as AUD$13.10 (not including postage), and PDF (electronic) copies for as little as AUD$8.37.

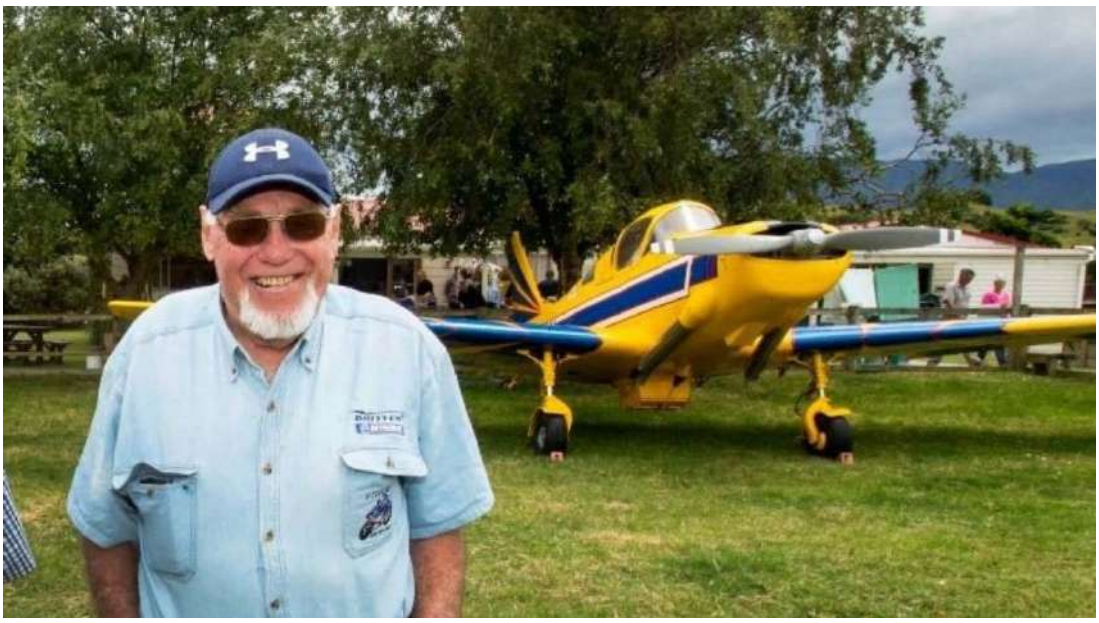
For an easy –to-read tome on the arts and skills of piloting, I recommend this book just as I have done since 1972 when I first began instructing.

This book will reduce the number of things that you didn't know you didn't know.

Rob Knight

75-year-old pilot flew for 22 years without a BFR

Marty Sharpe14:59, Jul 22 2020



Pilot Lindsay McNicol and his Yeoman Cropmaster

A pilot who flew his plane for 22 years without having a competency test has been grounded. The last time Lindsay McNicol, 75, sat a competency review was November 1996.

Pilots have to undergo a Biennial Flight Review (BFR) every two years in order to ensure they have the requisite skills.

McNicol, from Waipukurau in the North Island of New Zealand, was charged by the New Zealand Civil Aviation Authority for failing to undergo the biennial BFR, and for flying a plane that had not undergone its annual maintenance inspection.

The authority laid the charges after discovering the lapses in August 2018. He pleaded guilty and appeared in Napier District Court on Tuesday, where he sought a discharge without conviction.

His lawyer Eric Forster told Judge John Brandts-Geisen said that McNicol had sent a letter to the authority in 1993 spelling out why he objected to undergoing a competency test, which involved a pilot flying with an examiner alongside them. He never heard back from the authority, so assumed he didn't need to undergo the test. He sat the test in 1996 nevertheless.

Forster said McNicol had been "a great contributor to private aviation and the establishment of deer farming", and the stigma of a conviction would harm his reputation and cause a loss of esteem. It would also lead him to be a "forced seller" of his plane, estimated to be worth $450,000, meaning he would have to sell it for much less.

He said McNicol flew his rare Yeoman Cropmaster to carry out top dressing (crop dusting) on his farm, and for occasional trips to air shows.

