BRISBANE VALLEY FLYER

February 2025

BRISBANE VALLEY SPORT AVIATION CLUB INC

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

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Westland-Hill's Pterodactyl – an-odd-ball. Was it killed by the Times? See page 6.

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

Greetings Members,

Happy New Year! And I trust you all had a well-deserved break and enjoyed the festive season.

We're kicking off the year with our first meeting on Saturday, 1st February.

Continuing the successes of last year, we will be continuing this year with the working bees to be able to complete the new extension, so come along and have a look; the dates of the working bees we will post in due course.

Please come along to the meeting and stay for the BBQ lunch afterward—it's a great opportunity to catch up and enjoy some time together.

Looking forward to seeing you there!

Best wishes

Peter Ratcliffe
President BVSAC

Another Sneaky Stall - The One That Couldn't be Because You're at High Speed

By Rob Knight

Aeroplane aerofoils stall at an angle of attack and not any specific airspeed, and aerofoils DO suffer high speed stalls. Because we generally consider stalls and stalling speed as being initiated in level flight with insufficient power, these are really slow deceleration stalls. A high-speed stall is a stall at a higher airspeed that a normal, low speed stall. Again, it's the result of the angle of attack being exceeded. This is commonly covered in pilot training when stalling in turns is discussed and taught. The most practiced pilots in terms of high-speed stalls are aerobatic pilots where high G forces are required for the various manoeuvres.

Let's define some basics and build from there to ensure that we are discussing the same thing.

1. The angle of attack is the angle between the relative airflow (relative wind in the USA) and the chord line of the aerofoil.
2. A stall is when the streamline air flow across the upper surface of an aerofoil breaks away and becomes turbulent air flow, because the angle of attack is too high for the mass of the air to follow the curve.
3. The quoted stalling speed of an aeroplane is the airspeed it has, in steady level flight, when it reaches its C_{Lmax} (the maximum lift co-efficient or the stalling angle of attack). Note that the C_{Lmax} is constant for a constant shaped aerofoil (no flaps or slats/slots used).

With this in mind, we can safely assume that the high-speed stall is simply the aerofoil reaching its stalling angle whilst the aeroplane is holding a higher airspeed than when it does a slow deceleration level flight stall.

So how fast can an aeroplane stall? The answer to that question is the same as a length of string. There is no upper limit with the possible practical exception of the V_{NE} of that aeroplane; but that is a safety/structural issue and not an aerodynamic one.

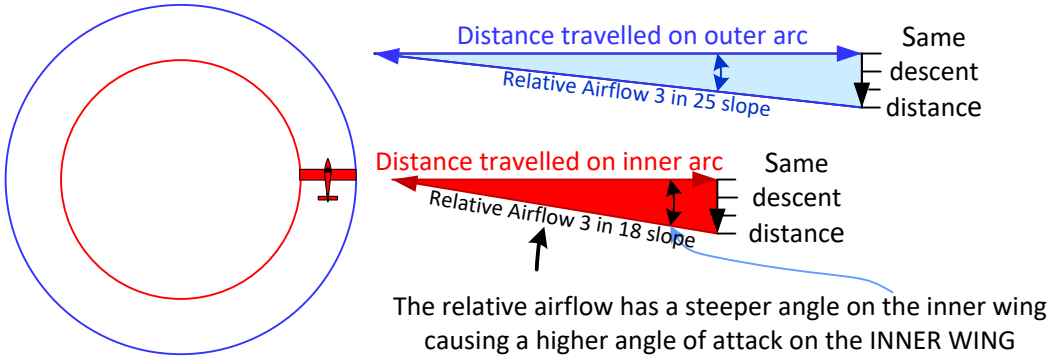
So how do we get into a situation where we can experience a high-speed stall? You have done it many times. Every time you turn you are increasing that stall speed – weren't you taught that in your own pilot training? And what about steep gliding turns? The increase in airspeed at the stall is even more pronounced there.

If you consider the training you received for you license or certificate, the theory behind the increase in stall speed when the aeroplane is suffering a loading increase will have been carefully orchestrated. Do you remember that the stall speed increases as the square root of the load factor? Do you also remember that the load factor during turns is the resultant of the force of gravity and the centrifugal force generated during that turn? Thus, the steeper the angle of bank, the greater will be the rate of change of heading, the greater will be the centrifugal force, and the greater will be the loading. The greater the loading, the more lift will be necessary to maintain height. As the aeroplane stalls at a constant angle of attack, the higher the loading the greater the speed the aeroplane will have when it reaches its stalling angle. Simple, eh!

Yes, it really is quite simple. But when other factors exert subtle influences, the resulting aeroplane response is not always so easy to predict. For example, if an aeroplane had each of its wings operating at a different angle of attack, the wing with the higher angle of attack would stall first. Correct? YES, of course it will. The wing with the higher angle of attack will stall first, before the other wing, the one with the lower angle of attack. But seriously, how can this be possible in flight.

The answer is that the angles of attack on each of your wings will not be the same anytime you make either a climbing or a descending turn. It may not sound kosher, but it is quite correct. The wings will have differing angles of attack when an aeroplane is either climbing or descending as it turns.

Descending Turns: When descending in a straight line each wing descends the same vertical distance for the forward distance that it travels. However, if that aeroplane is descending whilst it is turning, the vertical distance travelled by each wing will be the same but the horizontal distances will differ. The difference is caused by the inner wing travelling a smaller arc (a lesser distance) than the outside wing. Thus, if the wing travels a SHORTER distance than the outer but descends the same distance, its relative airflow will be at a different angle, one that will provide a higher angle of attack, Check this out in the image below.



Angles of attack differ between the wings in a descending turn.

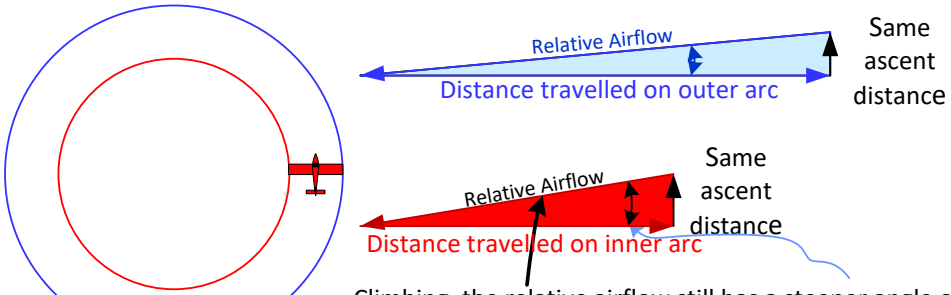
In the sketch above, the inner wing, travelling a shorter arc and so suffers a change in the direction of the relative airflow which increases the angle of attack. This discrepancy is increased by the outer wing enjoying a corresponding decrease in angle of attack. Therfore, the inner wing will always be closer to the stalling angle than the outer wing. Also noteworthy is the fact that, because the inner wing travels a lesser distance than the outer in the same time, its speed will also be lower.

Although there is a reduced overbanking tendency in descending turns, where it does occur, holding out of bank aileron lower the aileron on the inner wing, even further increasing its angle of attack.

But that is not all - there is propeller torque to take into account! If the aeroplane is in a left bank and has a propeller rotating clockwise from the cockpit, the force required to turn the propeller clockwise will be trying to turn the engine and its mounts anticlockwise. Because these are bolted to the aeroplane, the propeller will be trying to rotate the aeroplane in the opposite direction. To stop it, even more down aileron on the left wing is required further increasing the angle of attack.

When all these factors are considered, it is easily seen how a stall on the inner wing occurs at a higher-than-expected airspeed when descending and turning, hence the proliferation of high-speed stall/spin accidents on a hasty, steeply banked turn onto finals. You don’t have to be going slow to stall.

