BRISBANE VALLEY FLYER

October 2025

BRISBANE VALLEY SPORT AVIATION CLUB INC

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

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And it's a Goodnight from me.

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Our website - **bvsac.com.au**

Hello All,

Spring has arrived, and with it comes better weather for flying! It's great to see the skies clearing and the field getting busier again.

Of course, spring also means the grass is growing, so we're back into mowing season. Thanks in advance to everyone helping to keep the field in great shape.

I'd like to take a moment to express our sincere gratitude to Rob Knight for his outstanding work producing the News Flyer over so many years. Rob has created an incredible 140 issues, always on time, and never with a single complaint. Unfortunately, due to health issues, Rob has had to step down and pass the baton.

Thank you, Rob, for your dedication and contribution to the club — it's truly appreciated by all of us.

Our next meeting will be held on October 4 — we hope to see you there for a great day of flying and catching up.

Best wishes
Ian Ratcliffe
Treasurer BVSAC

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WANTED

New Flyer Editor

After now producing 140 issues of the BVSAC Flyer, over nearly 12 years and 8 months, I have hung up my keyboard and put my dictionaries and grammar books into storage. This Flyer issue is my last, ending a very enjoyable period of my life.

My first written piece I did as a schoolboy answering a challenge from Douglas Goodison, my then English teacher. It was to write a short story using less than two A4 pages on a science fiction story that was a complete unit in itself. I did, and it was published in the local newspaper.

My next piece, in 1968, was my first commercial article. I was working on my parent's farm and wanted a commercial pilot licence, but with the wages paid by my accountant-turned-farmer father, I calculated that I would be retired before I could finance it. I was a subscriber to Plane and Pilot Magazine, published in Santa Monica in California, and I sent a snail-mail letter to the editor asking how much they would pay for an article about American aircraft flying in New Zealand. They replied with an offer and I wrote the said article which they published in November 1968. I still have a copy.

Instead of accepting their cash, I opted to purchase books on flying that they published, the majority of which I then sold around the Flying Clubs and Schools in New Zealand. The result was a cash injection of $4715.00, a MASSIVE sum for the time into my bank and immediately enrolled in Course One at the Aviation Academy at Ardmore. It was the Commercial Pilot Training section of the Auckland Aero Club. That was in late January, 1969, I left the farm and never went back except for a few holidays.

The Plane and Pilot Magazine of November 1968: the source of my CPL financing.

Except for odd jobs like writing up instructor rosters and the handling notes for aircraft, I put word-smithing aside for the next 20 years, only re-starting after I joined the Aviation Section at the Open Polytechnic of New Zealand as a pilot tutor. Here, I had to re-write course material and I provided NZCAA with theory questions to suit the PPL, CPL, and Instrument Rating theory exams. This organisation was a real challenge to work with, being, I think, the basis for much of the "Yes Minister" TV comedy material. For example, everything a tutor wrote had to be run past the English language editors, a bunch of harumphing senior citizen, ex English professors. They each had multiple degrees in English literature, but were devoid of any common sense whatsoever, being only limited by the hubris that exuded from their every pore. When I revised the course material for the New Zealand Aircraft Technical Knowledge (BAK in Australia) CPL exam. I re-wrote the section dealing with the mechanics of feathering propellers. Obviously, this covered both the feathering and the un-feathering processes and movements of the blades, However, when this august group had finished editing my training material, my every use of the term "un-feathering" had been replaced with the word, "PLUCKED"! And I jest not!

Over the following 17 ½ years I spent with TOPNZ I wrote a number of technical books. One was on digital photography as I had replaced the photography tutor that had previously run the film photography courses at the school. The book was a private venture which I sold to TOPNZ for my photography students and I am still selling updated copies.

Writing has been a constant companion since then, and the Flyer has benefitted from the articles that I have written for other magazines such as EAA – Vintage Magazine, The Pacific Flyer, Australian Pilot, and Sport Pilot. Writing the articles on piloting that I have compiled has assisted in keeping me sharp, and the quiz question I have put to readers in the Flyer actually appear to have been read and digested by some.

However, the Flyer was, perhaps, the most challenging venture where my compilations have reverberated with a number of misguided individuals who have responded to my efforts in a less than generous manner. I will not miss the phone calls, emails, and SMSs I have received from abusive readers (almost exclusively non BVSAC members) who still claim aircraft stalls are a result of low airspeed, and other fallacies. One argumentative fellow actually threatened to find me and kill me. It was over his demand that I write a retraction on an article that I produced on tail-dragger training, in which I stated that tail-wheeled aircraft were more sensitive to crosswinds because their point of contact with the runway – the main wheels- were in front of the C of G instead of behind it. In his view the undercarriage position made no difference. He'd already told me in his contact email; that he wasn't a member but read the Flyer from the website, and that he lived in Melbourne, so I didn't feel particularly threatened.

Another gentleman suggested that I give up flying before I hurt myself and or others because I didn't know what I was talking about. He threatened to call RA-Aus to have me "struck off" because of my

flawed logic and the effect it was having on others. Incidentally, both this one and the last one claimed to be currently qualified and flying pilots. Now THAT is alarming!

I think the most significant article I have presented was one I called “Yaw is no Yawning Matter”. It has been reproduced in other magazines in New Zealand, the UK, Canada and by APOA in the USA. AOPA in the US actually turned it into a video.

For all others out there, I am flattered that you have put up with my scribblings for the past decade plus, and maybe, just maybe, something I have written has struck a chord with you and you have retained a bit you hadn’t known before.

Keep safe while you fly. Always keep your angle of attack smaller than your shoe size and you won’t get into an inadvertent stall.

Cheers

Rob Knight – signing off.

A man got into a bus with both his trouser front pockets filled with golf balls, and sat down next to a very attractive blonde. The puzzled blonde keept looking at him and then looking away.

Finally realizing what was disturbing the young lady, He smiled at her and said, “*Golf balls*”.

Then, after more curious glances, she replied, “*I hope it doesn’t hurt as much as tennis elbow*”.

The Life of a Topdressing Pilot.

By Rob Knight

In late 1968, when I enrolled for my CPL course at the Auckland College of Aviation, I was required to record my intended career intentions on the enrolment papers. From my farming background and rebellious nature, I had no desire to fly airliners, so entered “Aerial Topdressing”, aka Crop dusting elsewhere. And thus, the die was cast.

Part of the CPL course was set aside to give students extra training hours in their desired fields, so, as most entered a desire to fly with airlines, they got added night and instrument time. I spent minimum time on these and extra time in the low flying area. Looking back, this was a major factor in my surviving my early days in the Fletcher front seat.

Gaining my CPL in July 1969, Barr Brothers, a local topdressing company, immediately offered me a job flying one of their several Transavia PL-12 Airtruks. It was a ploy to get my father’s business from James Aviation who normally got the contract for work on out family farm. However, James immediately made a better counter-offer which I was pleased to accept. It was an easy decision as James were a far bigger company and offered better, though still somewhat minimal, terms.

Initially I was trained to drive their aircraft loaders to occupy me until a flying job came available. The loader trucks were some very old Thames Traders and more modern D 214 model Fords, which carried 214 cu/in engines and two-speed differentials. However, the superphosphate dust killed the contacts in the electric switching system and they had been wired to remain in low ratio. Thus they were restricted to about 50 MPH on the open road and less with a full tank of Avgas on board.

These trucks doubled as refuelling tankers for the aircraft, and had tanks fitted that could hold 650 imperial gallons of 100 octane gas which we used in the Fletchers. Naturally, quite a lot also got used in private cars etc. when the Boss wasn’t looking.

After about two months of loader driving, one of the line pilots suffered an eye injury from rubbing his eye after a sandfly flew into it. He developed a serious eye infection and his vision was affected to the extent he was taken off the flying roster and he returned to his farm while it healed. As the company, at that time, had a major contract to spread superphosphate on the Paua Block, a very large Government owned property near North Cape, I was called in to fly his plane until he recovered. Without a moment’s hesitation I immediately surrendered the loader cab for a cockpit.