McNicol had told the authority he had flown "thousands of hours" since 1996, without incident, and had undergone the required health tests.

Authority lawyer Matthew Jenkins said competency tests were not an “obscure requirement” and it was “difficult to understand how Mr McNicol could simply think that requirement did not apply to him”.

Jenkins said it was up to the pilot to ensure maintenance inspections were carried out within the previous 12 months as required, yet McNicol had blamed his engineers for failing to tell him it was required.

McNicol’s pilot licence was suspended in May this year. He has appealed the suspension.

Judge Brandts-Geisen said ignorance of the law was no excuse, and McNicol appeared to blame the authority and his engineer for his own faults.

“That the defendant would believe at any age, let alone in his seventies, that he did not need a regular review of his competence... is itself unbelievable,” the judge said.

He did not find grounds for a discharge without conviction.

McNicol was convicted and fined $3,900 and ordered to pay court costs.

Lindsay McNicol and his Yeoman Cropmaster, which he uses to crop dust his farm.
Note - In the background is the only flying example of an Auster B8 Agricola in the world ZK-BXO. (See page 15)

Handy Hint

“Innuendo” is Italian for *suppository*.

Is flying safe? Wrong question.

by John Zimmerman

Richard Collins' latest article stirred up quite a discussion about Cirrus airplanes and their safety record. Amid all the emotions, though, the basic point is hard to argue with: the SR22 has not lived up to the original hype about safety.

The airplane is not responsible for a safe flight.

That means either Cirrus pilots are crashing too many airplanes or the hype was overblown in the first place. Both are probably true to some extent, but I'd like to focus on the latter because we should know better by now.

The Cirrus story is nothing new. Every 10 or 15 years, some company declares its new airplane to be a giant leap forward in safety, usually because of how easy it is to fly. The brochures suggest anyone can have a mini-airliner in their hangar and reliably get to business meetings and family vacations anytime the pilot wants. Safety? It's built-in.

But from the Ercoupe to the Cirrus, reality ends up being less impressive than marketing. Airplanes continue to crash, and for the same reasons they always have, with weather and loss of control usually high on the list. These reasons have a lot to do with the pilot and not much to do with the airplane.

It's time for the aviation industry to admit the facts–flying is not and never will be like driving a car. For IFR transportation flying in particular, it's complicated, demanding and certainly not for everyone. And yes, that means you can die doing it if you're not attentive. A Cirrus is a wonderful airplane; it does not make bad pilots invincible.

But let's not go overboard either. There's a growing group of pilots and flight instructors who want to talk about how unsafe flying is, in a misguided attempt to scare us straight. Some of these advocates of the "flying is dangerous" philosophy even suggest flight instructors talk about the dangers of flying on a student pilot's first lesson so they know what they're getting into. Think the dropout rate is bad now? Just wait until these CFIs get their hands on some students.

I think this whole "is flying safe" debate is wrong in the first place. Nothing in life is truly "safe." Even getting out of bed in the morning isn't risk-free. What makes flying unique is not how dangerous it is, but rather how unforgiving it is. That's a subtle but very important distinction. Unlike boating or even driving a car, there are no second chances if you make a big mistake in an airplane. You can't call for a tow when you run out of gas at 8,000 ft., and that should change the way you approach flying.

Specifically, being a safe pilot is all about flying with margins built-in. If the POH says you need 2450 ft. for takeoff and the runway is 2500 ft. long, you have no margin and no chance to try again if something goes wrong. The same goes for weather, weight and balance, fuel planning and countless other things in flying. In fact, much of what we do in training and through experience is to learn where the margins are thinnest and develop strategies to increase them.

The real takeaway here–for student pilots and old pros alike–is simple: flying is as safe as you want to make it. You as the pilot in command control how safe you are, not the airplane (nor anyone else,

for that matter). Unlike driving, drunks and 16 year-olds can't kill you in the air by swerving into you. That's a good thing if used properly.

No, you don't control the weather, but you do control when you take off and what route you fly. Likewise, you don't control how much weight your airplane will carry, but you do control how much fuel to put in and how many passengers to carry. Flying can either be safe or extremely dangerous; depending on the choices you make dozens of times on every flight.