In a climbing turn, on the other hand, the outer wing has a slightly higher angle of attack but has slightly more airspeed so the wings are a little more even in terms of which one will stall first. In regard to over banking, the combination of increased angle of attack and decreased airspeed gets close to balancing the relative airflow variation between the wings.



Climbing, the relative airflow still has a steeper angle on the inner wing causing a higher angle of attack on the INNER WING and the extra lift generated tends to offset the extra lift caused by the greater relative airspeed of the OUTER WING.

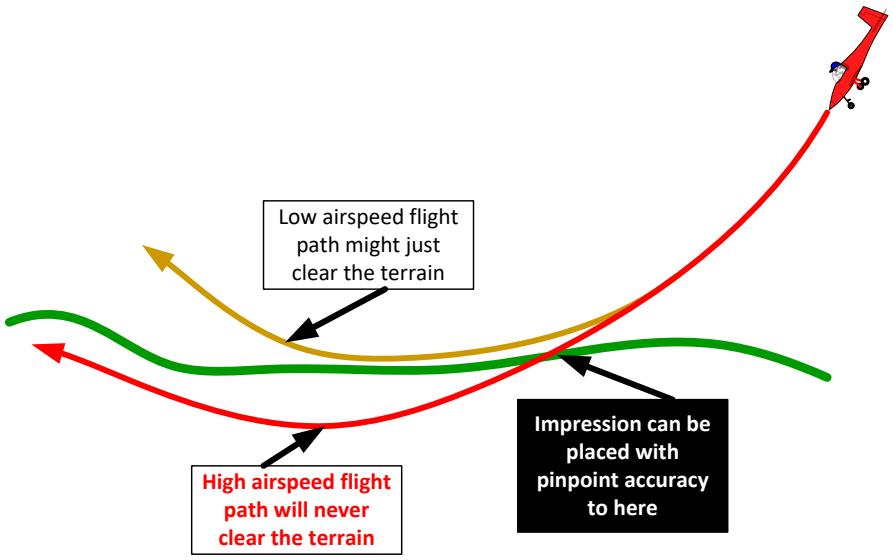
Angles of attack vary between the wings in a climbing turn.

Summary: In a descending turn the inner wing has a higher angle of attack and a lower airspeed than the outer. Thus, in a gliding turn, if pulled too tight, one could expect the inner wing to stall considerably ahead of the outer, causing a wing drop and roll into the turn. The airspeed would be higher than a normal, slow deceleration stall so would be a high-speed stall. Also note that, if power is applied at the time of the stall, on an aeroplane with a propeller turning clockwise from the cockpit, the wing drop is likely to be exacerbated and obviously vice versa.

But turning does not give the only scenario conducing to the high-speed stall. The pull up from a dive provides a far greater threat, with far greater accident statistics than turning.

It is accepted that, when executing a turn, the higher the airspeed the wider will be the radius of that turn. It follows then, that the higher the speed the slower the rate of pull-out when recovering from a dive. The lack of this knowledge has killed a great many exuberant pilots who get carried away with their power and glory and start a high-speed pull-up from a dive too late. After all, the only practice that they have probably had is flaring on landing from a descent. Here the airspeed is low and just a few feet are quite enough to change the aeroplane's flight path in perfect safety.

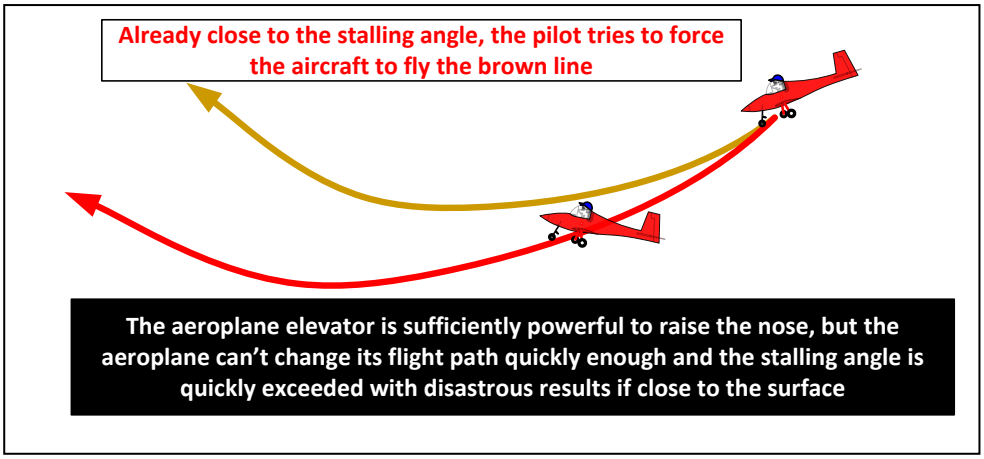
The human factor's aspect of the dive and pull-out are frighteningly dangerous. The pilot, in great glee pokes the stick forward and commences the dive towards his target. He wants to make a big impression so he quickly gathers speed and the earth looms larger in the windscreen. Then, when he feels he should begin the pull out, it's already too late in too many cases.



The high-speed flight path pulling up, out of a dive.

As in the turn, at high speed the radius of the pull-up flight path is much greater, and the aircraft's nose doesn't pitch up as expected. So, he pulls harder. The stick is heavy at the higher speed but the earth fills the windscreen and he yanks the stick back. There is a

momentary and violent buffet as he exceeds the stalling angle. In a fraction of a second, the aircraft strikes the ground and disintegrates with or without a fire. Another statistic is born because the pilot changed the aeroplane's attitude quicker than its flight path could change.

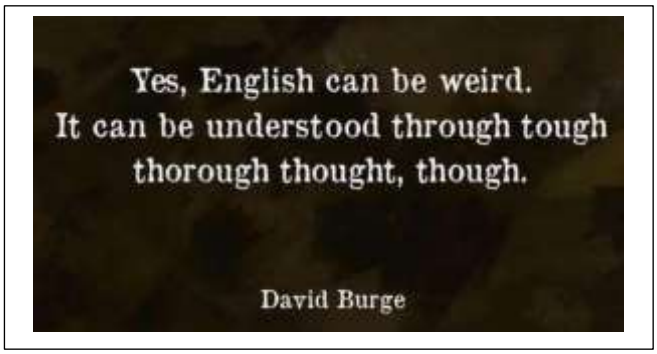


A high-speed stall induced by pulling out of a dive.

The result is, exactly as he wished; a great impression; only it's in the ground, and it's his swansong, the last opportunity he will ever have to make one.

So, what was a high-speed stall again? It's just a stall at a higher speed than the normal slow deceleration ones we practice in level flight. When can it happen? Anytime – but it WILL happen anytime the angle of attack exceeds the stalling angle. Lesson – DON'T exceed the stalling angle of attack unless you do it deliberately and with reason.

Happy flying



The Westland-Hills Pterodactyl Line – The Ugliest of the Ugly

By Rob Knight M24-182

World War one saw the greatest leap in aeroplane development of all. The early warplanes were incredibly dangerous and difficult to fly as the theories and practise of good aeronautical design were still in their infancies. One of the most dangerous aspects of flight was the stall and subsequent spin that was not understood and caused a vast number of fatalities during training and on operations on all sides.

Godfrey T. G. Hill. In

After the armistice in 1918, one such surviving pilot, Captain Godfrey T. R. Hill. Born in 1895, Hill, the son of a mathematics professor, won prizes for his models of aeroplanes and, in 1912, in company with his brother Roland, designed and built a full-sized, semi-successful glider. Following that, he entered University College, where he obtained a Bachelor of Science degree in 1914 and joined the Royal Aircraft Factory as a graduate apprentice.

