BRISBANE VALLEY FLYER

October 2023

BRISBANE VALLEY SPORT AVIATION CLUB INC

Watts Bridge Memorial Airfield, Cressbrook-Caboonbah Road, Toogoolawah, Q'ld 4313.

Rob Knight (Editor) Tel: 0400 89 3632, Email kni.rob@bigpond.com

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Peter Ratcliffe (Pres.)	0418 159 429	Ian Ratcliffe (Treasurer)	0418 728 328
John Innes (Vice Pres.)	0417 643610	Acting Secretary	0418 159 429

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Greetings members,

Well, as you may be aware we have been away.

Ian, David and myself have been in the USA for 4 weeks and while there we spent 7 days at Oshkosh.

It was the biggest airshow that we have attended, with 667 thousand people attending during the week, and over 10 thousand airplanes flying in. We had great time and still did not see it all. Legs were as sore as you could get them.

We managed to meet up with some other members from the airfield while we were there. It is the place that all Flyers should strive to go you in your life time. You have to see for yourself to appreciate it. It was my 10 time there and still I enjoy seeing it every time It.

Anyway, back to reality and back to the grindstone to save up for next time.

Over the next following pages see just a few of the aircraft that were on display.


UNITED STATES AIR FORCE
N422NA

Peter Ratcliffe
President BVSAC

LETTER TO THE EDITOR

Hi Rob,

Read the letter to the Editor that you presented in the last Flyer and I must concur completely. I am an older pilot with my own RA aircraft for nearly 20 years, and am totally disillusioned with the direction in which our parent body is headed.

In the past I supported RAAus because it was supposed to be a means through which ordinary citizens could build and fly their own private aeroplanes at a realistic cost, but with the rising levels of charges that benefit us not, that can no longer be said to be their aim. I can see no justification for the new levels of charges and costs that are being imposed on us without any visible benefit. I know costs are rising, but I would seriously dispute that the new expenses are realistic in terms of their advantages to us. I am left wondering if these extra charges are being made just because RAAus can make them if they so choose.

The current RAAus policies are absolutely detrimental to us as members and I believe the organisation no longer represents me and my desires for which I pay a membership. For example, no majority of members has ever supported the rise in MTOW for RAAus aircraft, and I would dispute any suggestion by RAAus to the contrary. That project has been the RAAus management's agenda all along, and not ours, the general RAAus membership to whom the board should be accountable.

We have been hijacked, and well shafted!

Anonymous (by request)

Keeping Clear of Kinky Take-Offs

By Rob Knight

To the uninitiated, the spinner points forward, and the propeller pulls in the direction the spinner is pointing. So, one might think that opening the throttle for take-off would see the aeroplane accelerate forward, straight down the runway. Well, that's partly right, the aeroplane will accelerate forward, but it will also be drawn sideways, whether to the left or the right depends on the direction in which the propeller is rotating, and it's up to the pilot to use rudder control to maintain a continuous path parallel with the edges of the runway. There can be up to twelve (12) extraneous forces fighting to pull the aeroplane off a straight path, four caused by the propeller, three by the runway surface, two by the wind, and three more by the aeroplane itself. Note that these are all mechanical issues and are not related to pilot proficiency. That is a different factor.

The four extraneous propeller-sourced forces stem from the following effects:

1. Slipstream effect (see issue 115 – July 23),
2. Torque effect, and
3. P Factor (see issue 116 – August 2023.
4. Gyroscopic effect (see issue 117 – September 2023).

The runway surface issues include:

5. Dissimilar surfaces where one main wheel rolls across either softer ground or through longer grass (living, dead, or windrows from mowing), or puddles of standing water,
6. The underlying surface being wetter and boggier under one wheel than the other,
7. Runway camber, which will naturally draw aeroplanes off a centre-line.

The wind velocity:

8. A wind component blowing across the runway from across/head/tail, and
9. The gustiness of that cross/head/tailwind component.

Asymmetric drag/differential rolling resistance on aircraft:

10. Low nose-wheel tire pressure, and
11. Tyre pressure imbalance between the main wheels.
12. Dragging brakes - mechanical issue, or pilot or involuntary reflex applying differential braking.

The last four issues of the BVSAC Flyer have featured the propeller forces encouraging swing on take-off. In this issue we'll look at some of the remaining swing-producing forces caused by the environment and aircraft itself.

The surface on which a take-off is being undertaken, can have a profound effect on the amount of rudder application necessary for a pilot to maintain a constant direction on take-off.

If one main wheel encounters an area where the texture differs to the other main wheel, a change in the drag experienced by each wheel will ensue. The wheel experiencing the greater drag from the differing textures will be harder to accelerate, and the aircraft nose will be drawn (yawed) to that side. If the entire take-off run suffers an issue, such as a narrow grass strip with long or mown grass along one side and through which one main wheel must run, there will be a significant tendency for the aircraft to yaw, and the yaw force must be countered by the pilot using rudder to hold the aircraft to the runway direction. Even worse – if there are only intermittent patches of differing texture - the aircraft will be "snatched" as the wheel reaches the draggy issue, and the rudder input to correct the ensuing yaw must be rapid, precisely timed, and exactly correct in magnitude.

Whilst irritating in most cases for aircraft with steerable nose-wheels, for non-steerable nose-wheels or, even worse, tail dragging machines, the sudden snatches can easily cause a loss in directional control with serious consequences. The cause of the increased significance for non-steerable nose-wheeled aircraft is the lack of a direct mechanical link between rudder and nosewheel and creating

the absolute requirement for control to be exercised via airflow around the fin and rudder and/or individual wheel braking. For tail-draggers, it's the Centre of Gravity (CofG) position - behind the main wheels - so any yaw motion is immediately aggravated as inertia from the sideways motion of the CofG adds to the differential drag value making the control required to correct this magnified effect much, much more substantial. When operating from unprepared runways, allowing one wheel to get caught in a rut, especially if water filled, has kept aircraft engineers gainfully employed for over a hundred years.

Runway camber, or "side-slope", comes in two forms. The first is the curve put into prepared grass runway airfields designed to run standing water off the runway into drains on each side, and the second is an unprepared field which has a natural slope, high one side, low on the other. In the first instance, provided the pilot keeps the aeroplane on the centre of the runway (at the peak of the camber), it should not be an issue, but if the pilot allows the aircraft to wander sideways and encounters the side slope on one side of the runway or the other, its effects will very quickly become known to him or her, and require appropriate rudder use to bring the aircraft back onto the centreline.

The pronounced camber at Blenheim Airfield (YBHN). Very effective in shedding surface water. Advice - stay on the centreline.

Camber has, again, the least effect on nose-wheeled aeroplanes fitted with steerable nosewheels. Whilst camber will require attention and additional footwork to keep straight, nose-wheeled aircraft with non-steerable nose wheel systems are much more difficult to control and may require not just rudder inputs, but judicious additions of individual wheel brakes to assist the rudder contributions, especially at low speeds and low RPM settings.