For once, the FARs are actually quite clear on the matter, too. FAR 91.3 explicitly gives the PIC total control over a flight–even the ability to deviate from other regulations if necessary. When the chips are down, the FAA is saying, it's all about the human in the left seat.

That much responsibility is uncomfortable for some pilots, who seemingly want to pick the right airplane and outsource all risk management to the airframe and engine. But it's also a very powerful tool, one that many people don't experience much in everyday life. Indeed, I think it's one of the most rewarding things about personal aviation.

So is flying safe? That's up to you. Choose wisely.

This article was obtained from Air Facts Journal and pertains to the USA, its country of origin. However, flying aeroplanes is not restricted to any particular country or nation, and nor are the hazards that arise within this occupation. As people are the same world-wide, the same problems and hazards afflict all aviators and the message here is as valid in Australia as it is in the US of A.

Note that I am, at present unable to confirm Australian Aviation Laws contain an equivalent to FAA 91.3, but across the ditch in New Zealand, their Civil Aviation Act 1990, Part 2, Para 13A makes a similar provision.

With the exception of the reference to the FAA Part 91, read the article and apply it.

It is as applicable to YOU as it is American pilots

Rob Knight

Harry's Joke:

I prefer to walk to my local when I feel like a beer; I would hate to cause someone else an issue because I drove when I shouldn't. This means that I have to consider the time I leave for my socialising so I am home for my tea at the same time it is put on the table. This avoids difficulties in my personal life which I am sure you can understand.

My wife asked how long it took me to walk down to the pub and I told her it took me about 20 minutes. Then I foolishly added that it took me about 45 minutes to walk home.

She looked across the dinner table at me and said, "The difference is staggering"!

Harry

A Precautionary Landing Leads To Big Surprise For Pilot

By Jack Ciulla

Flying is great. By using the flying club Comanche, I could combine a Friday morning business meeting in Philadelphia with a weekend duck hunting trip to Swanton, Vermont, on the Canadian border, something that would have been essentially impossible using the airlines. So, on a rainy September morning, after a checking the Westchester County Airport (HPN) weather (marginal VFR), I filed VFR to Philly. A 7:30 a.m. departure would get me there in good time to make an 11 a.m. advertising presentation. Then, after a client lunch, I would be back in the air headed to Vermont by 3 p.m.

As soon as I crossed the Hudson River into New Jersey, the ceiling started to drop until it hit 300 feet with less than a mile of rainy visibility. I was losing my VOR navigation signals (this was before GPS) and was starting to get that "this is not going well" feeling.

I was just about to reverse course and return to HPN when a 1,500-foot freshly mowed field suddenly appeared right in front of me. So, rather than risk hitting one of the many 900-foot TV towers I had just flown past at 300 feet, I decided to land. The landing was tricky since the man on the tractor mowing the field was not quite finished. He could not hear me due to the noise created by the gang of a dozen mowers he was pulling. He also did not see me from under his rain hood as he was focused on the cutting pattern he was creating. I had to keep circling the field until I could set up a short final to clear the 10-foot wall on the downwind end just as the mower was making his turn inside the wall at the upwind end of the field. Of course, I knew I would surprise him as I touched down and he turned to face a 6-foot spinning prop attached to a fast-moving airplane coming right at him. Fortunately, in addition to landing into a pretty brisk wind, I was landing slightly uphill on wet grass, and so we both stopped a good 50 or 60 yards apart!

I thought that was the end of the drama and when I saw him get on his handheld radio. Now, there were no cell phones back then either, but why did he have a radio?

Dismissing that oddity, I thought “Great! He is already calling for help. Maybe he thinks I’m out of gas.”

A security car arrived in minutes, and an armed guard got out and immediately asked, “How long have you been flying?” I looked at my watch and said, “Oh, only about 45 minutes, and then I ran into this bad weather.”

“No! I mean how much time have you logged as a pilot? There is an airport 2 miles from here, and you just landed in a state prison yard! This is the New Jersey Neuro-Psychiatric Institute,” he exclaimed. “Sorry, I am just trying to get to a business meeting in Philly,” I replied as I pulled my advertising portfolio case out of the cockpit.