In 1915 Hill learnt to fly and in early 1916 was assigned as a test pilot at the Royal Aircraft Factory before being commissioned in the Royal Flying Corps as a 2nd lieutenant. Sent to France, he fought in No. 29 Squadron where, In late 1916 he was awarded the Military Cross. In January 1917 he was promoted to the rank of captain (temporary) and injured sufficiently seriously to be Invalided home

Hill moved back into test flying and by 1918 he was in command of the Aerodynamics Flight at the Royal Aircraft Establishment. At the war's end, he joined Handley Page Ltd as their chief test pilot/aerodynamicist.

Acutely aware of the issues and deaths associated with the stall/spin issues with early aircraft design, Hill developed a unique series of aircraft he called the Pterodactyl in an attempt to develop a more docile aircraft that had better stalling characteristics than conventional designs, and wouldn't enter a spin naturally. Hill took the previously done work of pioneer J. W. Dunne in developing stable aircraft using a tailless swept wing concept as his starting point. Assisted by his apparently able wife, he constructed a prototype at his home in Brookwood, which he initially flew as a glider in 1924. The design seemed promising and sufficient official interest was acquired that he trucked it to Farnborough for testing which was personally attended by the then Secretary of State for Air, Sir Samuel Hoare.

An Air Ministry contract was provided and funds were made immediately available for development. Hill's resources were too limited so the Air Ministry entered an arrangement with Westland Aircraft to employ Hill as a designer and to build test beds for further development.

The Mk1 in flight.

The first Westland-built type was designated the Pterodactyl Mk.IA. Now funded by the Air Ministry, it was produced as a braced shoulder-wing, pusher type, monoplane, with a 35 hp Bristol Cherub engine. The design was unique in that it had fully moving wingtips he called "controllers". If both tips were rotated in a common direction, they acted as elevators providing pitch control. Rotated differentially, they became as ailerons controlling roll. Later, testing with the Cherub engine was deemed completed, and the aircraft was re-engined with a 75 hp five-cylinder Armstrong Siddeley Genet engine and designated a Pterodactyl Mk.IB to explore the characteristics with greater

power available. This Mk. also had modified undercarriage and split dive brakes which could act as a rudder by providing asymmetric drag. All vertical fin surfaces were removed.

The Pterodactyl Mk.IB with the Genet engine fitted. Note that the apparent ailerons fitted inboard of the controllers are the dive brakes fitted to this Mk and provide no roll control.

Two further variations of this basic design were produced, Mks.II and III, but the Air Ministry were insufficiently impressed to fund further development of these.

On 16th December 1930, the ARC recommended that no further flight tests should be undertaken on the Mk.IB, adding that that it should be retained as serviceable until further flight testing of the new Pterodactyl Mk.IV type had clearly shown whether further work was necessary on the "old type controllers". The Pterodactyl design was then assessed and reported to be less than required. It included comments that pilots had reported that the Pterodactyl's longitudinal flying qualities, particularly those of the Mk.IB, were not good, and the Establishment had been requested to investigate the effect of its features as seemed likely to cause abnormal behaviour.

The report concluded that the combined effect of these "novelties" was an aircraft whose pilot responses were tuned to the stick control pressures and aircraft control-input reactions were so different that those of a conventional aircraft that pilots trained in, or converting from, ordinary designed aircraft would have difficulty in handling the Controllers. The abnormal sensitivity in pitch provided by the controllers demanded a quickness and delicacy in control movement which was denied by the inertia of the control. The result was likely to be a coarse and somewhat lagging application of control to a quickly changing movement of the aircraft, which would be potentially dangerous in turbulence. Over-control by a pilot is a serious issue.

The Mk.IV, in an early paint scheme.

The Westland-Hill Pterodactyl Mk.IV, saw substantial changes to the design. This was a three-seat cabin monoplane in which the all-moving "controller" tips were replaced by conventional ailerons, and used variable wing sweep to provide longitudinal trim. It had vertical rudders on the wing tips and a two wheeled main undercarriage mounted in tandem and used stabiliser wheels mounted on frames under the wings to keep it the right way up on the ground. The pusher Mk IV design had three notable weak points:

1. Its take-off performance was seriously lacking.
2. The engine cooling was inadequate. The engine overheated in the climb and then excessively cool during cruise.
3. The view backwards was non-existent.
4. The aircraft would stall and it demonstrated poor stall and recovery had no peculiar merit in stability and control at the stall

First flying in 1931, it was powered by a 120 hp De Havilland Gypsy III engine, and only a single example was built.

Interestingly, when the Mk.IV, was reviewed by Arnold H. Hall, the then Chief Superintendent at RAE, confusingly recorded that this design had a better conventional performance than the average conventional biplane of the same size, wing, and power loading. But note that the Mk IV was a monoplane, with virtually no fuselage or vertical surfaces, and was being compared to a biplane with a full fuselage and set of tail feathers, and two sets of wings. One would hardly consider this pair could form an adequate comparison. From this, one can read that, overall, and considering the four design inadequacies noted previously, compared to a conventional monoplane, its performance and operation were decidedly inferior, but political pressures on Arnald H. Hall forced the need for him to report creatively.

The Pterodactyl, Mk.V, fighter in 1934. Pilot up front, gunner in the back.

The Pterodactyl Mk.V was a complete re-design. It was effectively a prototype fighter aircraft so it had to have a completely new set of design parameters for a radically different set of performance requirements. Intended to be a two-seater, a pilot in front with his main machine gun armament, and a machine gunner in the back of the pod to protect the tail. The design called for a mechanical turret to assist in accessing the superb field of fire the lack of a tail would provide. But it appears that testing never got that far before the design work was scrapped and no turret appears to have ever been fitted.

Tandem main wheels were again used, but this Mk was different in that it was a tractor design with a 600 hp RR Goshawk engine. This power plant application was ill conceived and ultimately became the salient failure point for the Pterodactyl design. Departing from a monoplane deign, the Mk V was a sesquiplane with a small span, narrow cord, lower wing, provided to add strength and stability to the wing system to provide better limit load factors for harsh manoeuvring in combat.

The Mk.V in flight. Note the sesquiplane arrangement, the slotted ailerons, the wing-tip rudders, and the empty turret are all immediately behind the pilot.

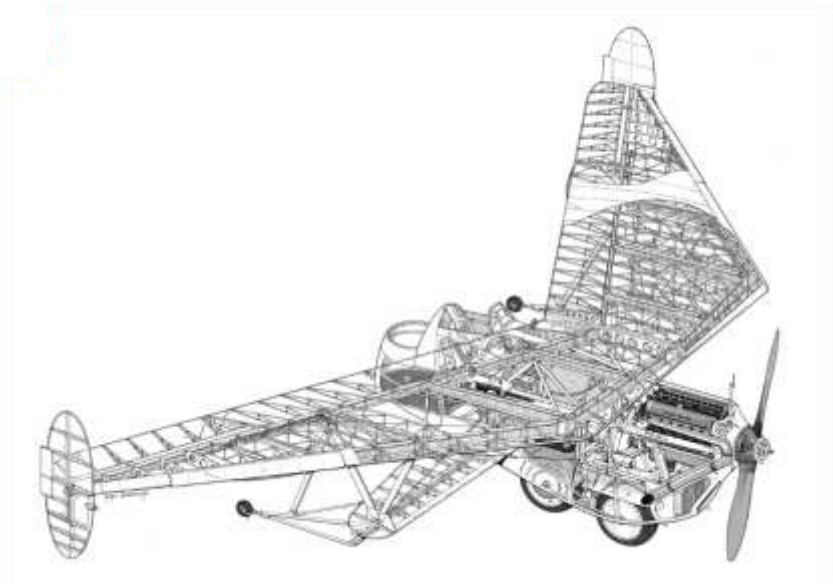
The autumn of 1932 saw taxi trials begin but the left wing collapsed during taxi and very substantial damage was caused. The aircraft was returned from RAF Andover, where the flight testing was being undertaken, to Westland's for a substantial redesign to eliminate the cause of weakness and rebuild. The extensive work required took far longer than expected and it was not until 1934 that the aircraft was again retuned to RAF Andover and made available for further testing. These were disappointing; not only were dangerous tendencies found in its flight characteristics in spite of its unique design intended to eliminate such issues, but the Goshawk engine continued to operate poorly. Considerable effort and time was spent re-working the cooling system to get it operating sufficiently well to consider further flights.