Alas, to my then chagrin, I didn’t get his aeroplane. It was relatively new and had low hours. Instead, I was given a very old spare, used as a stand-in when other Fletchers were grounded for maintenance. Peter Chinn, the Area Manager for James, simply told me to take the “log”, (nickname for the aircraft) refuel it and take it away for an hour to get familiar with it. Then to report back to him on my return. He checked my CPL was valid and that I held a CSU Rating (for a constant speed propeller) and left me to get on with it.

I had already been sitting in the front of Fletchers during ferry flights so the relevant airspeeds and feel of the aircraft were already known to me, so I easily followed his instructions. On my return I reported and he asked me how it went and that I was to be at the airfield the following morning at 0315 to do a pre-flight, and I’d need a torch. Bruce Matthers, a pilot I’d known for years, would be taking me up to the Paua Block and I’d be working with him for an indefinite period.

I was there early, and had my preflight finished before Bruce arrived. He got me to follow him around his pre-flight to ensure I’d correctly checked all the idiosyncratic issues with the Fletcher. I had. At 0345, with the loader drivers on board, we started and warmed the engines before departing via runway 24, just ahead of the rising dawn, about 20 minutes before MCT.

Forty minutes later we arrived at the Paua Block airstrip. This is in the very northern part of New Zealand. where the island is very narrow, just a couple of kilometres from coast to coast, with the golden sands of Ninety Mile Beach to the west and south and the pristine white sands of the east

coast and the Parengrenga Harbour to the east. The strip ran about 03/21 and was much longer than most, about 2500 metres from end to end, with a slight downslope to the north. This was handy as the sea breeze, when it rose, gave us a light tailwind for landing, and a headwind for take-off, the latter the more critical factor. The strip was very wide, about three wing spans, and the loading area was completely clear of all obstructions except for the lidded bins that kept the fertilizer dry. It was a superb location to start an ag pilot's initial training.

Bruce landed first and I parked beside him. We exited the aircraft and the loader drivers went off to get a loader fired up. We could share a loader as we would be working consecutively. The loader trucks remained on site, only returning to Kaitaia when their avgas tanks ran dry.

The Block manager ambled across, after parking his ubiquitous cloth-backed Land Rover beside my wingtip. As his minions noisily drew the bin-lids back on their rails, he reminded us of the power wires across the property and explained where he wanted the super to be delivered. It was all pretty straight forward as Bruce had been working on this property for over a year so was very familiar with it and its hazards. After reassuring us he'd have morning tea at the strip at 10:00 hours, he left and Bruce began to brief me.

We talked about short landings and take-offs and the technique he used. He wasn't qualified as an instructor but that wasn't required of a mentor, and I was to learn by copying him and his flying techniques until I learned enough to survive by myself. No "dual" time would be logged but initially I'd be flying in Bruces aeroplane with him and observing. Then we'd switch aircraft and he'd fly with me in mine, and put his life in my hands.

Loading my Flecher at the Waiotehue Airstrip in 1970. Note the loader bucket above and behind the cockpit, above the hopper entry. Below and to the right of the bucket is the window for the load driver's seats in the back. Note the augmenter tubes.

Initially we did two take-offs and landings empty. It was extremely cramped. The aircraft were single seat, located in the centre of the fairly wide cockpit. Two apple-box boards, cut to size and shape, were laid from his seat to the stringer on the sidewall and I sat on them. There was no safety belt or harness to buckle up, but with the canopy closed, and my head, sans helmet, twisted and jammed up against the perspex, there was no way I was moving anyway.

Then. as arranged with the loader drivers, Bruce signalled for 2 CWT[1] to be loaded into his hopper. He checked the trim setting, the flaps setting, temps and pressures were all green, and swiped the trip number arm before opening the throttle. The engine note deepened and the volume rose and we rolled. As the noise rose more, and then even more, until the world was filled with reverberating vibrations rolling around in my ears. The noise without my helmet was stupendous; it made my ears throb and ache. Bruce had already warned me so I was expecting it but in reality, it was worse, much, much worse than I had anticipated. With sign language, he laid out the sowing runs and showed me the ground references he used to achieve accurate swathes of superphosphate across the developing pastures. With such a light load we quickly spread that small amount. Returning to the strip, we did three more runs, each with 2 CWT.

It was 10:00 and fuel was low so we shut down for smoko. Bruce seemed happy with our progress and spent the time idly chatting about things to watch for, and to avoid at my peril. Then after instructing the spare loader driver to refuel his aircraft, he suggested I should start my aircraft so I could show him how to do it.

We did two empty runs with him squashed into my aircraft and it was only a little less comfortable for me than it was for him. Pushed half out on my seat to the left, my hand fell awkwardly onto the

[1] *CWT – Hundredweight. 1 hundredweight = 112lbs, approximtely 51kg.*

throttle/prop/mixture controls and it was both stressful and alien to fly like that. After the second run, he seemed satisfied that I had the idea and, after the last landing, signalled me to indicate to the loader driver to put 2 CWT into my hopper.

After two actual runs each with just 2 CWT aboard, we upped it to 4 CWT for half a dozen or so runs before we had a short de-brief with the engine shut down. After a couple or so pointers for me, we re-started and we operated that way until noon when the Manager brought our lunch. Tomato and onion sandwiches with billy tea, the same fare as shearers got.

After lunch we did one more run at 8 CWT before he got out and instructed the loader drivers to give me 6 CWT loads for the rest of the day, and left me to it, with the instruction to stop and park if I needed anything. Remember, there were no radios in our aircraft but the loaders were fitted with both VHF and HF radios, the latter to call the James maintenance base at Rukuhia, in Hamilton, if aircraft went U/S in the field.

My day continued with 6 CWT per load, watching carefully to ensure that I followed Bruce in to land after each run. As we were carrying quite different loads, my run times were always shorter than his and we didn't want to argue over who had the right of way on short finals. I simply orbited out of the way until I saw him land, and then followed him in as he was loading. He took off again after I had taxied clear and was waiting for the loader to refill his bucket.

We arrived back in Kaitaia about 45 minutes after ECT, exhausted but happy, and filled the aircraft tanks before heading off to Mrs Jenkins where I boarded. She was unhappy because they had had their tea at about 5 o'clock and it was now after 20:00 hours. She said I'd have to do better if I wanted to continue to board there.

The contract with the Paua Block was for 500 tons of super to be spread over four months from the date of signing so Bruce and I were kept very busy. We worked Monday to Saturday and my salary comprised two considerations. A retainer of $10.85/week, and $2.25/hour productive time which excluded ferrying. However, if we got the tonnage sown in less than the standard time, we were awarded with a company bonus which, of course, was a serious inducement to take short cuts and cut corners to reduce flying times; a direct inducement to take risks. This is unhealthy and I am pleased to say this practice is now outlawed. But even so, and with bonuses, I was not going to get rich any time soon. But, boy, was I having fun fun fun!

We were a bit of a motley crew. Bruce was pakeha, like me, and one loader driver, John, was a very friendly Maori lad who liked to bring kaihangi (kai – food, hangi – the Maori earth oven used for cooking food = food cooked in a hangi) for lunch. This was no issue as we had often eaten hangi food at school, on sports days etc. However, the other driver was Kern, a Dutchman who only seemed to shave on his birthday. He loved fishing and fish, which he ate raw. I recall Bruce making outrageous comments about kern's lunch, raw snapper or kahawai fish, dotted and spotted all over by ink from the newspaper in which he had wrapped it.

Bruce really shone on his basic, blunt, and practical advice when answering questions. One day, having lunch whilst sitting on the log we used, I mentioned a rising trend I'd seen at Ardmore during my CPL training. Some instructors had begun teaching their students on reduce flap on crash 'n' dash (touch and go) landing. At Auckland Aero Club this was not policy. Lew Day, the CFI, advised that it was a throw-over from these pilots being multi-engined trained on the Twin Comanche aircraft which had a flight manual requirement to do this. I mentioned this to Bruce and asked his opinion. His response was typical of his pragmatic approach to everything about flying. "Who the f*@k, in their right f*@&n mind, would want to increase the f*@&n stall speed and reduce their lift in the middle of a f*@&n take-off?" In flying matters, his advice was extremely clear cut.

My hours grew quickly and my proficiency, by the measures of the time, grew exponentially. I could put my wheels within a few inches of my chosen landing point 10 times out of 10, and the aircraft

flew off right on my selected mark on every take-off. The ball seemed glued between the index marks on the slip indicator but, as my hours grew, so did the monster of my over confidence.