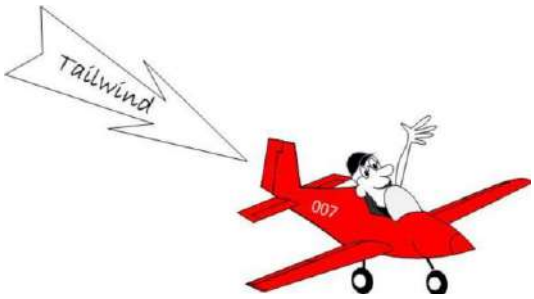
However, the greatest effects of camber will be experienced by tail wheeled aircraft. Here, the CofG, being located behind the main wheels, the greatest frictional points of ground contact, ensure *inherent directional instability* so any swing on take-off must first be stopped with rudder, and then any directional change corrected, with MORE rudder. AND… then just the right amount of **opposite rudder** must be applied at exactly the right time to stop the yaw and hold the nose and aircraft back on heading and centreline. This can be a very serious issue with tail wheeled aircraft, especially with crop dusters working off side-sloping strips. Even these highly experienced professional pilots treat this issue with great respect. Taking off in a loaded Cessna Agwagon on a wet grass airstrip with notable side-slope can be like drag racing a crab!

The effect of headwind/crosswind (where the wind is coming from any point to one side of the nose, around to the wing tip) is easy to imagine. Because of their vertical tail feathers, it is simple for one's imagination to visualise the aircraft weathercocking towards a gust; wind socks, arrows and darts do it all the time. However, the gustiness of the day can add significantly to the steady wind's effects. In keeping with previous statements, nose-wheeled aircraft handle cross winds and gusts with the least drama, followed (not closely) by aircraft using castoring (non-steerable) nosewheels, and lastly, by tail draggers. All for the same reasons as given previously.

A tailwind crosswind, though, can be an entirely different matter. The effectiveness of the rudder depends on things other than its size, and how far back it is from the CofG, it is also reliant on airflow past its surface. The gross airflow comprises two factors – the slipstream, and the speed of the aircraft through the air. And when an aeroplane starts a downwind take-off it's wind-effect is already in deficit.

Take the case where an aeroplane parked tail into a 10-knot tailwind. Just sitting, unmoving, its airspeed is MINUS 10 knots and the aircraft will have to taxi at 10 knots before the airspeed even get to zero.

Now take the same aeroplane, parked and facing in to the same 10 knot wind. While sitting there, stationary, it will already have 10 knots of airspeed.



Tailwinds destabilize all types of aircraft on the ground.

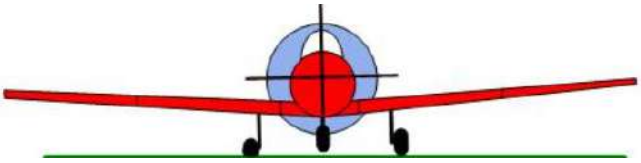
While the slipstream is the much greater factor in rudder authority, the above serves to indicate that, in a tailwind situation, there is reduced authority, especially in the lower speed ranges as the aeroplane accelerates. This can have serious results for castoring nose-wheeled and tail wheeled designs, and makes keeping straight on take-off much more challenging. Steerable nose-wheeled aircraft, with their rudder pedals mechanically linked to the nose-wheel have a definite advantage here.

The results of gusts are more severe in tailwind conditions, as the sudden increase in wind speed from any direction aft of the lateral axis of the aircraft will tend to destabilize it directionally. The pilot's footwork on the rudder will be the deciding factor in how quickly and accurately the correction to the aircraft's nose and direction of travel are made – even nose-wheeled aircraft may not be able to achieve this on its own by its design.

The aircraft's own mechanical devices can also trap an unwary pilot. We all would claim that our pre-flight inspections are meticulous and we are unlikely to miss out something obvious. How about tire pressures? Do you really look at your tires and check one main wheel against the other, even by appearance? What about the nosewheel? A flat nose-wheeled can make steering accurately impossible. And the pre-flight is the ONLY time that you can check it. If it looks soft when doing a pre-flight, check it because if it goes flat in flight, on landing you are in for a memory implanting nasty surprise.

In regard to tire air pressures, a steerable nosewheel tire can roll on its rim if its pressure is low when being steered. This is a condition that will make even a nose-wheeled aircraft directionally unstable as long as the nosewheel is on the ground. Don't miss out checking the tire pressure on your nose-wheel tire when doing your walkaround.

Low tire pressures on any wheel, nose or main, will make directional control more challenging on the ground, and the effect magnifies as speed increases. If, say, the port main wheel tire is soft, then the aircraft will suffer added drag on that side and the nose will tend to yaw left. Right rudder will therefore be required to just keep the aircraft straight so less over-all right rudder control is available. If you have to hold some right rudder (in this case) just to keep straight then you have less available. Just imagine being nearly at rotate speed and suffering a sudden strong gust from port. If you are already holding some right rudder to keep straight, will you have enough control in reserve to off-set the left yaw caused by the gust? Ensure tire pressures are correct and the question needn't be asked.



A soft tire will create drag on that side and yaw the aeroplane.

Also, finding a soft tire on a pre-flight is a heads-up that it might have a slow leak and the taxi and take-off may cause further damage and the tire goes flat in flight. Make sure that, after adding air to

restore the correct pressure, you check the tire for any signs of damage. Also check the tire valve is not leaking. Don't worry, if you forget – it'll surely tell you on landing if there is an issue.

Brakes are normally an asset but if they bind, you will be playing with a handicap instead. And having just one brake binding constitutes a triple handicap. If you have to pull your aeroplane out of a hangar to go flying then a binding brake or brakes will surely be obvious, but if the aircraft is on tie-downs, the issue can remain hidden. Also, all wise pilots check their brakes on early taxi so they will know that the brakes do function, and if braking is even on both sides.

All the above considerations are cautionary items. However, as happens so frequently under Murphy's law, what if several happen simultaneously? For example, if, on your pre-flight, you notice that the left main tire is soft, but not too bad. You taxi out and the runway has surface water down the left wheel track and the windsock is indicating a crosswind from the left. With the combination, you may find the odds are only in favour of your making a successful departure through the boundary fence and into a neighbouring paddock.

Pilot knowledge and situational awareness are, without doubt, greatly effective in minimising risk. For example, being aware and knowledgeable, means you can better ensure a take-off exercise has no issues with runway texture experienced by each wheel; you could select a different runway, or put some air in a soft tire. Or, if your propeller gives left swing on take-off because of its rotation, you could select a runway where the crosswind is from the right, and have the propeller assist with keeping straight instead of countering it.

Regarding brakes, I had a serious issue with a CPL flight test candidate when we walked out to the PA28-140 we were to use for the test. As we crossed the area to the parked aircraft, I could see the inside of the tire was dark and a quick check proved the wheel cylinder had leaked brake fluid. He had completed the pre-flight and deemed the aircraft fully serviceable. I failed the test at that point and he was aggrieved that I had to make it official instead of merely rescheduling the test. However, his bellicose and cavalier attitude indicated he needed lessons to be driven home so I drove one there. I know he used his new-found knowledge on the subsequent (and successful) flight test. Do you check your brakes on every pre-flight?