These were even more disappointing. It was found that considerable wing flexing was occurring in dives creating control issues. Its performance was down, especially when compared to the Hawker Hart, the RAF's top fighter of the time. It was slow – maximum level flight speed settled on 165 MPH (143 knots), about 20 MPH slower than the Hart. It didn't match the Hart's rate of climb, nor could it out-turn the Hart when manoeuvring.

In spite of these set-backs, the design continued to be tweaked to eliminate, insofar as possible, the issues creating the flaws, until it was deemed ready to be taken to RAF Farnborough. Alas, as the aircraft took-off in its flight to RAF Farnborough, the Goshawk seized soon after take-off. Although the aircraft was safely landed, the engine damage was so severe that it made a complete engine replacement mandatory. Alas, as Rolls Royce only built 20 of these Goshawk engines, all others were in use and no replacement was available.

With no further flight testing economically viable, the remains of the Mk V were shipped back to the RAE. However, a year later, the project was scrapped in its entirety and the aircraft remains vanished. Hill had already left Westland by this time and had taken a position as Professor of Engineering at University College, London.

With the previous departure of Hill from Westland, and the demise of the sole testbed for this unique line of Pterodactyl aircraft design, all work on the concept as a wartime aircraft ceased.



Cutaway of the final Pterodactyl design, the Mk.V.

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An Unsuitable Vehicle - From Maryborough to Maryborough in a Jodel D9.

From an article by Owner-Pilot Kerry Skyring.

From a distance the scene might be described like this: A large toddler approaches a toddler's size aeroplane. After throwing some toys on board the child turns the small wooden propeller by hand at least 44 times, not always in the same direction. On the 45th turn the engine barks into noisy life. The toddler climbs clumsily aboard and squirms a bit before becoming comfortable. A short time later the small plane begins to move, gathers speed and takes to the air. The toddler and his toy plane are last seen merging with the summer haze on a northerly heading. Nobody raises the alarm.

"The chance of mistake is about equal to the number of crew squared…" Ted Turner. I feel I can use Ted's truism to justify this strange desire to fly single seat aeroplanes.

From Maryborough (YBMU) to Maryborough (YMYB) in a Jodel D9 Bébé.

Eduard Joly and Jean Delemontez (Jo-Del) first flew their Bébé in 1948. They hoped their design would satisfy the needs of French pilots with few Francs in the bank but a desire to fly. Those pilots were obviously not large pilots because the cockpit is suitable only for one large toddler or a single malnourished postwar French aviator. It is made of wood, weighs just 271 kg fully loaded and speeds through the air at 73 kts. The design hit the mark. 500 D9 Bébés were built and became the progenitor of the remarkable range of Robin aircraft still being built in France today. It is a fair-weather flyer, a Sunday afternoon jaunt type of plane and most definitely not designed to fly long distances at even moderate speeds.

The flight's purpose was to relocate my 1964 Jodel D9 from Maryborough in Victoria to Maryborough in Queensland. This would bring it closer to where I now spend most of my time in Australia, the coastal city of Hervey Bay. The distance between Mary's two Australian boroughs is 1,826 kms. For Europeans that's the equivalent of London to Warsaw plus a bit more. So not that far in a plane, though very few baby Jodels are taken on such journeys. Therein lies the appeal; to eschew the easy option of fast and comfortable for the exact opposite - like sailing a dinghy across Bass Strait or Chichester flying the Tasman in a Gipsy Moth or Mike Smith flying around the world in a Searey. I don't mean to compare this flight to theirs in terms of achievement, just to make the point that there are others as masochistic, or mad, as me.

It's cramped in there!

Apart from the lack of speed and instrumentation, provisions for luggage and range were not serious concerns for Jo and Del; 26 litres l`essence and a small compartment behind the pilot's head for baguette and fromage would surely suffice.

Arriving in Melbourne from Vienna at 7am on Jan 2nd. (we flew into 2023 over Bucharest) I went directly to the Jodel on a farm at Kooroocheang. Don't worry, nobody else knows where it is. Some aircraft preparation was achieved before jet lag and storms drove me to bed in Maryborough.

The following morning the plane's inspection was completed and then it was time for the pilot's inspection. I'd flown 28-3503 (formerly VH-IVB) into this short sloping field for the first time 12 months earlier. This would be our first flight out. The field is exactly that, a farmer's field where Richard and Tracey keep a 1943 L-19 Piper Cub. The 350-metre mown strip runs beside a line of trees downhill to a creek, a tall tree and a power line. The breeze, mostly cross-wind, favoured a downhill take-off which seemed the ideal situation - except for the trees and the power line. Richard explained that he mostly takes-off (in the Cub) uphill, even with a light tailwind, to avoid the consequence of engine problems or turbulence causing contact with tree or power line or creek on the downhill run.

Where does this go? In the turtle's carapace - through that small opening behind where the pilot sits. Already a ten-litre bladder of fuel has been loaded there and what you see on the ground will also be squeezed in.

The Jodel is very light, lighter than the cub, but not as powerful. Against my training and instinct I opt for the uphill-downwind take-off because if the engine says non, or I've misjudged Jodel's abilities, the worst that can happen is a landing in the neighbour's field of unmown grass. I decide on my go-no-go point, a mound of hay at the halfway distance. This means that the plane must be in the air or ready to fly after about a 150-metre run. If not, the power will be cut and we will run to a stop in long grass. Did I mention that the Jodel has brakes borrowed from a bicycle? These replaced the no-brakes of its early years. I pour fewer than 10 litres into the tank and walk behind the wool-shed to empty the pilot's bladder. Every gram counts.

It all goes well. At the hay stack the Jodel is light on the wheels and an immeasurably small moment later the wheels leave the grass, we climb the slope, kick left rudder to meet the wind direction head-on and, above tree level, are rocked left and right by the wind. A quick turn over the top to tell those on the ground all is well and then a 20-minute flight has us down on Maryborough's municipal aerodrome for a full 6 gallon/26 litre tank-full. I pack the bare basics of underpants, tooth paste, engine oil, tie-down ropes, muesli bar - plus an extra ten litres of fuel in a flexible bladder. This last item will later prove worth the struggle required to squeeze everything into that tiny space behind my head. I try not to dwell on the consequences of a forced landing and sudden stop. Certainly, the fuel and muesli bar would move forward to join the pilot in the cockpit. A 98-octane muesli bar for breakfast?

It would require more lines to describe what's missing from the instrument panel than what's there. Indicated airspeed 65 knots; Altimeter 3,200 ft., Oil and Cylinder head temps in the green and oil pressure reassuring. The G-meter records that on take-off we hit a 2.5 G bump while the heading is 045 degrees so, at this point, we are pointed in approximately the right direction - to Tocumwal.

After a year of abundant rains, once dry streams and lakes are overflowing onto the wide brown plains of southern NSW.

The route north is across the farming heartlands of Victoria and NSW. Two great Australian rivers, and many smaller streams, flow slowly through this mostly flat landscape. The Murray meanders east to west before turning south to empty into the great southern-ocean. The Darling runs north to south joining the Murray well off to the west of my track. In all directions water reflects the sun's rays, from streams, lakes and dams. I must have flown this route a dozen times over the past four decades and I have never seen so much water. The record-breaking rains of 2022 have led to flooding on an epic, though slow moving, scale. Two months earlier the flood peak would have been below me but as I fly north on Jan. 3rd it is reaching communities near the mouth of the Murray 800 kms away. These Riverine floods are mostly fine weather floods.