We often worked totally illegally long into the darkness in the evenings. A semi-tropical night, calm and a bright moon was similar light to just after dawn and was no real problem provided one's eyes were attuned. We each carried a torch to illuminate the ASI should we need to, but it was not used. On these nights we sometimes didn't get back to Kaitaia until after midnight. The airfield was well out of town and our illegal operating hours disturbed no one so we got away with it. We kept two logs, the official one and an exercise book in which we entered our daily times. We reconciled the official one at the company office each month so our books tallied alike with the company aircraft logs. The greatest drawback of this was our lack of sleep, only getting about 2 to 3 hours each night we got back that late.

It was over this period that we got into formation flying. The ferry trips up and back were mostly along the coast, and, provided we flew around the seaward side of Mt. Camel, we could fly down to sea level. So, with Bruce as No 1 and me as No 2 in echelon starboard, we did it often. We got braver and soon we were tucked in really tight, and by really tight I mean my prop arc was just forward of his tailplane leading edge, and my wing root was just behind his tailplane trailing edge. The air was inevitably as smooth as greased glass and we happily did this on virtually every working day. Coming home at night we did the same. With our night vision totally established, we tucked in just as tight for the 40 minute late evening trips back to base.

We were not equipped for night ops. Our only lighting was a flashing light, home-made by the company, from two Bedford truck side-blinkers, which were screwed atop our vertical fins at the tail. One had a lateral axis; the other was parallel to the longitudinal axis of the aircraft so a full 360° arc was visible. These were, as I said, the only visual warning lights we carried and we normally landed still in this tight formation. The only emergency agreement we had made was that if I broke away, I'd pull max right and level, and Bruce would roll left into a full throttle tight climbing turn. This would give us the best horizontal and vertical separation in the shortest time.

We broke this formation habit after one near issue as we got back to Kaitaia. We always landed on the threshold of 24, and, with the short roll after touchdown in an empty Fletcher, could add power, turn left, and taxi straight into the James tie-down area. It was super convenient. Remember I was just 21, could out-pace a speeding bullet and step over tall buildings, smiling all the while. At about 23:30 hours one night, close in to the field, we turned final, with me tucked in tight to Bruce's tail. As normal, we slid down the very short final but, at about 20 feet above the runway, about to flare, Bruces starboard wing rose up in front of my windscreen. He was breaking away, so I rolled right into the agreed max rate level turn. Leveling the wings, could see Bruce's Fletcher about a quarter mile away recircuiting for 36 so I followed him around and landed behind him. After taxiing back to the tiedown area, I shut down and I saw Bruce run to where his Vanguard ute was parked. When I met him and could see him in the ute's interior light, normally swarthy in complexion, he was very pale. "Did you see them?" he asked. I shook my head and he signalled me to jump in and we drove out onto the runway.

On the threshold of 24 was a group of about thirty black, poled-angus steers. One had a white face. Bruce had seen that face flash in the home-made beacon light as he started the flare.

Had we landed amongst the herd, Civil Aviation would have been very interested, as would have been the insurance companies. That was No 1 scare, born purely of overconfidence.

For a period, I was moved south to the James base at Kaipara Flats airfield, near Wellsford. We had another large government owned block as a customer on the Tapora Peninsular, an arm that juts out into the Kaipara harbour, immediately opposite the harbour entrance. The strip was not as good as the one on the Paua Block: it was shorter, steeper, and with the runway area splitting into two arms as the ridge along which the strip was made split into left and right directions. Here I was being mentored by Eric, another very experienced pilot, but with a short fuse and who really didn't want

to be supervising anyone. It was at this strip that the two worst experiences I had topdressing occurred. Neither was due to aircraft mishandling issues or arrant stupidity, although I was normal and had bouts of these, too.

The first was off the end of the strip. It hadn't been used for a couple of years and tea-tree had grown up in the fork at the bottom end of the runway where it split. With the short runway and aware of reducing either our trip times or the number of trips to try for the bonus, we were overloading and flying off the end of the strip without sufficient airspeed to maintain height or turn without risking a stall. There was no fence or obstacle on the runway end so we flew the aircraft off the end of the strip and flopped into the cleft between the ridges to pick up the required airspeed. With the single seat in the middle of the wide cockpit, my view of the outside and close to the aircraft was strictly limited and my mentor, being of similar stature, suffered the same handicap.

We flew continuously from our arrival, just after dawn until the tanks were low, about 07:30, when we stopped to refuel and have a cuppa. We compared notes and chatted for about 10 minutes while Eric's loader-driver filled our tanks before heading off again. We were on a short lead, with a turn-around time of only about three minutes per trip, that's three minutes between our loaded take-off and empty aircraft landing. This equates to around forty take-offs per hour between us, or a take-off every ninety seconds.

After about another hour and a half, when my tanks were getting full of air again, I noticed that on every take-off I seemed to run into wake turbulence as I dropped the aircraft into the gully between the ridges. The day was heating up so I signalled to reduced my load by half a CWT and then, a couple of runs later, by another half CWT, but it seemed to make little difference. When we shut down for lunch, I mentioned the wake turbulence issue to Eric and he admitted that he's found the same and had reduced his load by exactly the same amount as I had. Finishing our tea, we walked down to have a look at it.

What we found scared the hell out of both of us. We had been flying across the tea tree at about three feet above it as we gathered speed to fly, and the ground effect blasting from our overloaded wings, had stripped the entire top foliage from the tall shrubs. We had been dragging our wheels through the bare spiky branches which by now were getting very close to where the prop tips would have been. Had we not checked it, one of us would have lost our prop when we hit a branch at full power. When we looked closely at the situation, when viewed from our seats, the proximity of the tea tree would not have been visible to us, hidden laterally by our seat locations and forward by the high nose attitude. We both reduced our loads by a further 2 CWT and left it at that level for the day. This was a big lesson for me who had been looking at mentors through rosy glasses and it did me great good to reconsider and realize they were fallible too. Eric should have foreseen this, he was the mentor, the man with the experience, the man teaching me the hazards and how to avoid them. Instead, either of us could have been killed.

My second life-lesson was entirely different. As the road out to the strip was tortuous and took the loader driver much of a day to drive out there, with the owner's permission, we parked a spare loader full of fuel on a private strip about halfway between the strip and home base. In the afternoons, we left the Tapora strip with about 20 minutes flying time in the tanks, and dropped in to the half-way house to top up enough to get home. This allowed us to leave the loader out at Tapoura for another couple of days before the tedious drive home by the driver to fill it up, and us waiting and losing half a day following as he drove it back out.

Taking off on the refurbished Tapora air strip, after we sorted out the wake turbulence issue.

We ended the day, a Monday, at a more appropriate time than at the Paua Block - CAA was only about 100 miles away in Auckland and had local eyes, so we had to be

more circumspect in what we did and how we did it. In the early fading sunset, we took off and headed to the half-way-house to top up.

We taxied up to the loader me parking away a bit to allow Eric to refill first. He jumped off his wing and I ran over to the loader and saw the fuel gun handle had been cut away to release it from the padlock. Assuming some fuel remained, the tank had contained about 400 gallons in it when I locked it up the previous Saturday, I took out the fuel gun and drew the hose out to Eric's wing. I went back and started pumping the hand pump but no fuel came out. The enterprising visitors had absolutely drained the tank.

What they didn't know was that below the pick-up for the pump there remained a considerable amount of fuel, a sort of safety buffer to collect solid impurities and water. With the light fading, we were in a hurry, so I drove the truck onto a slope that leaned towards the outlet and got out the coil of 1 inch fuel hose from the locker and passed one end of it to Eric who had taxied over to me. I climbed up onto the top of the tank and unscrewed the air vent gauze. I dropped the other hose end into the tank and followed it with another few feet to ensure it bottomed, before jumping down and going to Eric's port wing where he waited with the hose and the chamois filter we used for all manual refuelling.