Whichever way you view it, aviation is a thinking game, and without valid data and knowledge, the ability to successfully draw the best conclusions and therefore the safest results to any flight will be reduced.

Happy Flying

Extra Unveils its 330SX

By Kate O'Connor, AVweb, July 2023

The Extra 330SX

Extra Aircraft announced recently that it is adding a new aerobatic monoplane to its lineup with the introduction of the 330SX. The model, which is currently in testing, flew for the first-time last week. An "evolution" of the company's 330SC, the single-seat 330SX offers a wider cockpit, reduced fuselage length, redesigned cowling, increased control stick clearance and improved headroom compared to its predecessor.

"The evolution of the design of the Extra 330SX results in enhanced performance across the flight envelope and allows pilots to execute gyroscopic manoeuvres more predictably and consistently," Extra said. "The introduction of our high-performance aileron package delivers superior roll authority. … While centralizing and concentrating mass through fuselage design updates the aircraft benefits from a weight reduction as well while retaining the same flight envelope speeds, including a VNE of 220 KIAS."

The 330SX features a steel fuselage paired with a carbon fibre empennage and wings. The model is powered by the Lycoming AEIO-580 engine (see Note #1) and comes equipped with the Garmin G3X Touch flight display. Extra noted that it is currently taking orders for the 330SX and expects to begin deliveries in mid-2024 pending further flight testing and final EASA approval.

Note #1.
The Lycoming IO-580 engine is a fuel injected, naturally aspirated, horizontally opposed, six cylinder, four-stroke, spark ignited, aircooled, wet sump engine incorporating provisions for front and rear mounted accessories. The AEIO-580 incorporates modifications on the oil system to enable aerobatic operation. Displacement: 9.554 dm3 (583 cu. in.) Bore x stroke: 135.1 mm x 111.1 mm (5.319 in. x 4.375 in.) Compression ratio: 8.9 : 1. Power, 235 kw (315 hp)

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Aviation Law – to Follow or Not to Follow – Surely That is Not a Real Question

By Rob Knight

Remember the adage – "Laws are made for the guidance of wise men and the obedience of fools?" Is there any truth in this, or should all pilots ALWAYS obey the laws as they pertain to aviation when they are pilot-in-commanding an aircraft?

Firstly – the following of all aspects of aviation law is not arbitrary, without question it is absolutely compulsory. The adage is actually flawed, because wise men who fly will always remain in accord with the law unless it is an emergency situation which can be an entirely different issue and outside the scope of this piece.

Over the years I have heard many arguments in regard to this topic. Some sensible, but too many not. For me, the laws are designed in such a manner that, if I follow them, I am far less likely to spear myself into the ground than if I charge off and ignore them. They are the result of many other's accidents and mishaps, all over the globe, and are designed to assist me in my not repeating them. That does not mean that I am as white as driven snow in respect of compliance with the Law, but my errors in the main have been inadvertent rather than deliberate breaches. It is worth noting that very, very few fatal accidents occur when the relevant aviation laws are being complied with at.

Not every other pilot with whom I have had contact holds the same or a similar opinion of law compliance in aviation. Some radicals were mere students (a few not even solo), whilst others have been parts of the rest of the aviation personnel spectrum, right through to SCPL [1]and ALTP [2]holders. However, every single serious refuser to comply with the laws was either ignorant, or arrogant, and neither attribute make a good pilot regardless of qualification.

As a CFI operator hiring aeroplanes to members or clients it was easy – comply or go somewhere else. Any other act would leave me with insurers shaking their heads and refusing claims in the event of an accident. Occasionally I would hear of an illegal act carried out in one of the aeroplanes for which I was responsible and I would always have to be seen to resolve any issues to maintain my organisation's reputation with both the aviation authorities and our insurers. At these times a lack of tact when addressing the offenders was a powerful weapon. These issues still continue today as the news media provides, and, in particular, amongst private owners who have no restrictions upon their actions, as hirers will always suffer peer reviews by the operator.

Police found the wreckage of the Piper Cherokee crashed halfway up Mount Hector Range. Picture: Queensland Police Service

The most recent example of such deadly arrogance is the 22-year-old pilot flying his own PA28-180 who crashed into the Clarke Ranges killing not only himself but also his trusting wife and their unborn daughter. Without bothering to get his pilot qualification to carry a passenger, and reportedly less than 31 hours of total logged flight experience, he took-off in a sophisticated aircraft, equipped for IFR operation, to take his wife to a medical appointment. BUT – the weather got in the way and knocked him down; then a tree covered, rocky mountain range reared up in front of his windscreen and finished the job. The training that he had not bothered to undertake would have equipped him to deal with the sort of weather he encountered and how to retreat in safety. Alas, having knowingly forgone that training, he couldn't adequately read a

[1] SCPL – Senior Commercial Pilot License.
[2] ALTP – Airline Transport Pilot License.

forecast, and so flew into environmental conditions with which he couldn't cope. I'll leave you to form your own opinion as to what level of abject stupidity he attained before he killed himself and, oh so tragically, the rest of his family. His wife and unborn child were innocent – they made no decision to fly illegally – his ego and arrogance did it on their behalf, and they died.

This serves to drive home perhaps the most important message of all. If you break the law, you might kill yourself and that is not good. But in breaking that law, you are putting others in danger, an act that you have absolutely no right to make. The others that are placed in danger, unaware of the hazards, have not consented or agreed to run the risk to which the law-breaking pilot exposes them, nor to the potential results of any mishap that might result from that legal aberration. These others may be passengers in the aircraft, or they might be innocent people on the ground who just happen to be in the wrong place at the wrong time, but they all have that one thing in common – they are innocent.

My depictions of law-breaking in this piece are more directed at deliberate breaches and offenses than weather related incidents. It's easy to say that a pilot who crashes in bad weather was operating at the end of his flight outside the law because the conditions were worse than the minimum met minima for VFR operations. However, the end of the flight is not necessarily represented by the earlier stages before the weather deteriorated. He has simply not made the correct decisions early enough. I am looking at deliberate violations of the law, pre-meditated and not part of a decline in originally legal conditions.

Another pilot, one that I personally trained (with some difficulty) at the Waitemata Aero Club, was prone to operating to lower legal standards than NZCAA provided. He nearly killed himself, his girlfriend, and a full load of Fokker Friendship crew and passengers after he qualified. He trained in a Victa 100 and was sufficiently arrogant as an unqualified pilot to decide to ignore instructions when flying solo. He too frequently deliberately flew out of the prescribed training area that was set aside for students south of Ardmore, because, as he said, he got bored with practicing things and wanted to do a little sightseeing from time to time. On the last occasion he did this a Club instructor had to be diverted from his own training flight to find him and bring him back from near Raglan on the West coast, south west of Ardmore. I grounded him until we met with the CFI to explain himself, at which time the CFI gave him an ultimatum that another such event would see his grounding made permanent and his departure from the club membership list a certainty. As lists of groundings were shared amongst the training establishments, this would put a substantial kink in this ability to continue flying and he complied for the balance of time he was training.

