BRISBANE VALLEY FLYER

July - 2022

www.bvsac.com.au

BRISBANE VALLEY SPORT AVIATION CLUB INC

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

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Jessica Cox, the world's first armless pilot. – see page 7.

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From the Club

Hello all,

Yet another outrageously wet and windy month has passed. Again, no good for flying, and, anyway, the runways were closed again for most of the month.

In news of upcoming events at Watts, I am sure that you will recall that the upcoming Brisbane Airshow is scheduled at Watts Bridge memorial Airfield on July 2, less than a month away.

This time, the club will not be taking part in any fund-raising activities at air show this time around, but we will have the club house open on both days for members and their visitors to come and have a cuppa or cold drink and sit on veranda and watch the air show. We will have it fenced off just for our own use.

In regard to acquiring tickets for the Air Show:

If you are a Watts Bridge member you will get email explaining how to down load your tickets.

If you are only a BVSAC member (and NOT a WBMA Member) you will need to purchase a ticket from the Australian air shows web site if you wish to attend.

Closer to home, the BVSAC's monthly meeting at the club house went well We had 11 members attending, and it turned out to be a very good day with the meeting first and then the BBQ lunch afterwards, with plenty of aeroplane talk for dessert.

It was noted at the meeting that the scheduled date for our next meeting would fall on the weekend of the Air Show (02 July), so the meeting decided to reschedule the anticipated July monthly meeting to August.

Therefore please note that the next B**VSAC monthly** meeting will be held on Saturday the 6th of August, 2022, and it will be held at the Kholo Botanical Gardens Ipswich, 243 Riverside Dr, Muirle Qld 4306. For further details of the location, see the website below.

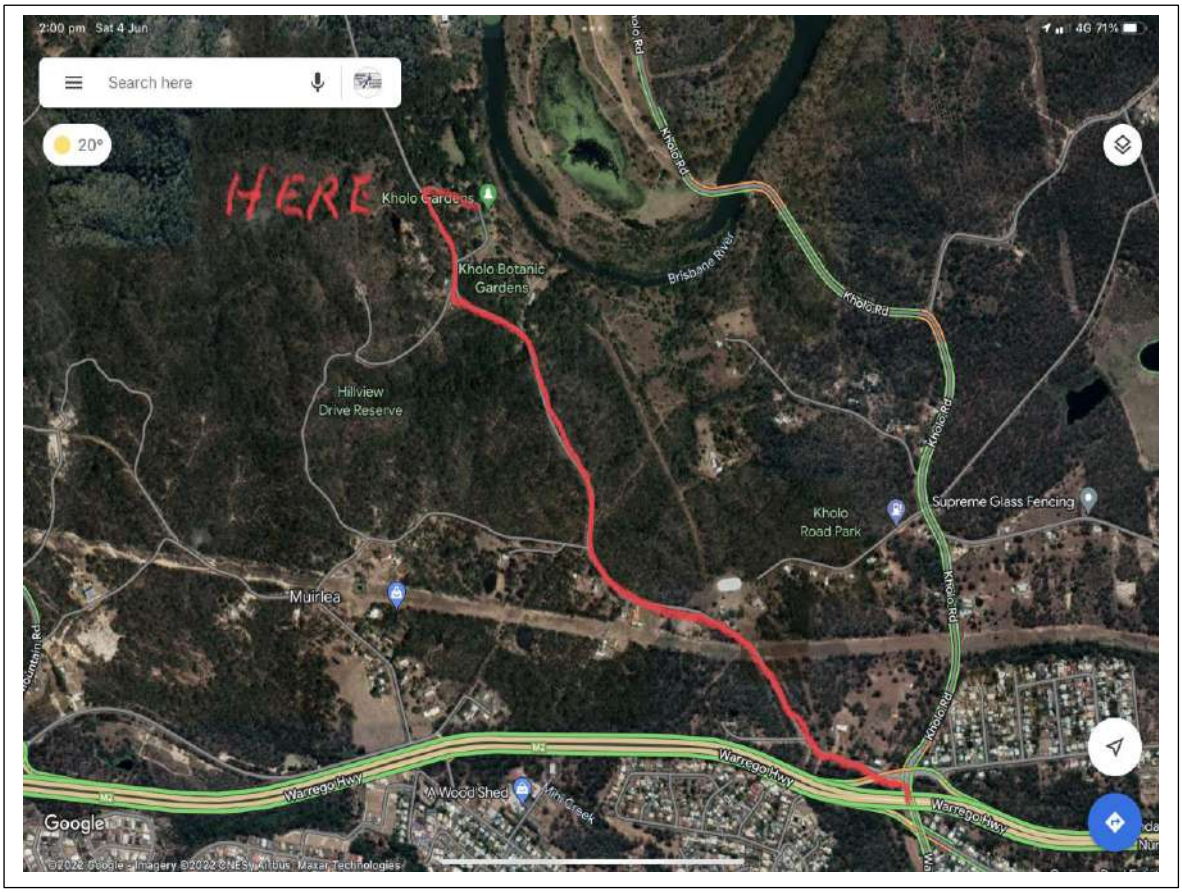
https://www.ipswich.qld.gov.au/explore/parks_reserves_precincts/parks_search/kholo-gardens