In light of the social ranking between us, it was me on the sucking end to syphon the fuel out and into Eric's tank. I wrapped my lips around the hose and sucked, and sucked, and sucked. I could feel the drop in pressure and it got harder and harder and then, suddenly, with a helluva rush, I got a face-full of icy-cold avgas. The stream from the inch hose took my breath clean away and I drew in a lungful of mostly 100-octane. I remember the world starting to spin around and colours fading. My fading consciousness told me that this was a stupid way to die, and then I stopped recalling anything.

My next memories are vague; they are of lying across the back seat of Eric's VW bug. He was hammering it along what I found later was the road from the airfield at Kaipara Flats to Warkworth. Then I remember being in the Dr's rooms at his practice in Warkworth, and it's from here that my memories begin to be continuous.

I was vey ill. My lungs were scarred from the raw liquid and I feared for my CPL medical. To my good fortune, the weather turned inclement and the strip at Tapoura took several weeks to dry enough to operate from so the company wasn't put out and left me in peace. During the fortnight I was laid up, I developed a very bad cough so I returned to the Dr who prescribed additional antibiotics for my healing lungs. Then he made me an offer I regretted for more than two decades. Remember, this was in 1970 – he suggested I might smoke a cigarette or two. In his opinion, as I wasn't then a smoker, the added mucus the irritating smoke produced would more quickly allow me to cough up the gunk that needed removing from my chest. He picked up his own packet, opened the lid, and offered me a Peter Stuyvesant cigarette. I smoked Peter Stuyvesant for the next 26 years before I could finally quit.

This taught me that I wasn't bullet proof. And tall buildings were not realistic. I should think more about what I was doing before I did it to ensure surprises were easily remedied and not life-threatening episodes.

Then Eric was moved to another locality and his place was taken by David. David had in excess of 17000 hours just in Fletchers, and had flown logbooks of time in Tiger Moths, Austers, Cubs and Cessna 180s on ag ops before that. David was totally professional. His manner was measured, I never saw him surprised, and he was the best mentor I ever had. Bruce was fine, but David would never have had a near miss flying in formation and illegally landing in the dark. Then, about 4 months after he started at Kaipara Flats, he was killed.

By this time, I was well out of supervision but still operating in the area. I was operating from a strip about 15 miles from where David was, and my loader driver took a radio call from his driver to say

David had taken off but not returned. And there was smoke in the area in which he was working. I was loaded so, with my loader-driver in the back, I took off, quickly delivered my load, and then went across to Davids's strip. Getting there, the loader driver was distraught, as one would expect. David, he told us, had been gone about 35 minutes so I left my driver with him and took off to have a look in the area David had gone to.

His wreck was easily found. On clear, pristine pasture, near both the end of the strip and the farm house owned by the farmer for whom he was working. The wreck of the Fletcher lay on flat land on the bottom of the valley, burned out, with the cranked ends of the wing, and the tail surfaces clearly visible, stark, white, with a black, ugly centre of ash.

The accident was investigated and the report laid the blame onto David himself. Although the farmer was not to have allowed cattle onto the strip after superphosphate had been delivered, he had. The super phosphate was not binned, but, instead, just in a large pile, not even covered with a tarp. The cattle, attracted by the salty taste of the super, had licked the pile of dry granules and, as it had a diuretic effect on them, urinated in giant puddles all around the pile. However, most of the liquid had been soaked up by the phosphate granules and they swelled, changing the slope of the pile. Dry powder slipped down and covered the damp patches so they were invisible to observers.

It was only the third run of his day. David had already delivered two loads into the target area and then re-loaded with the third. All three loads were contaminated by the wet granules but, because the loader was set to deliver a weight into the hopper, no adverse effects had appeared. But these arrived with a vengeance during the dropping of his second load. The dampened granules not only weighed more, but they also became very sticky. It was calculated that much of David's second load failed to exit the hopper gate and he was still carrying this when he returned to the field when and his loader driver put another whole load on top of the un-spread remaining mass. It was estimated that he started his third take-off with close to a load and three quarters on board.

The aircraft failed to get airborne off the steeply sloping strip. Even opening the dump, the slope made it impossible to stop once the aircraft started down it so he had no option but to continue with his take-off and to try to fly it off. He may have opened his dump system but, with no super on the strip it was assumed that either he didn't dump, or the wet granules had jammed the gate so completely that no flow ensued. The damage in the resulting crash was so severe that it wasn't possible to know whether the dump had been opened or not because the dump control mechanism was so mangled.

David had careered down the continuing slope from the strip, failing to reach an adequate airspeed to get out of ground effect, and the aircraft had impacted heavily where the slope levelled out. The aircraft had flipped over its nose, breaking its back, and David was trapped in the cockpit to die, sandwiched between a 10-litre engine and ¾ of a tone of fossilised seagull dung. The report included that the farmer's wife, waiting with her children for local school bus saw it happen and could hear his cries about two hundred feet in front of her.

My feelings for the industry died, also, in that moment. I was a pall-bearer at his funeral and I couldn't get it out of my mind that, if David, the consummate professional, with all his hours got killed, what chance of survival did I have, with a mere 1640 hours logged. I was engaged to be married by then, and a wife seemed a lot better bet than a widow. I saw the devastation it brought to his wife and his five children, the youngest only a few months old. And could see myself in his position with startling clarity. I resigned from the company.

I never flew another topdresser[2]. I later ferried Fletchers for Pacific Aerospace, delivering them to various operators around the country, but these were the FU-24 950 models, with 400 horses in front, aerodynamically balanced ailerons, and no walrus-tusk augmenters.

[2] *Topdresser – crop duster aircraft.*

Years later in an idle moment, reflecting on those adrenaline-filled times, I realized that I had learned some vital skills over that period A few were handling ones, but most were mental in application. In particular, it forcibly drew to my attention that so much can happen in a moment of time that cockpit drills and checks must of necessity be concise and succinct, and cannot always be just writings on a flash card, to be located, lifted to the face, eyes focused and read and actioned. A pilot can be too time-poor. Actions always speak louder than words and sometimes it is life or death to act quickly, without reference to outside aids, in order to maintain control of a situation in an aircraft. Time is, indeed, of the very essence, and looking up a card for basic instructions is the very last thing a pilot needs. With a two-crew arrangement, of course, that's a very different matter.

Happy flying
Rob Knight

Loader in action, notice how close the rear guard of the loader is to the all-flying tailplane on the Fletcher. The hoppers on our 300 hp models could hold about 14 CWT (1568lb or 710 kg) of granulated superphosphate, or over 20 CWT (a ton, or 2240lb, or 1020kg) due to the greater density of powdered lime. According to my placards, I could carry 12 ½ CWT legally but regularly took-off on appropriate airstrips with 20 CWT (a ton) of lime on board. One flew one's aeroplane very gently!

Loader in action, loading an FU-24-950.

A "nice" airstrip. It has good width, a reasonable slope, and a clear departure with room to descend/sink after the wheels lift off if the pilot has issues and has to dump.

Yaw is no Yawning Matter

By Rob Knight

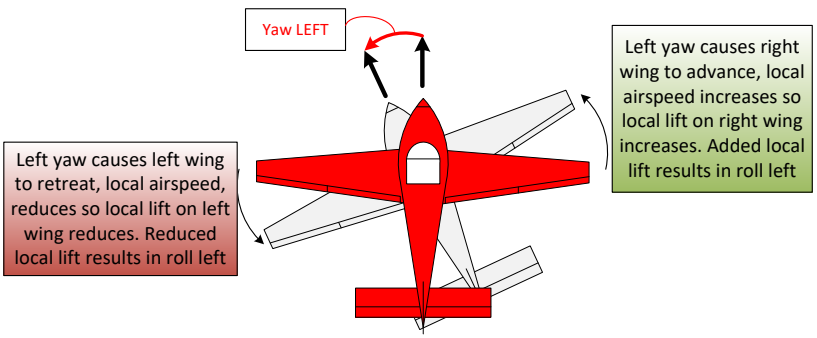
For 51 years I have been teaching Effects of Controls, and for 15 of those years assessing other pilot's handling of aircraft in view of signing them off for a license. My observations over these periods leave me clearly recognising that too many pilots find flying in a straight line is a difficult manoeuvre. This is so broad across the pilot spectrum that it's a serious indictment on pilot training. While almost all would argue with this, the evidence is abundantly clear. So, what's the problem?