Finishing his PPL without further incident, he converted to the Club's PA28s. Then, about a year after he qualified, a Fokker F27 on an instrument approach for Tauranga had a near-miss with a PA28 crossing their path. Even though it happened in cloud, the PA28 was close enough for the startled F27 crew to read its registration and report it to the Tauranga ATC who then passed the rego on to an interested NZCAA. It's no contest to guess who the pilot flying was. That no-one was killed was just LUCK with a capital "F". NZCAA acted quite appropriately when, I understand, they withdrew his pilot license indefinitely.

On another occasion, whilst the CFI at the Wellington Aero Club, I was asked to assist in the validation of an Indonesian pilot's CPL and instrument rating. According to the Indonesian logbook he presented, he had somewhere around 2500 hours and had logged charter VFR flight and positioning IFR ops in the recent past. The operations all being in a Cessna 207 out of West Irian Jaya. He had no actual license with him which was surprising as this was a stated requirement, but NZCAA had spoken to me and advised me that they had waived the requirement in light of his recent logged experience.

We were using the Club's IFR PA28 and I had to provide an unusual degree of assistance with his flight planning and the filing of his flight plan but eventually we were ready and were cleared for

take-off on runway 16. We were visual in the early climb, he had limited Piper experience and I was letting him get a bit of a feel for the aircraft on the climb and the initial tracking, and there was IMC ahead, so I just let him go. His radio work was fine, accented but his English was OK and eventually we were cleared to Palmerston North VOR from the Newlands NDB. We entered IMC and for the first few minutes all was normal, He seemed a little nervous but that was not unusual. Then his heading began wandering. I touched the compass and the DG[3]. He yanked the yoke and the nose slewed around, but too far, and we were heading out the other way. Only Kapiti Island lay in that direction and it was still higher than we were. When we got to a 30° heading error, and were nearly a mile west of track, I touched the compass and the DG again, and also pointed to his planned heading on his knee pad. The nose yawed violently to the right, and now the VSI began showing a descent when we were supposed to still be in the climb. This was not good enough for a qualified instrument rated pilot so, highly suspicious, I took control off him and sorted it out before giving it back to him in a trimmed climb. Dismayed, I saw his heading wander and airspeed increasing all over again after just a couple of minutes without a horizon.

I retook control and called ATC. I advised them I was abandoning the flight, and requested vectoring back to Wellington CTZ[4] for a VFR approach: I never gave the pilot the controls again

It was ultimately ascertained by NZCAA, the pilot held a mere PPL with about 600 hours actually logged, entirely in Cessna 172s, and some limited instrument training. But had never passed or held any CPL or Instrument rating. Imagine the results had he had the opportunity to try to exercise these qualifications. He figured that if he could get the dumb Kiwis to validate a non-existent CPL and instrument rating, he'd use it to get that put on his own file in Indonesia when he got home and save having to do the required training. Instead, after NZCAA made inquiries back in Indonesia and became aware of his lack of declared qualifications, his visa into New Zealand was revoked and the Indonesian authorities were made aware of the situation. I was advised that the Indonesian authorities deemed him unsuited to hold a pilot's license in Indonesia and his PPL was revoked.

A Piper PA34 Seneca arrived over an hour late to Auckland International Airport to collect fare paying passengers and some family members to fly them to Wanganui, a city on the south-west coast of New Zealand's North Island. Already late, and with conditions deteriorating enroute the pilot rushed around shoving in baggage and passengers where he could until he had on board the designated passengers as well as his own daughter in law and two of her children. Ultimately, it has been reported, there were 9 persons on board and all their baggage.

It remains unclear whether he entered IMC or was still operating in VMC after darkness fell, but on reducing power to begin his initial approach into Wanganui, the aircraft suddenly stalled and spun in. It appears that, when he reduced power, the misloaded aircraft pitched nose up, uncommanded, the attitude change instigated by a seriously aft centre of gravity position. The subsequent aerodynamic stall and spin held no possibility of recovery and all the occupants were killed.

Once again, the pilot made the fateful decision, but 8 more innocent people paid for his non-compliance with their lives as well. He killed them.

An agricultural pilot acquaintance of mine had two Fletchers and a working flying business in the area south west of Hamilton in New Zealand. Like all operators in the AG industry, he freely gave flights around properties to size up their hazards and to familiarise himself with the locality and the farm boundaries.

He arrived at work one morning and, on unlocking the gate onto the home strip where he kept his operation, he saw a Fletcher tail sticking up at an angle beyond the pampas-grass boundary. He shot

[3] DG - Directional Gyro, or Gyro Compass.
[4] CTZ – Control Zone.

over there in his truck to find his Fletcher nosed over in a boundary drain, the propeller and nose leg bent and twisted, and a flap torn off. Then he heard another Fletcher start up with excessively high RPM and jumped back into his car to drive in front of his second aircraft that was now taxiing. He knew it wasn't his other pilot – he was away with his wife in labour about to deliver their first baby.

The man sitting in the cockpit of his running aircraft was the 18-year-old son of a customer who had seen him flying the aircraft on their various joy rides. He had decided that it looked simple enough to try for himself. He later stated at the inquiry that he thought that he knew why he crashed the first aircraft so he was giving it another go in the other one, now that he knew more.

No one was injured, but the pranged Fletcher was out of the air for a while which cost my friend sorely. The farmer paid up and covered all costs but it left an issue with the local law, and the lad, it was reported, got 3 months as a guest of the Government. How lucky can you get? Three months holiday on pay instead of being killed! It really was his lucky day.

Another recent one, here, in Australia, occurred in Mackay on Christmas Eve in 2021 when an aircraft crashed on Balls Beach. The aircraft was a write-off and the passenger was killed.

A man, 83, was killed when the home-built, two-seater Jodel D11 aircraft crashed north of Mackay. (PR HANDOUT IMAGE PHOTO)

After the ensuing investigation, it was reported that the pilot was charged with manslaughter over the death of the passenger. Other charges included his failing to maintain the aircraft and flying without satisfying safety requirements.

The ATSB commissioner, Angus Mitchell, stated that," When owners operate outside of the rules, they remove the built-in safety defences and undetected problems are more likely to emerge." The aircraft, a Jodel D11, was destroyed in the accident.

1981 saw a Smith Aerostar being ferried to the USA by a pilot whom I had once known well. A disagreeable chap, he was rather too full of himself and his prowess at the controls. When arranging ferry details with the New Zealand authorities, he included his girlfriend as a passenger. This was rejected by NZCAA who instructed him to do the flight alone as there was insufficient fuel available on board for safety, and her weight would increase the enroute consumption, further adding to the potential deficiency.

He flew solo to Kaitaia where he refuelled before heading out across the pacific. Witnesses reported seeing him stop the aircraft at the end of the runway and shut an engine down so a young woman could board the aircraft before it took off. After as fuel stop in the Pacific Islands they departed for Honolulu. Alas, the authorities knew what they were talking about because he ran out of fuel eighty nm south of Oahu and they both were killed after they ditched and the aircraft sank. Few were sad for him, many for her.