The former WWII air base of Tocumwal, just north of the Murray, is my first stop. I love the fact that this piece of wartime infrastructure, created to help repel the expected Japanese invasion, is still serving the nation but in a completely different context. It's a busy General Aviation field but also a top destination for glider pilots from all over the world. On my flight south with the Jodel a few years earlier, staying overnight and dining in a local hotel, I found myself in the company of Austrian and German glider pilots on their annual pilgrimage to Tocumwal, thus escaping the European winter but also exploiting almost unlimited thermals to soar long distances across the outback.

My first 3 fuel stops on this flight are all at former wartime bases with long runways and taxiways from landing point to fuel pump which means my tailwheel tyre suffers wear at a rapid rate. At Tocumwal I land on the grass strip used by gliders but must taxi along a bitumen runway to refuel. I find time for a quick chat with Matt and Karen Henderson who have established an excellent museum on the aerodrome. The history is rich: Over 7,000 US servicemen worked to construct what was, in 1942, the largest aerodrome in the southern hemisphere and the RAAF's largest ever base. It's worth a visit or at the very least, a google.

After departure I head for yet another wartime base, Temora, where thousands of Australian and commonwealth pilots received their training, mostly on the DH82 Tiger Moth. This is another major gliding centre but also the location of the Australian Aviation Museum which focuses on the country's military aviation history. There is an excellent collection of warbirds nearly all of which are regularly flown. I've visited Temora before, once in the Jodel, and many times in the Auster, and I like its friendly reception and facilities. Like at Tocumwal the wartime-built infrastructure continues to serve the community.

A WW2 Bellman hangar at Temora - built in haste but still standing, still serving.

It's 19:00 before the Jodel is refuelled and secured for the night and thus a great relief when I find a room right on the aerodrome and can borrow a car to drive a few kilometres to dinner in the town. You know Temora is an aviator's destination when

almost immediately you find yourself sharing a table with fellow flyers, in this case glider pilots from Canberra and locally based Auster owner Mike Cleaver.

At 02:30 I am wide awake, my body clock telling me it's Central European Time. I begin planning the day's flight which will involve at least four refuelling stops. Three hours later, with the sun rising, I am still noting down runway directions, time-intervals and NOTAMS. Flight planning expands to fit the time available but eventually one has to accept that not all eventualities can be planned for and the only thing left to do is fly.

Parkes is the next destination and on a beautiful clear country morning the Jodel climbs away from Temora. This was not how the day would continue. Parkes is deserted but the fuel bowser accepts my credit card and we are off again for another smooth run to Narromine - once more a landing at a former WW2 aerodrome, now a gliding centre, with a long taxi to the fuel bowser and more rubber disappearing from the tailwheel tyre.

Cumulus clouds are building themselves into towering cumulonimbus and the runways are wet from a recent passing storm. In the clubhouse the latest weather radar image is displayed on a large screen. There is a line of storms which is already past Narromine and moving NE. I decide it's ok to go. The next leg will stretch the Jodel's range to the limit, beyond its limit if there is a headwind, so I have planned to land at Coonabarabran and add the 10 litres of fuel stashed in the carapace. Tooraweenah is my alternate should storms intervene. At the small but comfortable terminal building I replan for Narrabri with the possibility of continuing to Moree if storms and fuel allow. The 10 litres of Avgas is poured from fuel bladder-to-tank and we take-off, immediately joining eagles, thermalling for altitude.

It's now that I realise my error in choosing Barradine as the alternate, although there were few choices available. I am on the "wrong side" of the dreaded Piliger scrub - a vast area of bush with no open country and zero human habitation. Should the engine fail and a landing become necessary I might survive the arrival among the trees but it would be a long walk to the nearest pub. To detour to the west around this hazard would require an extra 30 minutes flying time and push me close to the limits of the Jodel's range.

Barradine terminal facilities: No crowds, no queuing.

I set a direct heading for Narrabri and concentrate on converting lift from thermals into altitude and speed. It soon becomes clear that I will easily reach Moree, another 30 minutes flying time north of Narribri, so I cut the corner and land in Moree with more storms close behind. On final approach to runway 23, a strong thermal refuses to let the Jodel descend so with some satisfaction I re-discover the little plane's ability to side-slip, holding crossed controls almost to the runway before she settles as softly as a feather from a buzzard's bum. I have not reached my planned destination of Goondiwindi but I'm down safe and unable to contemplate another minute in the cockpit.

The fuel agent is absent so while waiting for him to appear I walk the flightline looking for a tie down spot. They are all occupied. What was the captain of the Titanic doing before his ship went down? Not paying attention to the details.

I walk a few hundred metres further to the busy Aircair Aviation hangar where enormous (compared to the Bébé all planes are enormous) agricultural planes are repaired then sent out to sow and spray crops of rice. Timidly I enquire if there might be a spot in the corner for a small wooden plane. "Yeah

I reckon we can squeeze you in", says Cam. It's 40 degrees C and my jet lag is returning. I walk back to the bowser, refuel, swing the prop a few times, climb aboard and taxi to the other end of the apron where Cam downs tools again and shows me to my hangar spot. A few minutes after closing the doors on the Jodel the first wind gusts hit; rubbish bins and other unsecured objects are blown across the tarmac. Pay attention to the details or the ship *will* be lost.

Not only have the Aircair team interrupted their important work for me, they've called a motel, thrown me the keys to a ute and given directions to my bed for the night. Exhausted, I grab a take-away and hit the hay. Next morning at breakfast I see Cam and his team of mechanics. "You're starting work early" I say. "Actually, we've just finished," says Cam. They had worked through the night; such is the demand for their skills. And they had still taken the time to ensure a lone aviator in a plane of little value was taken care of. Thanks, big thanks, to the Aircair team and to Dobri and Vesna at the Jackaroo apartments.

I can only explain the absence of photos from the Moree stop-over as a. exhaustion from heat and jet-lag and concern for the plane leaving no brain capacity for photography and b. Air-borne shots are extremely difficult. The Jodel has no elevator trim which means that taking my hand off the stick results in an immediate dive. By holding the stick between my knees (spare me the sniggers) I can sometimes fire off a shot through reflective perspex. On the one occasion when I slid the canopy open for better photography the thing refused to slide forward again and I had to continue open-cockpit to the next destination. This is not dangerous or difficult, just don't unfold a map.

Pacing the road train.

And here I am again playing that old slow-aeroplane game named "pass the road train." I was faster than the trucks on the highway below, but not by much.

The original aim of this flight was to relocate the Jodel from Maryborough Vic. to Maryborough Qld. but a couple of days before departure I received news that the hangar space promised in the Qld borough was no longer available. Gympie, a short flight to the south, was now the best option and after making contact with the local aero club I soon had an offer of temporary shelter for the Jodel. This was now becoming an aviator´s home-coming, a return to the roots adventure with deja-vu and other clichés writ large. I had grown up within long-final distance of Gympie aerodrome. I was at the aerodrome on opening day, May 7th 1966, and took my first flight from there; a 13 year-old wedged into the back-seat of a Piper Comanche between my father and a neighbour, barely able to see out but absolutely in love with the experience.

So now, on day 3, I'm flying towards my past. The first leg from Moree to Goondiwindi is about as good as flying can be with barely a bump in the air, the Newell Highway below and the Jodel's motor pulling us enthusiastically across the state border into Qld. The cloud base had been descending and with higher country ahead I called Trevor Bange at Clifton, our next scheduled stop. He reported satisfactory conditions and offered some good tips on the best route to follow.