Essentially, it's one of human nature compounded by inadequate flight instruction. Humans naturally ignore yaw. In learning to walk we quickly found that leaning too far forward or backwards made us fall over and it hurt. We also learned that leaning excessively left or right caused a fall sideways and that hurt, too. However, we could stand and spin around and around and get dizzy: it was actually fun. Yaw was safe, but pitch and roll were punished with pain. This conditioning is life-long unless modified so, when pilots learn to fly, they MUST be taught to amend this conception. Too many pilots qualify whilst still lacking the necessary clear understanding of yaw and the true function of the aeroplane rudder because their instructors suffer the same shortcomings in their own conditioning and, unaware, are unable to see it in themselves. Pilot's carrying this fundamental misconception naturally place an excessive priority on monitoring pitch and roll to the detriment of discerning and controlling yaw.

Over the years, asking flight test candidates what the rudder was for, got me a virtually unanimous response, "To balance aileron drag". Further pressing may add, "Steering when taxiing". Both are correct but rudder function is much more than merely these.

Rudder controls yaw, either by causing it when input, or preventing it, or stopping it if it has already occurred. The Effects of Controls lesson provides details on further effects and these I will deal with in due course. Right now - understand that the rudder is the aeroplane's YAW control.

So, what is YAW? YAW is movement about the aeroplane's vertical (or normal) axis or, from the pilot's perspective, lateral movement of the nose. Exactly as was taught in Further Effects of Controls, yawing the aeroplane will subsequently promote roll. The reason is simple – if the aeroplane's nose, for example, is yawed left, whilst the yaw is occurring, the left wing will retreat compared to the right wing and the right wing will advance compared to the left wing. This creates an airspeed difference between the wings and, with a constant angle of attack, airspeed changes must result in lift changes. Therefore, differing local airspeeds cause differing local lift values and, after these forces have been applied, the aeroplane will subsequently roll in the direction in which it yawed even though the ailerons are central.



Further Effects of Controls - Yaw creates roll, unless prevented by the pilot.

So why the confusion with yaw? Because pilots don't perceive yaw since they are not looking for it - they still prioritise roll and pitch. If an aircraft yaws and then rolls, but the pilot doesn't see the yaw, they inevitably use aileron to resolve the roll symptom and not the yaw cause.

So, what other causes are there for yaw that the non-discerning pilot can miss? The list is longer, even for single engined aircraft, than most people realize. It's not just the rudder that instigates yaw so let's look just at the two most predominant causes.

First, and the one actually taught, aileron drag causing adverse yaw when entering or exiting turns. Ailerons deflect in opposing directions – when one is UP the other is DOWN and each produces a different drag signature when deflected. The up aileron enjoys relatively lower drag whilst the down aileron suffers relatively higher drag. Thus, and again, as taught in Further Effects of Controls, ailerons promote roll and then, fractionally later in time, subsequent yaw. It's important to note that the drag differential between the wings will produce YAW away from the direction of intended turn. Any time a pilot enters or exits a turn using aileron the aircraft will subsequently yaw (the wrong way) unless pilot corrected using rudder.

Second, and the one not regularly taught, the atmosphere. Turbulence and horizontal wind gusts both cause yaw. If turbulence lifts a wing the aeroplane slips away from the raised wing. The keel surface behind the centre of gravity causes weather-cocking so the aeroplane will YAW and then roll. Even more insidious are horizontal wind gusts which are most prevalent on approach, especially as height diminishes. Horizontal wind gusts also cause weather-cocking and result in --- YAW --- and then roll - and too many pilots don't recognise this. They tend to see only the resulting roll and correct that leaving the yaw uncorrected. Turbulence and gusts are perfectly natural occurrences and what the pilot does about them is the element that, in my experience, differentiates between pilots and aeroplane drivers.

The driver will use aileron to level the wings. That is what they're there for, isn't it? Well, yes and no: it depends on what else is happening at the same time. Remember that roll follows yaw. If the pilot only sees the roll and misses the yaw he is behind the aeroplane and using aileron alone will only aggravate the situation. The driver will then, after the aileron application, continue to try and get the nose back onto the reference point with his hand, tolerating the, hopefully, reducing swerves and wanderings of the nose. This can take from a few seconds or, on finals, take the entire leg and perhaps result in a go around because the aeroplane is too close to the runway edge for safety.

Pilots giving yaw recognition and yaw control a higher priority than roll or pitch will recognize the yaw before the roll occurs. They apply sufficient rudder to arrest any lateral nose movement and restore it to the original reference point. As roll is subsequent to yaw, if the pilot is quick and precise, the nose can be put back in place BEFORE roll has occurred. A pilot must FIRST keep the aircraft straight relative to the reference point ahead and only then use aileron, with appropriate rudder to balance, to level the wings. Otherwise, they have overlooked/missed/not seen, the yaw that needed to be arrested by the rudder a just a few milliseconds before…… ergo THEY ARE BEHIND THE AIRCRAFT! They are controlling the symptoms, not eliminating the cause.

While entering and exiting turns is a subject for another time, a view heard from other experienced pilots is that they prefer to lead with rudder when applying, adjusting, or controlling bank. I do not subscribe to this. Personally, except for turns of just a few degrees, I find this technique not to be universal, but more applicable to specific aeroplane types with particular aileron designs and longitudinal stability issues. This is especially so when using small aileron deflections necessary for gentle roll-ins. I use just sufficient rudder to counter any adverse yaw created. As I don't have adverse yaw before I use ailerons, there is no point is applying rudder before the aileron. It is really a case of recognizing the aeroplane characteristics of the machine that you are in.

However, when making an approach after setting the aeroplane up on finals on the extended centre-line, the situation requires a finer look. I have sat through an uncomfortably high number of qualified pilots making approaches that would do great justice to a ski-slope slalom. The cause – they under used the rudder to stop yaw and keep straight, and prioritize the aileron in an attempt to

keep the wings level. If they kept the aeroplane straight with the rudder their wings will stay level without, or with only minor, aileron input.

On finals, keeping the highest priority on yaw will ease the pilot load because the aeroplane will be steadier and there will be no need to engage in combat with the controls. This will provide time to exercise better judgment so the approach will go easier and the flare and hold-off float will be easier to judge. This will make for better landings so confidence rises and so then will competence and expertise. All for the sake of applying a higher priority on yaw prevention and control.

Don't be an aeroplane driver, be a pilot – it's much more comfortable, and less of your passengers will suffer nausea so you'll have less to clean up.

This same article has also been published by Australian Pilot, AOPA magazine in the USA and EAA Vintage magazine, also in the USA. Note that AOPA USA also produced it as a video for instructional purposes.

Happy Flying

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The Art of Flying, Do You Have it
(And why it's so Different to the Art of Piloting)

By Rob Knight

Pilots, Aviators, Fliers, Aeroplane Drivers, these terms would all seem synonymous but that's only to the uninitiated. While they are all supposed to be people that operate the controls of an aircraft, there are worlds of difference separating the actual concept of these nouns.

In the sixty years since I had my first "ride" in the back seat of a 90 hp PA18 Cub in 1960, I have seen people who would fit into all these positions yet could not provide to me confidence in their competence to demonstrate adequately their abilities in the actual art of flying. Sure, they do everything right, they operate the aircraft faultlessly, they manipulate the controls faultlessly, their decision making is flawless, yet they still appear as fish out of water. They are not part of the machine. They cannot be as one with the air and the aircraft. Everything they do is because they have reasoned the necessity of the action and it is for a purpose – it is mechanical, a response to get a result that is almost mathematical in its precision. Yet they are still not one with their environment.

So what sets the magical aviating artists apart? It seems to be their ability to feel a special rapport with the airframe and the engine. The aircraft responds to their control movements with a subtlety unseen in the non-artists. They manage to achieve max rate turns with less control inputs – their rudder use is effortless and proves to be exactly what is appropriate to balance the adverse yaw – the ball is not consulted to check for no slip or skid. Altitude is maintained because the exact amount of changing back pressure appropriate to the bank angle is applied, but as it is needed and not after the VSI indicates a correction is necessary. The roll-out is smooth. Aileron and rudder are applied simultaneously as needed to smoothly roll the wings level and for the aircraft to stop the roll-out in the perfect wings level attitude, with the nose in exactly the right place to freeze the altimeter and its more sensitive VSI colleague.