Lastly, and another fatal in New Zealand, A syndicated Cessna 150 Aerobat operated by the Rukuhia Flying Club in Hamilton, New Zealand, was sold to another local Aero Club. Not long after, so I was informed by the chief engineer at Pacific Aerospace who did all its maintenance, a student pilot decided to show his girlfriend how good he was and attempted to loop the aircraft over her house. Alas, and without any training whatsoever, he was too low to complete the manoeuvre and went out with a great bang, being thoroughly killed in the resulting near vertical impact. A tragedy of course, but not as bad a tragedy as it would have been had he had a passenger with him. Remember – he made the decision to break the law. Had he complied, …….

If you break the law deliberately, know well that you have reduced the margins of your own safety, and it will be much easier for you to have a serious mishap and even, perhaps, kill yourself. Should you also kill or injure someone else during your deliberate illegal foray, expect universal condemnation for your cretinous stupidity and abject idiocy. Sure, you will be remembered, but for all the wrong reasons. Don't make your next take-off your last one!

So, what should you do if you become aware of an aircraft breaching the law? You can confront the breacher and offer advice but you are more likely to suffer in the confrontation as such people are unlikely to easily accept criticism.

Your decision and subsequent actions will rest on your own conscience. However, it is mandatory for pilots in such circumstances to report breaches of the law when observed, and such reports are supposed to be made to:

CASA on line using https://www.casa.gov.au/about-us/contact-us/report-concerns-about-aviation-safety, Or call CASA on 131 757.

Alternatively, a report can be made to the ATSB, either on-line, or by calling 1800 011 034 (toll-free).

The third option is to make a report via REPCON as indicated below.

To report safety concerns to REPCON, you can:

- complete an online voluntary confidential report form
- contact by phone or mail - details on the REPCON webpage.

Note: REPCON is not an alternative to complying with any mandatory reporting obligations under Australian law.

Civil Aviation Safety Authority

Report low-flying aircraft and other aviation safety concerns through CASA's online contact centre or by calling 131 757 (weekdays 8:30 am to 5:00 pm AEST/AEDST).

Australian Transport Safety Bureau

Report an aviation accident or incident through ATSB's incident notification form or by calling 1800 011 034 (toll-free, 24 hours.)

REPCON

Make a confidential report about an aviation incident or accident through REPCON's voluntary confidential report form or by calling 1800 020 505.

Postscript: The perfect example of the concept of hubris endangering others because of the commanding self-belief that following rules and advice in your case is unnecessary, has been illustrated by the 5 dead people in the implosive demise of Oceangate's Titanic-visiting submersible that so recently was in the world-wide headlines. Advising your passengers that the operation has dangers is no substitute for ensuring that you, as commander, make every effort to keep them safe.

Happy flying

------ ooOOoo ------

The Dangers of Irrational Exuberance

By Peter Garrison. Published in Flying Magazine, September 20, 2021

Learning a new aircraft takes time. Not taking that time can be a treacherous decision.

"In just about every sense...he and the airplane were strangers to one another." EAA/Jim Koepnick

The pilot, 40, was an instrument flight instructor and held a commercial certificate, with airplane single-engine and multiengine land ratings and an instrument rating. He had something over 1,400 hours and made his living giving flight instruction. His logbook displayed the required endorsement for "training stall awareness, spin entry, spins and spin-recovery procedures." He mostly flew a Cessna 172, but he had recently administered a flight review in a Stearman. I will call him Jack—not his real name.

In July 2019, Jack bought a homebuilt Poberezny Acro Sport II from its builder. A small two-seat tandem biplane designed by the late founder of the Experimental Aircraft Association, Paul Poberezny, the airplane had a 160 hp Lycoming engine, a gross weight around 1,500 pounds, and a wing loading of 10 pounds per square foot. It would be expected to be a lively performer. Naturally, it's a taildragger. Jack, his uncle and some friends brought it, disassembled, to his home field, where they reassembled it over a couple of weeks.

On August 9, a Thursday, Jack made his first flight in the Acro Sport, taking it once around the pattern. After landing, he taxied back to his hangar, spun the airplane around three times, and shut it down. The engine ran like a million bucks, he told his uncle, who was watching, and the controls were very responsive. He was happy with his purchase.

A pilot with whom Jack shared hangar space talked with him on Friday. They discussed the first flight, and the pilot asked, out of curiosity, what the Acro Sport's stall speed was. Jack replied that he didn't know because the airspeed indicator was out of view, and he couldn't see it while piloting the aircraft in the rear seat.

Like other small tandem-seat biplanes, the Acro Sport is flown solo from the rear seat. The instrument panel is in the rear cockpit; typically, a rudimentary panel—consisting of airspeed, altimeter and little else—might be provided in the front cockpit as well. Most likely, what Jack meant was not that he could not see the airspeed indicator from the rear seat, but rather that during the landing, when the view forward is blocked by the long front end of the airplane and one orients by peripheral vision, there is no time for looking down at the instrument panel to check the speed at touchdown.

Jack invited a friend, who was also a pilot and had built his own experimental Kitfox, to go up with him on his next flight. On Saturday afternoon, they took off from Runway 27, flew a wide circle, and returned for a fast pass over Runway 9 at 150 feet, followed by a zoom climb.

There were several witnesses, and their accounts coincided. One witness had talked with Jack before the flight, and the man and his son stayed to watch. The man thought the engine was running at full throttle during the pass. He said that the biplane went straight up in the air about 500 to 600 feet before its left wing dropped and it made two or three “spirals down” before hitting the ground.

A woman who was sitting at her campsite a quarter-mile from the end of Runway 9 saw the airplane “going almost straight up in the air.” She thought to herself, “Wow, he is really climbing very steep.” Then she saw the left wing quickly dip down and the airplane go almost, but not quite, straight down.

Another witness mistook the drop of the left wing for a deliberate manoeuvre and said, “He doesn’t have enough space to do whatever he’s doing.” Moments later, he heard the thud of the impact.

All of the witnesses hurried to the site of the crash, 100 yards from the end of Runway 9. They found both pilots dead in the wreckage.

The National Transportation Safety Board investigators performed the usual checks of control continuity and engine functions, and they found nothing amiss. It was difficult to escape the obvious diagnosis: Jack had stalled out of the zoom climb and had not had enough height to recover from the ensuing spin.

While NTSB “probable causes” are seldom, if ever, models of elegant English prose, they do contain some nuances. This one blamed “the pilot’s decision to conduct low-altitude aerobatic manoeuvres which resulted in an exceedance of the airplane’s critical angle of attack while manoeuvring at a low altitude, which resulted in an aerodynamic stall.”

Clearly, the airplane had stalled, and the low altitude had not permitted a recovery. The steep climb was by definition an aerobatic manoeuvre because it exceeded the parameters of “normal flight,” which are understood to be 60 degrees of bank and 30 of pitch. The statement could have begun, “The pilot inadvertently exceeded the airplane’s critical angle of attack while manoeuvring at low altitude…” The nuance was in the word “decision,” which made the basic error one of judgment rather than ship handling.