The weather is unusual for SE Qld in early January - cooler than normal with high cloud, light rain showers and patches of low cloud but I find Clifton and land on its lovely soft grass after 1.3 hours. Trevor provides fuel and a cup of tea as I worry about the next, and final, leg to Gympie. There are conflicting weather reports including one of light drizzle and possible storms near my destination. I call Watts Bridge, a busy field along the route, and am reassured by reports of good visibility and sufficient ceiling to cross the Conondale range.

With routing advice from Trevor, away we go for a 1.7-hour flight which takes us over a low range into the Brisbane valley - Toowoomba is to the west and Amberley RAAF base to the east. Soon we are tracking past the overflowing Wivenhoe Dam to Watts Bridge airfield, home to many vintage aircraft, then further into the headwaters of the Brisbane River, over Somerset Dam then Kilcoy. Finally, we cross the Conondale range, the watershed between the Brisbane and Mary Rivers, and follow a familiar route, weaving with the meanderings of the Mary, past Conondale, Kenilworth and Imbil, over Bellwood where my father was born, Wattlewood where I grew up until, at last, I am landing on Gympie's perfect grass runway 21. I had arrived. It wasn't Maryborough, but here the Jodel had a home, at least for the time being.

Northern end of Lake Wivenhoe near Watts Bridge.

The Jodel is now tucked safely into a corner of the gliding club hangar at Gympie until I can return and give it some well-earned attention.

Some numbers:

- Total flight time 12.4 hours, Distance flown 811 nautical miles/1500 km.
- Fuel consumed: approx 136 litres of mostly Avgas and some 98 UL mogas.

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

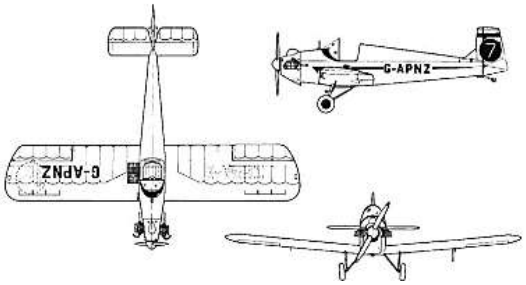
Pilot Report – Druine D.31 Turbulent

By Rob Knight **M24-183**

In 1977, as a line instructor with the Waitemata Aero Club at Ardmore, in New Zealand, life was pretty hectic. Flying was in fashion and the club had around 1200 members. New members arrived frequently and brought new ideas and some, new aeroplane types, into the Club arena. One such new member was a Phillip Dodds.

Phillip already held a PPL, issued by the Canterbury Aero Club at Harewood, in Christchurch, but he brought more than a new idea, along with his other possessions, he had brought a Druine D.31 Turbulent, one of the most common home-built aircraft in those times, from a seller in the Central North Island and had it flown into Ardmore to await his tail-wheel conversion with us so he could fly it.

The Club had a 90 hp Cub available for training and hire and he was soon booked with me to start to learn the ways of the tail-wheel. Also, the super basic, 1200 cc (30 hp) VW engine powering the Turbulent had no electric starter, so a course in propping the engine was also required.



Druine D.1 Turbulent

We used the Turbulent, parked on the grass area adjacent to the Club's bitumen apron, for this as the training was for this aircraft so we could immediately begin to cover the idiosyncrasies of his specific home-built – the prop turning the other way for a start.

Whilst briefing Phillip for this task/lesson, he offered to give me an hour or so in the D.31 so I could better cover the requirements necessary and, where possible duplicate them in the Cub. Never having flown a Turbulent, I immediately accepted his offer. It was a pleasant day, with little cloud and virtually no wind, so we agreed that I would take it for an hour when I finished my duty time for the day. I left to meet my next booked student.

The aircraft, ZK-CGU, was NORDO[1] at that time so I called ATC, which was still active, to give them my plan and get flight approval.

Approval given, I put on an extra jacket and pre-flighted the aircraft. Firstly, it was small, tiny in fact. I don't, even now, recall flying an aeroplane with smaller dimensions. With no flaps, it was a simple aircraft, its greatest complications being an elevator trim, the cable brakes, and knowing how to get into and out of it.

Standing by the port side of the cowling, I swung the wooden blade down twice and it started idling with the ubiquitous popping sound inherent to VW air-cooled engines. I climbed aboard and did up the four-point harness. As it was chocked, as soon as it was warm enough, I did the run-up. Everything was sweet so I signaled Phillip to pull the chocks away and the aeroplane was ready to taxi. I was on my way.

The first lesson the aircraft taught me was that with its extremely light weight, it wanted to taxi even at idle RPM. It was very difficult to control speed as the heel brakes fitted were almost totally ineffective. So, with both heels trying to force their way through the floorboards, I staggered towards the holding point for runway 21 as arranged with ATC. After getting it to stop closish to the painted hold-point line, I did the very simple pre-take-off checks and sat waiting for the steady green

[1] *NORDO – no radio.*

light from the tower to line up and remove myself from the airfield. One of the aircraft I was waiting for was a V35 Bonanza and after it taxied past me, it applied a burst of power as it returned to its hangar. Alas, that burst of power swung me around 90 degrees and now I was about six feet away from the edge of the taxiway, facing longish grass growing in very soft ground. I undid by harness and, holding the edge of the cockpit firmly to stop the aircraft running away, crawled down the fuselage, picked up the tail with its skid, and re-aligned the nose with the path I needed to meet the runway, and crawled back aboard. As soon as my straps were again fastened, I waved at the Tower and got my green light to take-off.

The runway was bitumen and, in spite of only 30 hp waving the paddle-pop stick that gave us thrust, we were airborne in only about 200 feet (60 odd metres). It was another surprise, along with the super-light controls. I had expected them to be light so was only holding the stick in two fingers but forgot to tell my feet about it. Using great caution now with all control movements, I settled the airspeed on the 55 knots I had been advised to use and let the aircraft climb straight ahead.

At 500 feet QNH I turned a little left and flew into the Ardmore training area as it was known then. Still climbing, I started to look at the aircraft. The panel had no VSI so I noted the height the altimeter gained in 30 seconds on my watch. It was 190 feet so quickly calculated my rate of climb was not award winning. The windshield, it was an open cockpit, was effective and there was not as much cross-flow in the cockpit as I was used to in the Tiger Moth, the last open cockpit aircraft I had flown. Holding left rudder to keep the ball centred (the prop turns the other way to Lycoming and Continental engines) the cross flow wasn't enough to ruffle my coat collar, but if I allowed the nose to yaw left (ball out to the right), the flow became a gale and I could have lost my sunnies. Slipstream can do wonderous things in such a small and light aeroplane. Checking temp and pressure (only one of each) – everything was greens so the climb continued.

After levelling out at 2500 feet, I found the elevator trim was effective and held the nose attitude exactly where I needed it for straight level flight. With care, and using only helium-light elevator adjustments, I got the altimeter to freeze, and the ASI needle climbed to 73 knots at the 3000 RPM I had been advised to use for cruise. The oil temps were still steady, all in the green zone.

Visibility was superb. The only blind spot was directly behind, the result of the turtle-deck behind my head. With such a light rudder, a flick of my toes swung the tail and there was no longer a blind spot. The short nose had just enough incline to give good forward visibility for map-reading, and to the sides, having no frames or glass, the visibility was unlimited by the airframe.

Turns were easily entered, the roll-rate was high from the large ailerons, but this also meant that coordinated rudder was important to counter the adverse yaw they created. Compared to the Cub, there was little overbank tendency whilst banked, a point I put down to the much shorter wing span of the D.31. However, it was noticeable that in a right turn, there was a tad more overbank tendancy than in a left turn. Maybe caused by a slight rigging issue, or an imperfection in the build was my reasoning.

Back pressures to hold 45-degree turns was necessary but was, again so light it was remarkable. It would be very easy to stall in a turn by using too much back pressure – there was no way this super light aircraft could safely handle the stick being yanked in any direction.