An air traffic controller instructs the pilot to climb to a new altitude and without apparent effort the horizon sags below the nose and the RPM increase, all without apparent effort. The pilot just glances at the panel to confirm that what he wanted, he has in fact got. Then, as the altimeter hands approach the desired new level altitude, the nose gently sags and the engine noise softly diminishes as the pilot resets level flight.

Within my sixty years of aviation exposure, I have been instructing for forty-six, and was examining for seventeen, and in that time, I have literally flown with thousands of other people. Some were pilots already qualified; some were students on their first air experience scared to dip a wing in case they fell out, and the rest somewhere in between. All would say they aspired to being possessors of this magical art of flying but only about 2% at most ever achieved it. In those sixty years, I've had plenty of time to think about why so few ever achieve it and why this cannot be taught, only encouraged.

The essence of what I was saying above is that pilots exhibiting their art of flying, handle themselves and the aircraft apparently without effort. Their control movements are precise and there is no over-control that requires a subsequent remedy to correct, Just the right amount of control input, be it aileron, elevator, rudder, trim, or throttle, to achieve the desired response from the aircraft. It is this ability for precision that the art of flying takes its form. These pilots communicate with their aeroplanes. Their aeroplanes "talk" to their pilots, and their pilots "listen". Being in a two-way communication allows far greater understanding of what an aeroplane wants, and what it needs to get the best out of it, and that's what these pilots are getting, to the frustration of other pilots who lack the inherent skill to emulate them.

Some will snort in derision at this point in this piece and believe that I am too old and am delusional in this but let me assure you that I am not. Flying an aeroplane as an art form really does exist. Let me explain.

To communicate with your aeroplane, you must have some form of communication line and this can only come via the only interface between the human and the machine – the controls. For thousands of hours, I have watched pilots struggle with control, holding the stick in a clenched fist and fighting with the aircraft using all their forearm and shoulder muscles. Forearm and shoulder muscles are for heavy lifting and pugilistic activities: they are clumsy and non-precise, there can never be finesse in using such muscles. How does a surgeon hold the scalpel, not in a fist, which should have you screaming that you had to leave for a dental appointment you were looking forward to. Instead, the scalpel is held between the thumb and index finger, balanced with the middle finger underneath - exactly how an aeroplane's controls should be held. As forearm and shoulder muscles lack precision, they also lack the ability to give delicate feedback to the nervous system there aren't enough nerves located to feel and provide feedback. Of course, there is some, like lifting a log feels heavy, but there's no fine response to the use of these muscles. They are simply too coarse. Also, there is little feel in the skin of the hands as they are wrapped around the stick, like a murderer's hands around the throat of their victim. There are simply not enough nerve endings to give feedback that the brain can recognise easily and without ambiguity. In other word, response for an aeroplane's control feel through the forearms, shoulder muscles, and clenched fingers is always muted and muffled, and so is virtually impossible to read with certainty.

Is this how you want your surgeon to hold the scalpel as he operates? Why not? 'Cos there's no precision in a fist except for punching!

Holding the scalpel to operate with precision – in the fingers NOT the fist. The fingers are not wrapped around the instrument

Again, I hear ridicule. "Ya can't fly a 'plane with jus' ya fingers"!

"Well yes you can", is my informed and experienced reply. As a student in the Piper Cub, I learned in, the instructor would snatch the stick during flight and if he didn't feel it free in his hands, I got a rocket for holding the stick in my fist. Learned early can mean learned best.

Probably the heaviest controls of any aeroplanes I have flown are Cessna 206/207s and PA32 Cherokee Sixes carrying out an overshoot with a full load on board and full flaps. There is a device fitted to both these aircraft (and almost all others, I might add) to remove such control pressures. It's called the TRIM. This is one of the most underused pilot aid devices fitted to aeroplanes. Few pilots, without forceful instruction during the initial training, naturally use this device to its full potential. In this situation is absolutely necessary. A properly trimmed aeroplane (of the non-military fraternity) can be flown with one's thumb on the back of the stick or yoke, and fingers spread on the across but not around the front as shown in the image below. It's only at this point, with this technique, that the real art of fly can be achieved. An aeroplane in flight should only be in one of two stages in regard to trim: either in trim, or being trimmed by the pilot. No other condition is permissible for competent piloting, and certainly not when the art form of flying is being examined. You can't fly an aeroplane with your fingertips if it is out of trim. Doing PPL and CPL flight tests, the examiner can request the controls at any time the aeroplane is in steady flight and if that aeroplane is not trimmed correctly, it's a mark against the candidate.

Using the precision digits (fingers) instead of bulk-force arms and shoulders, opens a communication line that, if you have never tried it, will be a real eye-opener. Take a steep turn for example. Rolling

in with aileron using fingers will, with practice, make balancing adverse yaw with rudder more precise.

Holding the controls in your spread fingers. None are wrapped around the stick; they don't need to be except to satisfy the nervous fears of the pilot.

"Bulls**t", I hear. But it's true. The improved "feel" you will glean, using your sensitive fingers controlling the ailerons will, with practice, give you a far better guide to how much rudder you will need and your dependence on the ball will reduce from a visual directive for immediate rudder correction to a reassurance check that you've got it right. It's very satisfying when you reach that stage in your art development. Try it and see – what do you have to lose?

Then, when in the turn, back pressure will be needed to maintain the increased angle of attack to maintain height. Hauling the stick back with insensitive arms and shoulders makes it hard to get it right whereas, the correct and necessary backpressure is a mere finger squeeze away. The delicacy and finesse of the finger muscles in making small and delicate back pressure adjustments will give great precision to the amount of back pressure being applied which, in turn, makes it far easier to regulate the back pressure to suit and maintain the specific angle of attack needs required to maintain height. In a steep gliding turn, using fingers makes it far easier to maintain the attitude for the correct airspeed. Arms and shoulders provide over-control actions and are never precise.

But it is in the stalling exercises that "finger-tip" control really excels. Changing the point of contact, the interface, between you and your aeroplane, from a coarse sensitivity to a delicate and precise one, will allow you to "feel" the stall developing through your very fingers. While your clenched fist may have felt the aeroplane "dying" as the stall develops and the lift subsides, fingertips will allow you to read the process like heartbeat, the burble of breaking air being like that of the blips of heart beat monitor in a hospital: you can almost count them in some aircraft. Listening to your aeroplane through your fingertips will give you information that you never previously held, and this will give you the ability to apply hitherto unrealizable precision to your flying. Naturally, you'd not want to change your trim when carrying out a stall, but as the airspeed falls, so does the stick pressure and I don't recall it ever being an issue, even in Beechcraft Bonanzas as well as the previously mentioned Cessnas and Pipers.

The same exists with the landing flare and float. Properly trimmed for the approach speed required, I don't recall any difficulty flaring with my fingers in any light aeroplane type, nor holding off in the float. The falling airspeed in the float reduces the stick pressures enough to be able to do it comfortably.

But wait, you haven't heard it all yet – there's a flow-on effect! With the aeroplane so easy to fly accurately, more time and brain processing is available for the other duties of the pilot. Earlier decision making and better time management automatically follow as the pilot is more relaxed and can more easily think and work ahead of the aeroplane in both geographical terms and time. Where a pilot might be absolutely occupied managing the aeroplane and its systems as well as its spatial location and orientation, the reduction of workload in this very simple way, will ease that pressure across the board. A new and enlightened pilot will be born.

So, there you have it. Pilots that exhibit the art of flying do so through the fine, precision control available via fingers and not fists. This will require frequent and accurate use of the trim which eliminates the need for white knuckled fists to be wrapped around a control stick or yoke, slowly strangling it to death. Someone being strangled is unable to speak – watch any murder-mystery on TV.

Thus, you can now see that piloting is a merely crude manipulation of the aeroplane's controls to achieve safe flight. It doesn't have to be neat or tidy: it just needs to not result in an accident.

Whereas, if you wish to excel at the art of flying and apply a more subtle approach to your controlling of the aeroplane, you, too, might find the aeroplane will delight in your listening and behave better. Also, your passengers will enjoy your flying more, and will be less prone to airsickness.