“I need to look in the duffle bag you have in the backseat—and is that a gun case you have strapped in next to it?” he said, looking in the backseat with one hand on his sidearm.

“Yes, well, you see, after the meeting, I am flying to Vermont to go duck hunting and, yes, that is a 12-gauge shotgun, and the ammo and camo rain gear is for the hunt,” I explained as I opened the duffle.

“If you could just call me a cab, I can get to my meeting in Philly, and then I’ll come back this afternoon and fly this plane out of your yard—I’m sure the weather will have improved by then.”

The officer did call me a cab after recording all my ID info and taking lots of photos. He also insisted that I call the New Jersey Department of Transportation (NJDOT) to report my transgression and get permission to fly a plane out of a state prison yard. He thought for sure they would make me take the wings off and truck it to the nearby airport.

After an expensive, one-hour cab ride to Philly, I had just enough time before my meeting to call NJDOT. Of course, they already knew all about my prison yard landing and, after confirming my limited private time (less than 150 hours), they insisted that I hire a commercial pilot to fly the Comanche two miles to the nearby airport. In fact, the officer I spoke to had already lined up a commercial pilot (also his brother-in-law) to meet me at the prison later in the day—but much better than taking the wings off and trucking it over.

So, after a client lunch during which I listened to lots of advice about the virtues of Amtrak vs. small plane travel and ribbing about my piloting skills, I got one of the more sympathetic clients to give me a ride back to the prison yard.

After watching the commercial pilot fly the Comanche off the grass and over the trees, we drove the two miles to the Princeton airport (of course, it was clearly marked on my sectional chart that I must have been too busy to look at—what with watching for TV towers and trying to take advantage of my “good luck” spotting a freshly cut field to land in). I paid the commercial pilot his $200 fee, topped off the tanks and was in the air heading for Vermont within the hour.

I spent most of the flight to Swanton reliving my morning flight and comparing it to the safety and comfort of Amtrak. Should I take the train next time? “Start working on an instrument rating” was my answer!

In the weeks that followed, I thought a lot about VFR flight planning and the importance of pencilling alternate routes and possible emergency stopping places along the route on sectional charts. As I continued to fly VFR in marginal weather, I was able to make much better decisions and make them sooner about when to reverse/alter course or land safely, albeit not at my originally intended destination. I never did pursue an instrument rating.

Instead, I continued to fly with carefully marked sectional charts even as GPS and satellite weather streamed to an iPad became more prevalent. During all those years, I diverted to an alternate airport any number of times, but luckily I never had to set it down on a freshly mowed field again, and certainly not one within the walls of a state prison.

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Historic Homebuilts

The D31 Druine Turbulent

This French single-seat Homebuilt aircraft was designed by Roger Druine and first flew in 1951. Its simple and practical design required no special wood-working skills and it readily caught on. By 1958 many examples were flying in many countries outside of France including the UK, Australia and New Zealand.

ZK-CGU – a New Zealand example of a D31

The D31 was designed specifically for amateur-builders, utilising a cantilever low-wing and fixed tailwheel landing gear. It was often powered by a 30hp (1200cc) Volkswagen or similar engine. I recall the one that I flew in New Zealand (ZK-CGU) had a 1600cc VW fitted. The fuselage and wings use wood construction with fabric covering. An unusual feature (compared to GA manufactured aeroplanes of the time) was the built-in slots, close to the leading edge of each wing, in front of the ailerons. This gave aileron control throughout the stall and recovery even though the stalling characteristics of this little aeroplane were benign anyway.