What the probable cause surprisingly failed to mention was the pilot’s lack of familiarity with the airplane. He had flown it only once before, briefly, just around the patch. He was not used to its light-stick forces. He had not stalled it at all. He had not assessed its recovery characteristics, its behaviour when spinning, or its propensity for, or resistance to, secondary accelerated stalls. Critically, he had not ascertained the rate at which it would lose airspeed in a steep climb. He had certainly not rehearsed the zoom climb at a safe altitude—in order to be sure that he knew when to pitch over and what would happen if he were late doing so. He did not know how the addition of a passenger in the front cockpit would affect the airplane’s behaviour and performance. In just about every sense you could think of, he and the airplane were strangers to one another.

I have not flown one myself, but I asked a friend who built an Acro Sport II and flew it for a number of years what he thought of the airplane. “Not for the fainthearted” was his reply. But Jack’s first flight had gone off without a hitch, and he evidently felt comfortable in his new ride. Why should he expect trouble on a second flight?

Somewhere between faintheartedness and bravado, there is a region where joyful abandon meets rational discretion, and they fall in love and get married. It is there that pilots ought to dwell. Not all will; the hero in us clamours to be let out. But if time could be rewound like a tape, and Jack could replay the decision that cost him and his friend their lives, he would most certainly say this time: “Yes, I’ll be happy to take you up, but first let me get a couple of hours in the airplane. We barely know each other.”

Among the pleasures of low passes and zoom climbs is that of putting on an impressive performance. In March 2015, the pilot of an American Champion Decathlon made a low pass over a lake while friends watched from a nearby beach. The pilot was grinning from ear to ear, one witness reported, and the passenger was waving. At the end of the lake was a stand of 50-foot trees which the Decathlon should have had no problem clearing; but either because the distracted pilot waited too long to begin his climb or because he climbed too steeply or pitched over too late, the Decathlon stalled, rolled left and crashed.

It may be that Jack's accident and that one has in common not only a desire to entertain and impress watchers on the ground—a common and harmless enough impulse in itself—but also an unconscious reluctance to appear timid by ending the manoeuvre too soon. To be impressive, the zoom must not appear too cautious, but to end well, the low pass must not go on too long. In the pleasurable excitement of the moment, a pilot may cross the line where fun turns to folly.

This story appeared in the August 2021 issue of Flying Magazine

Peter Garrison

Peter Garrison taught himself to use a slide rule and tin snips, built an airplane in his backyard, and flew it to Japan. He began contributing to FLYING in 1968, and he continues to share his columns, "Technicalities" and "Aftermath," with FLYING readers.

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A politician and a Clergyman were standing side by side waiting for St Peter at the Pearly Gates. The gates creaked open and, after giving St Peter their details, they were asked to follow him to their rooms.

After a short walk, St Peter opened a door into a tiny apartment, one of thousands, all alike. It had a single bed, a wobbly desk, and just a single window.

"This is yours", he said to the clergyman. "We hope that you'll be very happy here".

St peter stepped back and signaled the politician to follow him further. They walked across a beautifully groomed green lawn and up to the glass doors to a foyer of a magnificent mansion. The gardens were all trimmed, it had a swimming pool, tennis courts, and an outbuilding with "GYM" given on the neon sign above the door.

This is yours", he said to the politician.

Astounded, and whilst expecting something better than the Priest, he never expected such sheer opulence. "This is lovely", he said. "But why is my place so much bigger and brighter than the Priest's accommodation".

St Peter smiled and said, "Priests we have in millions, but you're the first politician we've ever had!"

FLY-IN Invites Looming

WHERE	EVENT	WHEN
Murgon (Angelfield) (YMRG)	Burnett Flyers Breakfast Fly-in	**Find Next Planned Event Sunday October 8th. Confirm details at: http://www.burnettflyers.org/?p=508**

------ ooOOoo ------

STOP PRESS, STOP PRESS, STOP PRESS

Qantas to phase out passengers, in new plan to improve service.

In a new strategy that it says will slash wait times at airports and eliminate lost luggage completely, national carrier Qantas announced yesterday that it will begin to phase out passengers on flights, with a zero-passenger target set for 2025.

Newly departed CEO Alan Joyce likened the move to the removal of smoking from aircraft in the 1980s, and said the plan was the result of a top-to-bottom review of Qantas's service. "We're always looking for ways to remove inefficiencies from the system so we can offer a more streamlined, frictionless service. When we looked closely at what was slowing us down, again and again it came back to one thing – passengers".

Joyce said responding to customer feedback was central to developing the new plan. "Our customers told us they get frustrated when their baggage ends up in a different city. They told us it's unfeasible to wait on hold for 8-hours to speak to our call centre. By removing passengers from the equation, we're confident these issues will become a thing of the past. We've listened, we've heard, we're acting".

The ex-CEO told listeners that the plan would eventually lead to greater cost efficiencies, with less reliance on pilots, flight attendants, baggage carriers, caterers, engineers and airport staff. But he rejected claims the airline didn't have Australians' interests in mind. "Change can be scary, but this is about modernising our service for the future. Qantas removed smoking from aircraft in the 1980s and no-one thinks twice about that now. This is no different".

He concluded saying that Qantas will receive $1.5 billion in federal government funding to assist with the transition.

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The Secret of the Norden Bombsight

From an article by Brian Dunning. Published in Skeptoid, August 2023

Pop culture tells us the famous Norden bombsight from World War II was actually terribly inaccurate. But was it really?

The Norden Bombsight

Ah, the famous Norden bombsight. We gasp whenever we see one in the World War II wing of an aerospace museum. We read the placard telling us that it was so accurate it had to be highly classified — and then we go home and see something about it on the Internet, and we're told the exact opposite: that it was actually so bad that the real reason it was classified was so the Germans wouldn't find out how terrible our capabilities are. Which story is true — if either one is?

Granted not everyone knows about the Norden bombsight, and a lot of you have probably never heard of it before. It was supposed to be this incredibly accurate bombsight that won World War II for the Allies, allowing our high-altitude B-17s to destroy the Nazi factories with unprecedented precision. But for those of you who have heard of it, the thing you probably think you know is that the Norden bombsight was actually terribly inaccurate. Like, missing its targets by half a kilometre. That's the dirty little secret about this famous secret weapon — that it was virtually useless. You may have seen this revealed on any number of History Channel shows. You may have heard Malcolm Gladwell reveal it in his TED talk, and YouTube is bursting at the seams with generic conspiracy videos making the same claim. Whole books have been written showing that the Norden was worthless, and that *that* was the secret Allied intelligence had to protect.

Well, guess what? That's all pop-culture misinformation. It's sizzle and it sells, and so it's the version you'll probably continue to hear in almost any programming on the topic.