But wait – there's more. Don't charge off and try it ad hoc. Take an instructor with you. He might just see your success and try it too. That way the word might get spread around a little quicker.

Qualifier:

> *I am referring to light training aeroplanes. Larger, aeroplanes with heavier take-off weights are likely to be too heavy for fingertips. However, if you learn to fly with finger-tip precision, you can carry that skill over to other types after you qualify, and even without those delicate pinkies doing the work, you will still retain precision in your controlling of the aeroplane.*

Happy Flying

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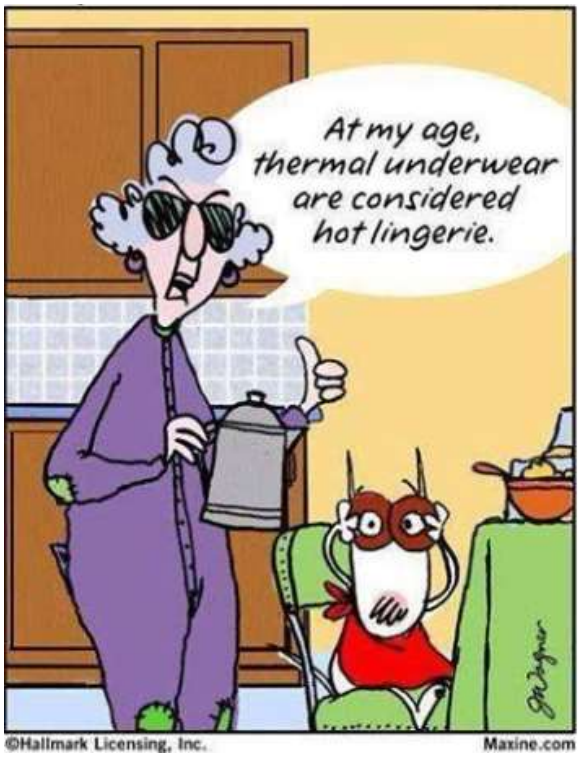
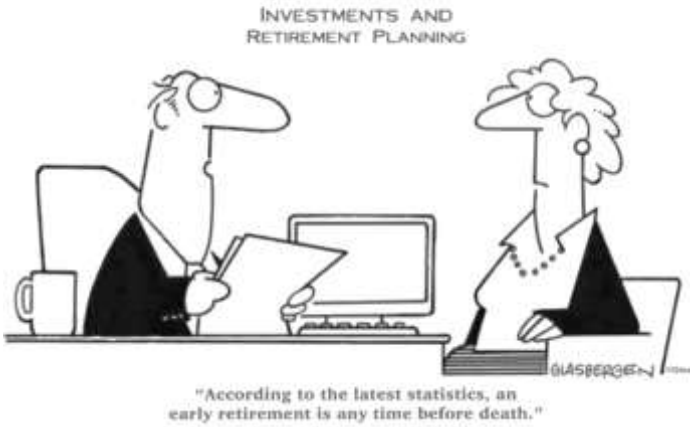
"When you review your retirement fund then wet your pants and cry — that's liquidity."

Fly-Ins Looming

WHERE	EVENT	WHEN
Murgon (Angelfield) (YMRG)	Burnett Flyers Breakfast Fly-in	**Find Next Planned EVENT AT** http://www.burnettflyers.org/?p=508





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How Not to do Aircraft Maintenance

By Rob Knight

Herein is a collection of some of the things you really should avoid when maintaining an aeroplane

The trend of creating top five lists is all the rage these days. In light of this, it's perhaps timely to look at the top 5 possible issues with maintaining an aircraft as safely as possible, being timely and accurate in all relevant aspects, to ensure that the best job possible is done.

A good tool control program has a place for every tool, and every tool in its place

The following is a list of my ideas pertaining to the 5 most important traps that an aircraft maintainer can fall into whilst carrying out maintenance work on an aircraft. In essence, these are the things that you really should not do when maintaining an aeroplane.

1. NEVER Assume

How do you spell assume? There is a lot of truth in that somewhat inappropriate statement. The first trap that can get you in hot water is to assume anything. If a question of serviceability hangs in the air, always play it safe and assume the part is faulty until you check it appropriately and deem it otherwise.

Let me tell you a story about an aircraft mechanic who assumed the bolts he removed from a windshield were the approved part number, and therefore he re-installed the same ones he pulled and signed off the aeroplane.

The shift maintenance manager justified this omission by saying that he was quite satisfied that the bolts that he had removed were the correct bolts and that it would take so much time to find the correct numbers in the illustrated parts catalogue (IPC) that he did not feel justified in using the IPC in the circumstances of the job in question.

Thankfully there were no fatalities on British Airways Flight 5390, in which that improperly installed windscreen panel separated from its frame, causing the captain to be sucked out of the aircraft. The captain has an incredible story to tell at the pub now, but I don't think it was worth it.

Another dangerous assumption occurs when a mechanic is disturbed during a check-listed inspection. No-one, but no-one, can ever safely assume that they can pick up exactly where they left off a checklist when disturbed. For safety's sake, either the whole checklist must be re-started from the beginning, or some other position identifier is used. Such an identifier would be having a roll of cheap surveyor's tape in one's kit (hardware shops including Bunnings stock such tape). When the process is interrupted, tear off a length of tape and write on it with a marker pen, stating exactly what the last item checked was. This length of tape can then be tied to, or close to the item, and will remind the mechanic when they return exactly where they left off.

Another issue with assuming is that, when a duplicate inspection of work is required, the duplicate mechanic/engineer will know exactly what is to be duplicate-inspected. The same tape as depicted above can be used in small lengths, each fixed/tied to items requiring that second check for precision and added surety that nothing requiring that second check is missed.

2. NEVER Execute a Task from Memory

Some mechanics swell with pride when spouting off torque values from memory as they grab a torque wrench from the rollaway, and strut up to the task in hand. Should you be impressed? Nay says the International Civil Aviation Organization (ICAO).

In 2003 the ICAO published the Human Factors Guidelines for Aircraft Maintenance manual. As a testament to the thoroughness of this study, this first edition remains the latest and greatest. Section 4 addresses "Internal Factors Influencing Performance," specifically highlighting memory failure as a "psychological error mechanism" and contributing to the failure.

Not only is boasting about memorizing aircraft data points, measurements, and values uncouth, it is also illegal. Remember, even if time doesn't fade your memory—and it will—values vary between specific models, and sometimes manufacturers update technical data. Although rare, it does happen, and you do not want to be the one that risks your career, or another's life so that you can show off.

Always consult the appropriate documents for specific details. Even if you are convinced that you can recall an important detail, check and CONFIRM your memory is exactly correct. This will not only perhaps assist in preserving your and others longevity, but also serve you well in keeping a self-check on your own cognitive processes for everything else you rely on it for in your life.

Anecdotally, there are many reports of surgeons failing to check specifics before an operation. A woman has successfully sued a hospital and its surgeon in the USA for many millions for removing her right leg, when it was her left leg that had the malignant-tumour the amputation was required to eliminate.

Such an error would deserve to be career ending!

Another memory issue lies in ensuring that nuts/bolts when torqued, for example, are identified so none are missed in error. A small bottle of bright paint, or make-up nail varnish can be used to mark each completed nut/bolt. This process can also be extended by painting the joint between a fixing nut or bolt. Should there be any movement of that fixing, the paint/varnish will crack and clearly mark an issue requiring checking.

3. NEVER Fail to FIND a Missing Tool

Tool Control can be a critical part of any maintenance process. Just as surgeons have been known to leave medical instruments inside surgery patients in operating theatres, so have mechanics been known to leave tools in cars, trucks AND AEROPLANES The simplest and perhaps the most effective means of tool control and accounting is a tool set as displayed in the image at the previous page or a shadow board. This allows an accounting at a glance to check that all tools have been retrieved. The mantra for a good tool control program is a place for every tool, and every tool checked to me in its place.

A well laid out shadow board and tool; rack

If you're a private owner and maintaining your own recreational aircraft, then you still should exercise tool control within your tool box if it contains loose tools. For safety's sake, you should always know how many screw-drivers the box contains, and how many ring-open-enders, ring-spanners, shifters, and pliers your box contains as well as any other items. These should be checked as present after any work has been carried out on your aircraft.