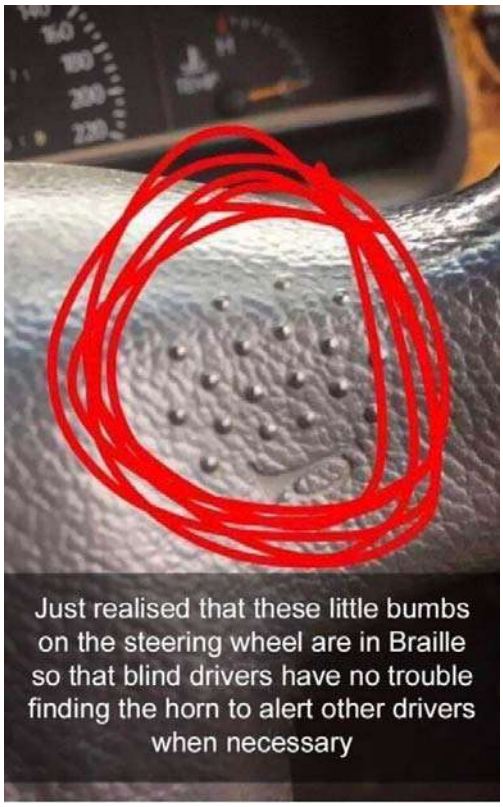
The simple and practical leading edge slots that maintains aileron control in the stall

In 1960, a Rollason built Turbulent (G-APNZ) was flown by the Duke of Edinburgh, making the Turbulent the first and only single-seat aircraft to have been flown by a member of the royal family. In the same year, the same aircraft won the King's Cup air race, flown by John Severne.

I found the D31 a delight to fly. The controls were light and very responsive. With such control characteristics, turns were a breeze (pardon the pun) and there was no difficulty balancing adverse yaw when entering or exiting turns. Also, with its short wingspan, there was little tendency to overbank in turns.

For an open cockpit aircraft it was well air-conditioned but not so much that it was a cold cockpit. The seat allowed the pilot to nestle down behind the windscreen into a wind-shadow area.

Specifications	
Crew - 1	Empty weight – 158 kg
Length - 5.3 m	Gross weight – 281 kg
Wingspan – 6.35 m	Maximum speed – 109 knots
Powerplant - 1 x VW 30 hp	Rate of Climb (Vy) – 400 fpm



MAYBE IF WE START TELLING PEOPLE THE BRAIN IS AN APP, THEY'LL START USING IT.

The wife and I went grocery shopping wearing the required masks. When we got home we unpacked the groceries and took off our masks. That's when I found that I had brought home the wrong wife.

Be careful out there

The dumbest thing I ever bought was a 2020 planner

So let me get this straight – there's no cure for a virus that can be killed by hand sanitizer and soap?

FLY-INS Looming

13 Dec 2020	Murgon (Angelfield)	Burnett Flyers Breakfast Fly-in

What the Hell is THAT - – Auster B8 Agricola

The **Auster B8 Agricola** was a commercially unsuccessful British agricultural aircraft designed for the aerial topdressing market which opened up in New Zealand in the early 1950s.

Mainly fabric covered over a corrosion-proofed steel frame, the design featured a large high-lift low-set monoplane wing, external control cables, fixed tailwheel undercarriage and a somewhat angular fuselage. It had an aft cabin that could seat two passengers, a hopper over the centre of the wing which could hold 750 kg of superphosphate or 654 litres of spray. The pilot sat forward of the hopper over the wing leading edge, a position giving a good field of view compared with the American practice of placing the pilot behind the hopper. The Agricola's handling was generally described favourably, particularly its slow speed performance and controls, while its rugged and simple construction allowed for easy maintenance. The aircraft was utilitarian rather than attractive; one website has short-listed the Agricola in a competition for the ugliest aircraft of all time. The type first flew in 1955 but was out-competed in its target market by the PAC Fletcher and did not sell. Only nine were made before production ceased. Of these *ZK-BXO*, is the sole survivor. Restored by John Stephenson of Whitianga on the East Coast of the North Island, it was operated for many years by him as both a historic aircraft and personal transport. BXO was sold to the UK in 2005 and re-registered as G-CBOA. In March 2016, the aircraft was once again sold to New Zealand.

Keeping up with the Play (Test yourself – how good are you, really?)

1. When an altimeter subcale is set so the altimeter hands indicate zero on the ground at an airfield, the altimeter is said to be set to which of the following?
   A. QNH
   B. QGL
   C. QFE
   D. QAL.

2. Considering the diurnal variation in wind velocity, which of the following options best describes the evening effect? The early evening wind ….
   A. Veers and decreases
   B. Backs and decreases.
   C. Veers and increases.
   D. Backs and increases.