Basic stalls were non-events. The built-in slots along the leading edges of the wings, ahead of the ailerons saw to that. It would only flutter a little in a pre-stall buffet, then sink nose high, nodding its head slowly after the stall break. With the slots active, full aileron control was exercisable and the aircraft could be rolled 45 degrees either way with nothing further than an increased buffeting and sink-rate. As I had been warned, there was a notable rise in oil temperature when operating it at low power and low speed, an issue with the engine cowling I had been informed, but no red lines were exceeded. With this in mind I did only one stall with power on and it was as uneventful as the one

with the throttle closed. A gentle stall in a climbing turn was as uneventful as the rest, it was easy to achieve in such a low-powered aircraft, and easy to exit. No surprises in the stall at all.

After returning to level flight, I turned back towards Ardmore and set up a glide to return to 1100 feet AMSL for my rejoin, again keeping a close eye on the temperature. There appeared to be no issue as long as I maintained the recommended glide speed of 50 knots. To test it, for a bit I raised the nose a little and let the airspeed sink to 40 knots and held it. After a short time, the temperature needle started an upward sweep so I let the nose down and regained the recommended speed.

Late downwind for the still active runway 21 and having done what few checks the aircraft required, I could see that I would be number 3 to land. I got a flashing green from the tower window and continued my approach. As I had previously advised the tower, I was aiming for the centre grass landing area, not wishing to land on the bitumen.

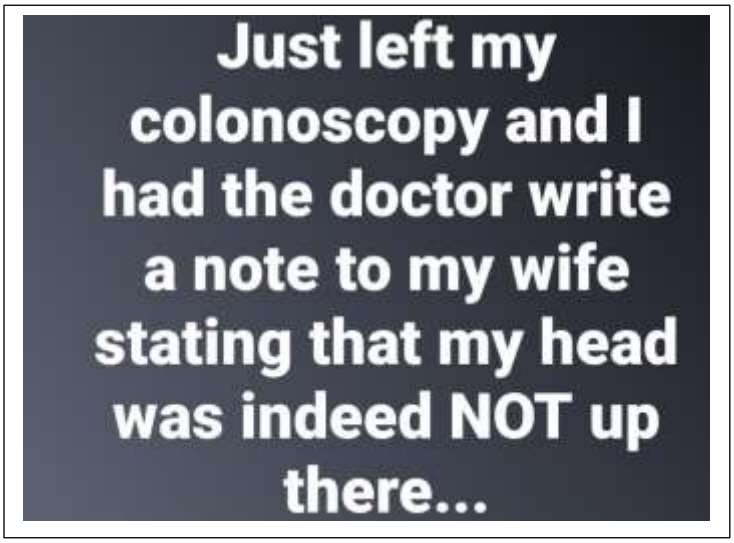
On short finals, the aircraft ahead had all landed and cleared, the tower window went to a steady green. The ground rushed up in front of the windscreen and I gently drew the tiny stick back and both mains brushed gently onto the mown surface as the tail skid rumbled a protest against the hard ground. Landing was easy. However, the roll-out straight required some deft footwork as over-control was so easy with the light rudder pressures and control weight. Too much of a good thing can be as bad as too little. We rolled ahead for about 100 metres before I was slow enough to turn and the tower lit up with a flashing green for me to cross the bitumen runway and return to the Club.

ZK-CGU, many years later, in different livery, at Bridge Pa Airfield, near Hastings, but still flying.

I really was impressed. This was a very pleasant aeroplane to fly. Light to control, and a bit quirky with its low power, it was still interesting and entertaining. Now, with my new knowledge, I felt I could do a better job of getting Phillip up to speed in the Cub so he could cope with his machine while he gained experience in it for himself.

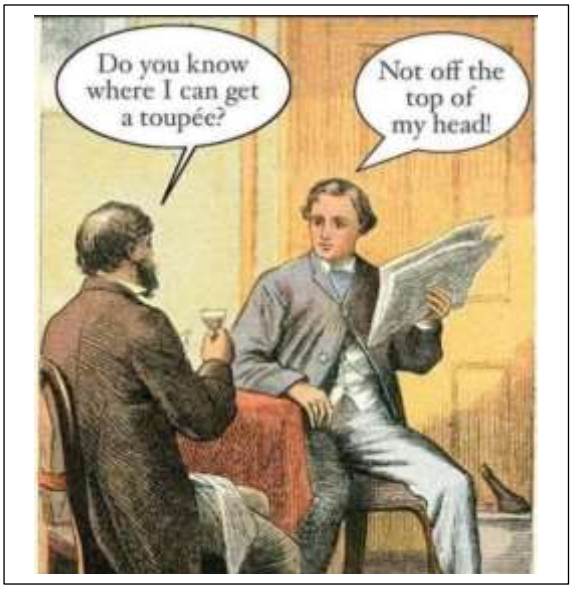
Phillip trained easily in the Cub, and flew the D.31 totally successfully around Ardmore for a number of years before selling it and going overseas. In have not heard of him since.

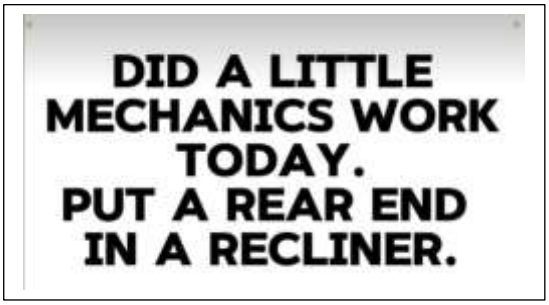
------ ooOOoo ------



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**





The Days of Our Lives (Feedback from a Flying Instructor).

By Rob Knight

It was about 1978 when Graham M. came into Waitemata Aero Club. He was a bit of a misfit and found it difficult to make friends. However, his propensity for making statements to the disadvantage of other people caused great disquiet amongst other members.

One evening in the Club bar, he began chatting up the girlfriend of another member. There was a brief spat and the member went to the bar to refresh his and his GFs drinks. Whilst away, Graham, in my hearing, told the girl the ex-student was involved in drugs and that she needed to be very careful lest she become tarred with splashings from his brush. She mentioned this on the ex-student's return and there was an explosion of anger and the two had to be drawn apart.

I had as little to do with Graham as possible. Any time our paths crossed I was polite and used soft words I really had to search for because his manner and actions kept them from the front of my mind. We clashed when he started to advise my students about their theory and contradicted some official versions of briefings. The CFI did tell him to stop but he was also not keen to pick a fight until something more serious gave reason. I felt that we'd already passed that point.

I left and went to Hamilton, initially to the Waikato Aero Club. Whilst there, Graham also moved to Hamilton and started frequenting the Club bar there. He became so obnoxious that, one Saturday night, some vexed Club members there got him drunk and used his wallet to purchase a rail ticket to Paekakariki, hours down the line, just north of Wellington. They tucked him up in the sleeper bed minus his clothes so when he got to the station at Paekakariki, he had an enormous hangover, no clothes, and no explanation. I believe that he was awarded some attire from the lost clothing locker and spent a day hitch-hiking back to Hamilton.

Over the next 6 months or so, somewhere, Graham did an instructor rating. I had left the Waikato Aero Club and was the CFI at the Rukuhia Flying Club. He approached me for work but I had a full-house of casual instructors so declined his offer. He then asked if he could do trial flights for people that he brought along. Much as I didn't like him, business was business so I agreed to sign his supervision papers to validate his instructor rating for this purpose only.

Graham was active, he seemed to be doing a couple of TIF[2]s a week. Then one day I got caught away on a cross-county with aeroplane problems. I had two TIFs I on the booking sheet but wasn't there so Graham called me and offered to do them in my stead. The Office staff accepted his offer and he did the two flights.