In my own experience, the very first crop-dusting Fletcher I was allocated was old, tired, bent and twisted, and produced a rattle in my port wing when operating off rough surfaces. I mentioned that it sounded like a small spanner was loose, to the engineer in charge. His response was to curse me as a "big-head" for suggesting that one of his engineers was lax and had left it there. But when I presented the aircraft for its next 100hr, a 7/16ths ring open-ender really was found in the same bay as the aileron control linkage. Worse, the spanner was colour-coded with orange bands around it which indicated that it was actually HIS spanner. He never subsequently mentioned it, and went out of his way to avoid me. I should have forced the issue at my first mention but I was too new, and his attitude was too overbearing. My silly mistake: it could easily have had fatal consequences for me.

On the same topic, in New Zealand in 2012, a loose screwdriver became jammed in the elevator control of a Yak 52 while it was doing aerobatics near the town of Feilding. The resulting crash killed a Palmerston North doctor and his passenger friend.

A Civil Aviation Authority report into the accident was released which found that the crash was the result of design flaws in the aircraft that allowed a screwdriver, previously left in the aircraft, to jam the elevator controls during a "slow roll". The crash was not survivable.

A re-enactment of the screwdriver's positioning before the crash

4. Succumb to PERSONAL TIME, or OWNER, or MANAGER Pressures

I honestly cannot believe I even need to highlight this, but here we are. When maintaining your own aircraft, you have every opportunity to take as long as necessary to complete the process of the specific inspection or maintenance issue. If you are qualified and are working for another party, you expect them to pay you for your work, and they expect, no – DEMAND - that you carry out the process in the correct manner. A job will take as long as it takes. With what's at stake, it can't be done quicker than that.

Issues relating to this trap are well covered in the TV productions relating to aircraft accidents. These documentaries have presented a large number of fatal accidents resulting from time pressures encouraging aircraft to be signed off as serviceable when the appropriate maintenance checklist had not been fully covered, or, in some cases, not even consulted.

5. Falsify Aircraft Maintenance Logs/Records

OK, gang, we saved the worst for last. You guys know the drill by now. CASAs official stance on the matter is absolute - "Maintenance records: Falsification, reproduction, or alteration." Allow me to summarize it for you: DO NOT DO IT.

Seriously folks, if I have to explain this, or provide examples of how bad this is, then we have no hope. Everyone has heard horror stories of pencil whipping, selective inspections, and drive-by annuals. Not even temptation is allowed. I am aware of hearsay relating to offenses but not evidence. The potentials of this issue lie well beyond a state of mere misdemeanor.

Happy flying

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

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

1. What is the sole cause of an aeroplane stalling?
   A. Airspeed too low.
   B. Pulling out of a dive.
   C. Using aileron to pick up w wing when stalled.
   D. Excessive angle between the relative airflow and the chord line of the aerofoil.

2. In what direction does the lift force act on an aeroplane in flight?
   A. Perpendicular to the relative airflow.
   B. Perpendicular to the direction of motion.
   C. Because they damage the lift/drag ratio and produce more drag than they do lift.
   D. Because the primary reason for flaps is to reduce landing speeds, not take-off speeds.

3. How does roll promote yaw on an aeroplane in flight?
   A. Because roll promotes slip, and slip causes yaw by the aeroplane's keel surface behind the centre of gravity causing weather cocking.
   B. -Because ailerons cause aileron drag, and aileron drag causes yaw.
   C. Because longitudinal dihedral results in a 90° change in control surface force.
   D. Because the aeroplane fails to remain in balance.

4. Why is a taildragger unstable on the ground yet stable in the air.
   A. It isn't, it's unstable in both environments.
   B. Because the direction of motion is horizontal but the thrust line is inclined.
   C. Because, in the air the aeroplane moves about its centre of gravity, whereas, on the ground, it moves about its main wheels which are ahead of the centre of gravity.
   D. Because of the blade angle relative to the airflow at the low RPM of the propeller.

5. Which of the following is likely to cause an increase in an aeroplane's stall speed?
   A. Pulling abruptly out of a dive.
   B. Maintaining height in a banked turn.
   C. Loading extra weight before take-off.
   D. Flying at too low an airspeed.
   E. All are correct EXCEPT D.

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 +61 4 0089 3632), or email me at kni.rob@hotmail.com.

ANSWERS

1. D is correct.
   The angle between the relative airflow and the chord line of the aerofoil IS the angle of attack, and having an excessive angle of attack causes an aerofoil to stall.

2. B is correct.
   The aerodynamic lift force acts perpendicular to the direction of motion.

3. A is correct.
   Because roll promotes slip, and slip causes yaw by the aeroplane's keel surface behind the centre of gravity causing weather cocking.
   Generally, high winged aeroplanes have lower angles of dihedral that low winged ones. This is because the high winged ones have a higher centre of gravity so have an inherent tendency to roll wings level when slipping. Low winged ones need additional dihedral to increase the angle of attack on the lower side wing to aid the restorative action to return to wings level.

4. C is correct.
   Because, in the air the aeroplane moves about its centre of gravity, whereas, on the ground, it moves about its main wheels, its point of frictional contact with the ground, which is forward of the centre of gravity.

5. E is correct.
   Stalling speed increases with loading in an aeroplane. Loading is the increase in lift required to maintain a level turn or to pull out of a dive, or add weight to your aircraft.

If you have any problems with these answers, call me (in the evening) and let's discuss them. Rob Knight: 0400 89 3632 (International +61 4 0089 3632), or
email me at wingsnthings3556@gmail.com.

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

Always exercise caution when departing on a round trip to the north when the weather's coming in from the south

Mother-in-law's advice: "Always fly low and slow to be safe".

Aircraft Books, Parts, and Tools etc.

Contact Rob Knight on mobile – 0400 89 3632

Books

Title	Condition	Price
PPL Navigation, by Trevor Thom	Good condition	**$15.00**
PPL Basic Aircraft Technical Knowledge	Excellent	**$15.00**
Manual of Aviation Meteorolog	Excellent	**$15.00**
Human Factors in Flight, by Fran	Excellent	**$15.00**
Aviation Medicine and Other human Factors, by Dr Ross L. Ewing	Excellent	**$15.00**

SOLD SOLD SOLD SOLD SOLD SOLD SOLD SOLD SOLD SOLD SOLD SOLD

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 Rob Knight - on mobile – 0400 89 3632

Or email me at:

kni.rob@hotmail.com

Aircraft Grade Bolts for Sale

Aircraft AN Bolts - $500

AN3, AN4 & AN5 bolts, all bagged
- 500 bolts in total.

Today's cost – approximately **$5,500**

A list can be supplied if required

Contact Colin Thorpe –

0419 758 125

Morgan Cheeta Aircraft for Sale

- Registered 19-1502 and paid up until July 2025.
- Power Plant: Jabiru 2200 with the cold start kit & 1.2kw starter motor.
- Propeller: Sensenich 68" ground adjustable.
- Icom radio, 2 headsets, Sigtronics intercom.
- Flight Instruments: Airspeed indicator, altimeter, vertical speed indicator, slip/skid indicator.
- Strobe lights.
- Fat beach tyres & Matco. Brakes.
- 93 litre fuel tank.
- Leather seats.
- 100 Knots cruise.
- TTIS – 32.0 hours engine & airframe.

NEW PRICE - $36,000

Contact Colin Thorpe

Ph. 0419 758 125

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**

2000 Parker Teenie Two for sale

NEW PRICE$9,500

- ✓ TTIS 70 hours airframe.
- ✓ Engine: 1835 cc Volkswagen with dual ignition and dual spark plugs, Slick mag, and 12-volt electronic ignition.
- ✓ Built by original L.A.M.E. owner.
- ✓ Price includes weatherproof storage/transport trailer so no hangarage is required.

I purchased the aircraft in 2020 intending to enter Recreational flying, but due to work and study commitments, it never eventuated.

The aircraft last flew in 2017. I start the engine every three months and have serviced it yearly. It really needs to go to someone who can enjoy her.

Contact me, Jared Tucker, at jaredtucker1998@gmail.com,

or call me on **0450 233 263**.

The End.

It's also a Final Goodbye from me! Rob Knight