The basic problem of high-altitude bombing is a pretty obvious one. You're in a certain plane, flying a certain speed, at a certain altitude, with certain wind conditions, dropping bombs that are certain sizes and shapes and weights, and you need a formula that can combine all of these variables and tell you exactly where the plane needs to be and exactly when to drop the bombs. We'd learned enough during World War I to know that this was a problem we really needed to figure out. World War II was to be a war of industry, and bombing the enemy's industry was a primary strategy.

Carl Norden was a Dutch-Swiss immigrant who consulted for the US military on gyroscopically stabilized systems, and was brought in in 1923 to find a way to stabilize the current bombsights. From then on, the Norden company was the military's go-to provider for this all-important task — to the point that $1.1 billion was spent developing it.

As American engineers worked on new bombsights, German engineers did the same. Both knew the problems very well, and both knew the same basic way to solve them: gyroscopically stabilized bombsights communicating with gyroscopically stabilized autopilot systems for the aircraft. The goal for both sides was to develop a bombsight which the bombardier could calibrate, then enter in all of these variables, then spot the bombing target in a telescopic sight; and if all went well, the plane would stay on target, close in, and automatically release the bombs at exactly the right time and place.

The Norden bombsight is often described as the first bombsight that put all these pieces together and worked successfully, but that's not really fair. Norden was one company in the United States developing such systems through the 1930s; but Sperry was also doing the same. And in Germany, the Carl Zeiss company — yes, the same Carl Zeiss that makes your camera lens — was also building similar systems.

And really, none of these companies were working in isolation. In the United States, the government ordered Sperry and Norden to work together to build their bombsights to work with the Honeywell autopilot systems. This is an oversimplification of what was a decade-long arms race between these competing companies, but it's how the situation ultimately worked out. Plenty of German engineers worked at all three companies, and at least one of them, a Herman Lang at Norden, gave the blueprints of the Norden devices to the German military in 1938 — and was then promptly arrested for espionage once he returned to the United States, but the plans had been delivered. So the Germans, with full knowledge of the Norden bombsight and a working prototype based on the plans provided by Lang, still proceeded with their own existing device, finding nothing in the Norden they hadn't already figured out on their own. Lots of smart people, all working on the same problem which was well understood, had all come up with basically the same solution.

The Norden Mk. XV, the Sperry S-1, and the Zeiss Lotfernrohr 7 bombsights all had the same basic configuration. They were what we call tachometric bombsights, built on gyroscopically stabilized chassis mounted on gimbals inside the aircraft, so that as the aircraft moved around, the bombardier could maintain a perfect sighting on the target. Atop that base was the telescopic sight and the controls for adjusting everything. Where the Norden differed from the other two was in its complexity, which was really a curse in more ways than an advantage. First of all, while the other two were single self-contained units, the Norden was in two parts: the lower gyroscope which remained mounted in the aircraft, and the upper sighting assembly which was securely removed from the aircraft when not in use. The DC motors driving its gyroscopes threw a lot of carbon dust from the brushes, which got into the bearings and required regular cleaning and maintenance. It had 61 ball bearings which required lubrication and cleaning. Operation of the Norden was also more difficult than with the other two. The first step of the bomb run was to right the unit to get it perfectly level, a process requiring the use of finicky spirit levels that required 8 minutes and 30 seconds to complete, which is a chunk of time out of a bomb run. Then, many settings had to be entered into the device based on the speed, altitude, the trail (how much farther behind the aircraft would the bombs hit the ground based on their aerodynamic qualities), weather conditions, and more — all using dials located only on the right side of the unit, while Sperry and Zeiss bombardiers could use both hands. Finally, the bombardier would locate the target and work with the pilot to get the plane onto the planned approach, before connecting the bombsight electronically to the aircraft's autopilot to stay precisely on the final bombing run.

There was a lot working against all three bombsights. First of all, planes move around a lot, they bounce and vibrate, particularly when they're in combat and potentially flying through flak or dodging it. At the instant the bombs release, no plane would ever be exactly level, and every plane would always impart some unwanted movement to the bombs. Pilots never wanted to make the bomb run at a level altitude, as changing altitude was a crucial manoeuvre to defeat the flak gunners. Falling bombs would pass first through massive turbulence caused by the bomber fleet, and then through differing zones of wind. Weather often cooperated and often did not, and since everything depended upon visual sighting of the target, frequently the whole operation was based on bombardiers' best guesses. Air temperature and humidity were also variables taken into account by the tables used by the bombardiers, but the actual conditions rarely exactly matched the predicted or assumed conditions. The number of inherent problems that were outside the control of the bombsight went on and on.

So the stories you might hear about how the Norden performed well in testing and controlled demonstrations, but widely missed its targets during actual combat are true — but that's true for all bombsights. There's only so much dropping the bomb at the right time and place can do; so much influences everything that happens next.

But so far as what the bombsights could do, they did it very well. The Norden did as good a job as was possible, as did the Sperry and Zeiss units. In fact, none of these designs has ever been substantially improved upon, in all the decades since; only incremental improvements such as better electronic servos and controls. In fact, the Norden continued to be used as the United States' primary bombsight through the Vietnam War, until they were finally replaced by new generation systems such as the radar-guided Sperry-Rand K-3A bombing navigation system. These newer systems were better integrated into modern aircraft and made the bombardier's job easier, but in point of fact, could not release their bombs any more accurately than did the Norden — again, because the real problems are outside of the bombsight's control. These problems remain today, and are why we now use guided munitions that correct their own course as they fall.

The Norden bombsight truly was as good as a bombsight could be, and the modern stories you hear that it was actually terrible are false. So why is it the Norden that's said to be the best bombsight, and not the Sperry? Why did the Sperry, with its simpler design, better electronic servos and ease of use, not become the United States' primary bombsight? Turns out this had to do with other factors. First, Sperry had already been an international company prior to World War II, with facilities in both Japan and Germany. This was considered a security risk. Second, two of Sperry's key personnel — their military marketing representative Fred Vose and their main advocate in the military, Major General Frank Andrews, were both killed early in the war. Third, Norden really played up the classified nature of their device, emphasizing its theatrical secure removal from planes between uses, and working all this for its marketing value; while Sperry never even acknowledged that they made bombsights. Finally, Norden, with its original 1923 contract, simply had the inside track.

And so, seek not to place blame where it is undue, simply for sizzle and clicks. Top engineers in their field actually do tend to know what they're doing, as a general rule; even if the job they're tasked with is a nearly impossible one. The Norden bombsight was as good as it reasonably could have been, no matter what TED talks and YouTube have to sell you.

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

1. Which of the following values is the correct factor to convert kilometres per hour to nautical miles per hour?

   A. 0.868.
   B. 0.539.
   C. 1.609.
   D. 1.151.

2. In theory, is an increasing wind speed likely to change the direction from which it is blowing? Select the MOST correct answer

   A. No. Wind direction is not influenced by wind speed.
   B. Yes. Because of the atmospheric pressure gradient.
   C. No, unless the isobaric pattern is concentric.
   D. Yes, because of Coriolis force.

3. From the list below, select the conditions most likely to be the cause of radiation type fog?

   A. A clear skied night, and a breeze 2 to 8 knots.
   B. An overcast with nil wind.
   C. A clear skied night, and nil wind.
   D. Some cloud, a light 2-5 knot breeze, and a falling QNH.