3. What is the purpose some aeroplane designers fit differential ailerons to their aircraft?
   A. To reduce induced drag.
   B. To reduce form drag.
   C. To reduce total drag.
   D. To reduce adverse yaw.

4. On a cloudless day a pilot notices the air temperature at his airfield at 800 feet AMSL is 18°C. what should they assume the temperature to be at 2800 feet AMSL?
   A. 10°C.
   B. 12°C.
   C. 14°C.
   D. 16°C.

5. A pilot/owner adds a small scoop to the engine cowling on her aeroplane to increase the draught onto the oil cooler. Which of the following types of drag would increase?
   A. Form drag.
   B. Induced drag.
   C. Parasite drag.
   D. Interference drag.
   E. A, C, and D are correct.

See answers and explanations overleaf

Answers: 1, C, 2, A, 3, D, 4, B, 5, E.

If you have any problems with these questions, See Notes below or call me (in the evening) and let's discuss them. Rob Knight: 0400 89 3632.

1. C is correct. Whilst most general flying below the transition layer is carried out with the altimeter subscale set to the QNH so the hands read feet above mean sea-level (AMSL), if the subcale is set so the hands read airfield level it is set to QFE
https://www.skybrary.aero/index.php/Altimeter_Pressure_Settings

2. A is correct. As the afternoon draws on, the ground cools with less heat available from the sun, and thermal activity reduces. The thermal activity has been both lifting slower moving air (speed reduced by surface friction) and drawing faster moving air aloft, downwards which energises air closer to the earth's surface. With the cooling day and less vertical movement the wind speed at the surface drops. With less wind speed, in the southern hemisphere, coriolus force reduces. and the wind will veer (or swing to the left). With the onset of an evening, the wind will usually veer and decrease.
https://bobtait.com.au/forum/meteorology/3651-diurnal-variation-of-wind

3. D is correct. Differential ailerons are an aileron system design that provides more UP aileron than DOWN aileron. The effect of this is to have more aileron deflecting upwards into the lower pressure region above the wing than will simultaneously be experienced by the aileron extending downwards into the higher pressure air beneath the wing. This results in an overall reduction in the adverse yaw experienced by an aeroplane entering a banked attitude, and this thus the amount of rudder deflection required to balance that adverse yaw.
https://www.boldmethod.com/learn-to-fly/aerodynamics/how-adverse-yaw-affects-your-plane-during-a-turn-left-and-right/

4. B is correct. Unless a temperature lapse rate is given, work from the ISA standard which is 3°C/1000 feet of height change for unsaturated air (nil cloud).
2800 – 800 = 2000 feet of change. AT 3° per thousand, the change is 6°. It will be colder as altitude is gained so 18° - 6° =12°C ar 2800 feet.).
https://en.wikipedia.org/wiki/International_Standard_Atmosphere

5. E is correct. Form drag is that drag created by an aeroplane's Form (shape and frontal area) and includes skin friction. Induced drag is the drag created from the provision of lift. Parasite drag is drag created by every part of the aeroplane not involved directly in the production of lift. Interference drag is the drag created by the air flowing around airframe components. Thus, an object projecting into the airflow that is not producing lift must involve form drag, parasite drag, and interference drag but NOT induced drag.
https://en.wikipedia.org/wiki/Drag_(physics)

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Aircraft Parts and Tools

Item	Condition	Price
VDO Volt Readout instrument	Brand New	**$70.00**
Skystrobe Strobe light for Ultralight	NEW – IN BOX	**SOLD**
Altimeter – non-sensitive with subscale in "Hg.	Brand new	**$50.00**
Pipe bender (for 6, 8, & 10 mm tube)	Used but as new	**SOLD**
Torque Wrench, 3/8 drive ToolPro	Near new	**SOLD**

Headsets

AvCom headset. Functions perfectly	Excellent	**$150.00**

Contact Rob Knight at either kni.rob@bigpond.com, or call **0400 89 3632**.

Vehicles for Sale

Ute-back Trailer

The rear end of a Ford Courier ute, covered with a Courier fibreglass canopy. Very robust, good tyres, complete with spare - on Land Rover hubs and wheels.

Tows very well: Excellent condition.