In keeping with my usual policy, I did a follow-up call on the two people with whom Graham had flown. They both said they had not really enjoyed the flights after they had been demonstrated the spin. Furious, I called several of the people that Graham had brought along himself and they expressed the same problem. I called and challenged Graham because I knew that he was not spin rated, plus my Cessna 150, ZK-CSW, was placarded against any intentional spins.

He told me that, as the pilot in command, it was his duty to show the entire gamut of aeroplane manoeuvres. I reminded him his actions were illegal as neither he nor the Cessna could carry out intentional spins. He argued, so I continued that I was the CFI and that I was morally correct and legally entitled to dispense with his services forthwith: he was fired! I then contacted the NZCAA and removed all supervision of him, and advised them of the reasons.

Such conduct as deliberate scaring or abusing students by any instructor needs reporting and action taken. It can never be acceptable.

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[2] *TIF – Trial/introductory flight.*

WTF - The World's Worst Aircraft –

The Pemberton-Billing (Supermarine) Nighthawk 1917

By Rob Knight

When Pemberton-Billing Ltd changed its name to Supermarine Aviation in December 1916, work in progress on a further anti Zepplin airship fighter, the P.B.31E, was already at an advanced stage and the first prototype of this quadruplane was due to fly shortly afterwards, in February 1917. Fundamentally an extrapolation of the P.B.29E, and unofficially known as Night Hawk, the P.B.31E was proposed to have a maximum endurance in excess of 18 hours to enable it to lie in wait for intruding airships. The entire concept was fallacious as, in the unlikely event that the P.B.31E found itself fortuitously in the same area of sky as its prey, it would have been totally incapable of pursuing the airship which could have risen out of range before any guns could have been brought to bear. A three-bay quadruplane powered by two 100hp Anzani nine-cylinder radials, the P.B.31E carried a searchlight in the extreme nose. The intended armament comprised a one-and-a-half pounder Davis gun on a traversing mounting in a forward position level with the top wing, a 7.7mm machine gun being located in a second position immediately aft and a similar weapon occupying a forward fuselage position. Shortly after the start of flight trials, the shortcomings of the concept were finally appreciated, and, on 23 July 1917, the first prototype was scrapped and the second incomplete prototype abandoned.

Note the searchlight on the nose.

FACTS AND FIGURES:

1. The inadequately sized rudders were mounted between dual tailplanes, probably to give a greater field of fire for the rear-racing guns.
2. The extreme nose of the PB.31E contained a searchlight for finding Zeppelins at night. In reality it would have just given the airship captains a head start.
3. Not obvious in most photos of the Nighthawk is the narrow chord of the four wings and the considerable sweepback of their outer sections.

The only winner in this super-failure of an aircraft would have been the observer who, perched atop the birdcage of wings, struts, frames and flying wires, would have had a panoramic view of the world, and any Zeppelins encountered. However, in regard to the Zeppelins, there would have been disappointment as he saw the airship retreat into the heavenly heights with its ability to climb far exceeding that of the lumbering, over-dragged, underpowered Nighthawk after the nose mounted searchlight gave the aircraft's position away and the airship captain a head-start in his escape.

The P.B.29E Nighthawk, with all that drag it wasn't a hawk at all.

SPECIFICATIONS:

Crew:	3	MTOW:	2788 kg
Powerplants:	2 X 100 hp Anzani engines	Max level flight speed:	65 knots
Wing Span:	18.29 m	Rate of Climb:	166 FPM
Height:	5.4 m	Climb to 1000 feet:	60 minutes

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

1. What causes heated air to rise, as in thermal activity?
   A. Mechanical uplift.
   B. Anabatic effect.
   C. Heated air is less dense than colder air
   D. Coriolus effect.

2. What causes compass deviation?
   A. Anomalies in the earth's magnetic declination as indicated by isogonals on a chart.
   B. The variation between the actual positions of true north and magnetic north.
   C. Errors in the magnetic compass.
   D. Miscellaneous electrical activity in the aircraft itself, modifying the earth's real magnetic field as read by the compass magnets.

3. A primary purpose for which aircraft designs include turndowns to wing tips, or add winglets to wing tips, is which of the following
   A. To reduce induced drag.
   B. To reduce form drag.
   C. To increase float after the landing flare.
   D. Improve controllability without increasing control surface size.

4. A pilot elects to fly in his single seat aeroplane with 20 litres in the port tank and 30 in the starboard? This will equate to a weight differential of 7.2 kg. How can he fly wings level.
   A. 7.2 kg is so insignificant it can be ignored and the aircraft will fly wings level as usual.
   B. Adjusting rudder trim will cause a crab and the crab will increase the lift on the starboard wing to compensate for the added weight.
   C. The pilot must fly with left stick applied so the right aileron will be down a little creating a higher angle of attack on that part of the wings to increase the lift and support the additional weight.

5. Why does a single engined aeroplane require right rudder to keep the ball centred when climbing?
   A. Slipstream effect
   B. "P" Factor or asymmetric blade effect.
   C. Propeller gyroscopic forces.
   D. Propeller torque.

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

1. C is correct.

The ground is heated by the sun and that heats the air in contact with it. Adjacent parcels of air, over different coloured surfaces or surfaces with a different texture, become cooler than the heated air. As heated air is less dense than cooler air, the heated air will rise to be replaced by cooler, denser air from outside the heated area. Then, in turn, that incoming air is heated by conduction from the sun-heated surface until it, too, becomes less dense, and also rises.

2. D is correct.

Compass deviation is caused by magnetic fields within the aircraft itself causing erroneous readings on the compass card.

Corrections for compass deviation can be read on a card adjacent to the compass.

3. A is correct.

Turndowns or winglets reduce spanwise flow across the wings and so shrink tip vortices and so reduce induced drag. Winglets also have the effect of giving the wing an apparent increase in span. HINT: - Try Googling them.

4. C is correct

Note that the down aileron creating that extra lift will mean that that portion of that right wing is operating at a higher angle of stack so will now stall before the left wing should a stall condition be entered. This could result in a unexpected and savage wing drop to the right.

5. A is correct.

Slipstream effect causes a nose yaw LEFT force in a clockwise rotating propeller (viewed from the cockpit). At cruise speed, the designer will have created other forces to counter this side force on the rear keel surface but at climb airspeed, the designed force is inadequate to fully counter it. Therefore, the pilot must provide a correcting difference with right rudder.

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

Aircraft Books, Parts, and Tools etc.

Contact Rob on mobile – 0400 89 3632

Aircraft Magnetic Compass (Selling on behalf)

Item		Price
Magnetic compass: Top panel mount, needs topping up with baby oil.		**$45.00**

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**

Australian Lightwing Parts

Item	Condition	Price
1 X set brake bands and pads to suit GA or GR models.	**Brand New**	**$200.00**

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

Or email me at:

kni.rob@bigpond.com

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**

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.

$38,000

Contact Colin Thorpe

Ph. 0419 758 125

Jodel D9 (Bébé) for Sale

Jodel D9, Registered 28-3503 (formerly VH-IVB)

With great reluctance I'm parting with the little Jodel as I'm simply not able to fly it often enough due to living overseas and the need to finish my Auster restoration.

Completed in 1964 by LAME Vic Bartinetti at Tumut this Jodel has around 700 hours total time on the airframe and about 300 hours on a-new-at-installation VW 1680cc Hapi conversion engine. It will be sold with a new propeller (currently in build) and current maintenance release. Currently the aircraft resides at YGYM (Gympie). Note that specific hours will be available when I return to Australia early in the New Year and can access the logbooks.

I have much history with the plane, having it bought it for the first time in 1979, then sold it, then bought it back in 2015. Email me and I will fill your inbox with stories.

I'm asking $8,000, which would include the new propeller but no radio.

Contact me by email only at kerryskyring@gmail.com

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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

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