4. An aircraft flying at 1000 feet at an IAS of 100 knots has a true airspeed of 102 knots. If the aircraft then climbed to 8500 feet and flew at an IAS of 100 knots, what change would likely to the TAS?

   At 8500 feet the:

   A. TAS would be lower as the drag is increased because air pressure is reduced.
   B. TAS would be the same as the IAS is the same.
   C. TAS would be higher because the lower pressure would provide more power.
   D. TAS would be higher because the air density would be lower.

5. Define the term adiabatic lapse rate.

   A. A change in air temperature caused by it expanding as it rises in height.
   B. A change in air temperature caused by its being further from the earth's surface.
   C. A change in air temperature caused by a reduction in its local adiabats.
   D. A change in air temperature caused by its diurnal cooling.

See answers and explanations overleaf

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 (International +64 400 89 3632), or email me at kni.rob@bigpond.com.

1. B is correct.

Take any kph value and MULTIPLY it by 0.539 on an electronic calculator and the result will be the nautical mile per hour (knot) equivalent. 15 kph = 8.085 knots

Conversely, **DIVIDE any knot value by 0.539** and you'll get the kph equivalent. 12 knots = 22.26 kph.

2. D is correct.

In the Southern Hemisphere, Coriolis force will cause a wind to back if its speed increases, or veer if the wind speed decreases.

See: https://en.wikipedia.org/wiki/Coriolis_force and

https://education.nationalgeographic.org/resource/coriolis-effect/

3. A is correct.

No cloud and a light, 2 to 8 knot breeze are the most likely conditions for radiation fog amongst those listed. The clear night will allow sufficient long-wave radiation to depart to cool the earth's surface to below the dew point and the breeze will provide the required mixing of the air in contact with the surface.

Note that item C is the creator of a frost.

4. D is correct.

Air density reduces with altitude so, at 8500 feet, the TAS will be higher.

5. A is correct.

Rising air will expand as the atmospheric pressure falls with increasing height, and the falling pressure will cool it.

See Atmospheric Stability For Dummies, Issue 117 of the Flyer.

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Aircraft Books, Parts, and Tools etc.

Contact Rob-on mobile – 0400 89 3632

Tow Bars

Item	Condition	Price
Tailwheel tow bar.	Good condition	**$50.00**

Aircraft Magnetic Compass (Selling on behalf)

Item		Price
Wired for lighting • Top of panel mount, • Needs fluid replenished.		**Open to Offers**

Propeller Parts

Item	Condition	Price
Propeller spacers, Assorted depths, all to fit Rotax 912 UL/ULS propeller flanges	Excellent	**$100.00 each**
Spinner and propeller backing plate to suit a Kiev, 3 blade propeller, on a Rotax 912 engine flange.	Excellent	**100.00**

For all items, Contact me - on mobile – 0400 89 3632

Or email me at:

kni.rob@bigpond.com

Aircraft for Sale

Kitset - Build it Yourself

$1,780.00 neg

DESCRIPTION

All of the major components needed to build your own aircraft similar to a Thruster, Cricket or MW5.

- Basic plans are included, also
- Hard to obtain 4" x 3" box section, 2 @ 4.5 metres long.
- Wing spar & lift strut material - 6 tubes of 28 dia. x 2 wall.
- 20 fibreglass ribs plus the moulds,
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- 2 fibreglass flat sheets for the leading edges - 4 metres long x 1.1 metres wide.
- All instruments including,
- A Navman flow meter,
- A Powermate rectifier regulator,
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- A 4-point harness,
- Set fibreglass wheel pants, and
- More.

Box sections and tubes

Flow Meter, Navman, Ballistic Chute, etc

A very comprehensive kit of materials

Ribs, tubes, spats, etc

Colin Thorpe. Tel: LL **(07) 3200 1442**,

Or Mob: 0419 758 125

Thruster T85 Single Seater for sale.

$9,750.00 NEG

Beautiful classic ultralight single seater taildragger Thruster for sale; to good Pilot. Built in 1984, this is a reluctant sale as I inherited Skyranger V Max and two aeroplanes are too many for me.

The aircraft at Kentville

New Engine Rotax 503 Dual Ignition has only 10

Fuel tank

Instrument panel

Details

Built - 1991	Serial Number - 312
Model - Thruster 85 SG	Rego Number – 10-1312
TTIS Airframe - 638	Original logbooks - YES
Engine - *NEW* Rotax 503 DIUL	Next Annuals due – 05/11/2023
TTIS Engine – 10 hours	Propeller – Sweetapple, Wood, 2 Blades (as new)

Instruments - RPM, IAS, VSI, ALT, Hobbs meter, New Compass, CHTs, EGTs, Voltmeter & furl pressure gauge

Avionics - Dittel Radio 720C and new David Clark H10-30

Aircraft is fitted with Hydraulic Brakes. Elevator Trim. Landing Light. Strobe Beacon. Auxiliary Electric Fuel Pump.is in excellent mechanical condition and the skins are “as new”.

Offers considered. Call Tony on 0412 784 019

Sky Dart Single Seat Ultralight for Sale.

$4,500.00 NEG

A single seat, ultralight, Taildragger. Built in 1987, this aircraft has had a single owner for the past 18 years, and is only now I am regretfully releasing it again for sale. I also have a Teenie II and am building another ultralight so I need the space.

The landed Sky Dart III rolling through at YFRH Forest Hill

TTIS airframe is 311 hours, and the engine, TTIS 312 – is just 1 hour more. Up-to-date logbooks available. 2 X 20 litres tank capacity. To be sold with new annuals completed.

It is easy to fly (for a taildragger), and a great way to accumulate cheap flying hours.

Call me to view, Bob Hyam, Telephone mobile 0418 786 496 or Landline – 07 5426 8983, or Email: bobhyam@gmail.com

Landed at McMaster Field after my flight back from Cooma just West of Canberra. In the cockpit with me is GeeBee, my dog

Single Seat T84 Thruster, disassembled and ready for rebuild.

I have a T84 single seat Thruster project in my hanger at Watts bridge.

The fuselage is on its undercarriage, the wing assemblies are folded up and the skins are with them.

Included is a fully rebuilt Rotax 503 dual ignition engine and propeller.

And, most importantly – the aircraft logbook!

Asking price $5000.00

Contact John Innes on **0417 643 610**

Aircraft Engines for Sale

Continental O200 D1B aircraft engine

Currently inhibited but complete with all accessories including,

- Magneto's,
- Carburettor,
- Alternator,
- Starter motor,
- Baffles and Exhaust system, and
- Engine mounting bolts and rubbers.

$POA

Total time 944.8 hours. Continental log book and engine log are included.

Phone John on 0417 643 610

ROTAX 582 motor.

Ex flying school, TTIS 600 hours, and running faultlessly when removed from aircraft for compulsory replacement.

No gearbox, but one may be negotiated by separate sale if required.

Interested parties should contact…..

Kev Walters on Tel. **0488540011**

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