For quick sale - $2100.00 ono

Contact Rob Knight - **0400 89 3632**

Closing Down Sale (All Ex Forest Hill Airfield)

Item		Sale Price
Rover Rancher ride-on mower Superb - runs great and is complete with manual and new battery.		**$650.00 ono** **(Under offer)**
Painter's drop sheets - Supplied by Aldi, 3.6 X 1.5 M Never used. Contact Rob Knight – **0400 89 3632**		**$25.00 the lot** **Or** **$10.00 Each.**
Push mower, single stoke, very limited use. Not ideal for a septuagenarian hence sale. Complete with catcher. Contact Rob Knight **0400 89 3632**		**$40.00**
Chain saw, 25cc Ozito. Short blade, automatic blade oiling. Very good condition. Once very useful, now very surplus to requirements. Complete with fuel bottle fuel can, and oil. Contact Rob Knight **0400 89 3632**		**$70.00**
Petrol Ryobi Weed Wacker. Runs well Contact Rob Knight **0400 89 3632**		**$100.00 ono**
Generator Power King 5 KVA Contact Ray Jones **0431 569 477**		**$450.00 ono**

Aircraft Parts For Sale

Item		Sale Price
Suzuki s G16 motor, modified to lay over at 55 degrees to fit inside aircraft cowling. Includes overhauled, balanced, painted motor, new injector carby, starter, alternator, fuel pump, distributor, coil, stainless steel exhaust, and SPG-3 gearbox. Contact Colin Thorpe **0419 758125**		**Reduced Price** ~~**$5700.00**~~ **Now** **$5400-**
Microtech Engine Management System Manage all engine parameters Data log in 3d Control timing, fuel, air-fuel ratios Set idle & wide open throttle rpm Monitor system voltages Paid $1300. Contact Colin Thorpe **0419 758125**		**Reduced Price** ~~**$750.00**~~ **Now** **$680**
Pioneer Ballistic parachute. Includes explosive charge. For details and more illustrations - contact Colin Thorpe **0419 758125**		**Reduced Price** ~~**850.00**~~ **Now** **$780**
Bullit ballistic parachute - Spring loaded. For details and more illustrations Contact Colin Thorpe **0419 758125**		**Reduced Price** ~~**$280.00**~~ **Now** **$250**
3 Blade black Ivo prop. Ground adjustable, Dia. 1500mm Contact Colin Thorpe **0419 758 125**		**Reduced Price** ~~**$450.00**~~ **Now** **$430**
3 Blade blue Ivo prop. Ground adjustable, Dia. 1540mm Contact Colin Thorpe **0419 758 125**		**$300.00** **Now** **$280**

NEW - Cummins finished aluminium spinner, polished with shaped cut-outs Suit 3 blade prop, Dia. 243mm x 300mm high 101.4mm pcd mounting holes Contact Colin Thorpe **0419 758 125**		**Reduced Price** ~~**$480.00**~~ **Now** **$420**
USED - Fibreglass spinner to suit 3 blade prop Dia. 215mm x 290mm high, 101.4mm pcd mounting hole. Contact Colin Thorpe **0419 758 125**		**$80.00** **Now** **$70**
Koger folding canopy sunshade Contact Colin Thorpe **0419 758 125**		**$170.00** **Now** **$160**
K&N cone air filters, washable Brand new. 42 mm (1.65”) mouth. Two of. Contact Rob Knight **0400 89 3632**		**$15.00 each or** **$20.00 for both**
PROPELLER FOR SALE Prince P-Tip Carbon Fibre 74” x 42” propeller (6134P74AT42LK) – SAE 1 bolt pattern. Call Nick – **0435 992 136**. *Note – only the propeller is for sale in the image.*		**$1850 ONO**

Aircraft for sale

¾ scale replica Spitfire

$60,000

Powered by a 6 cylinder engine, this delightful aircraft has good performance and low hours. Available for immediate delivery.

It comes with a low flight time, excellent handling qualities, superb charisma, a brand new mechanical fuel pump and two jack stands.

For details contact Bill Watson. Tel., **0447 186 336**

My husband thinks I have a drinking problem.
He asked me to toast some bread for him so I raised my wine glass and said, "Here's to bread"!