The gardens are located right on the river and there is plenty of open space with a few good walking tracks to take in the view.

Please see the details and the map below for directions.

From the Warrego Highway, take the Kholo exit and turn left at the intersection just off of the highway and then take Riverside Drive to the gardens.

We hope to see you all there for a bit of away fun.



Peter Ratcliffe

President BVSAC

A Spin, or A Spiral Dive?

If you Need to know, you need to know BAD

By Rob Knight

The Answer Could be Life-Saving

If you are in either of these situations, then you'd better know how to beat a hasty exit or you won't have long to worry about the definition!

To put it simply, an aeroplane in a spin is in a stalled condition, where-as one in a spiral dive is in an accelerated one. However, the reason for confusion is that spins and spiral dives share similarities. Generally:

- In both cases the aircraft will be descending rapidly,
- The aircraft's nose will be lower than the horizon, possibly near vertical, and
- It will be rotating about a point somewhere above the cockpit roof so the machine is scribing a spiral or corkscrew path as it descends earthwards.

Mind you, there are also some symptoms that they don't share. In a spin:

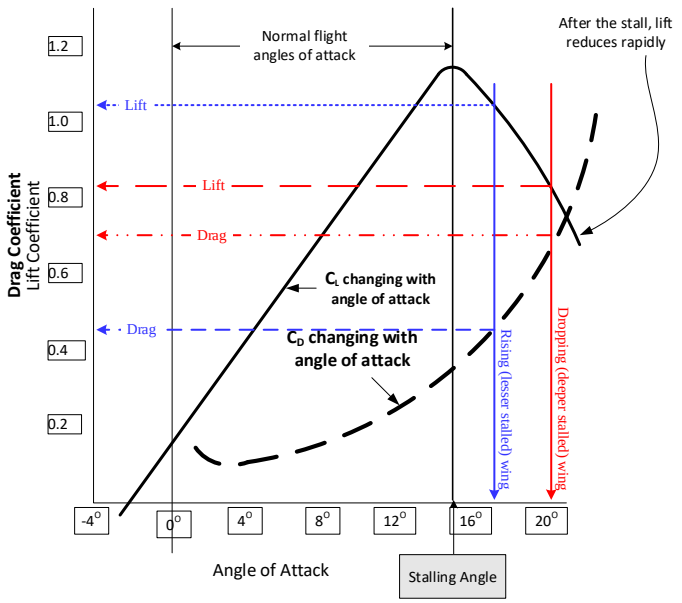
- The airspeed will be low, and
- The airspeed will remain relatively constant, and
- The controls will be light and rather ineffective because of the lower airspeed.

Whereas, in a spiral dive:

- the aircraft airspeed will be high, and increasing rapidly as the aircraft accelerates,
- the noise will be increasing, also rapidly, and,
- The controls will be heavy and getting heavier by the second as the airspeed rises.

For a full understanding of these situations, some underpinning knowledge of each is vital. Let's look first at the anatomy of a spin

A spin is a stalled condition, specifically where one wing is stalled to a greater degree than the other. This "degree of stall" could refer to either both wings being stalled but one wing having a greater angle of attack than the other, or, possibly, one wing being stalled and the other not.



The term "spin" is derived from the motion of the aeroplane after the stall occurs, notably, the aeroplane will roll without pilot input, yaw without pilot input, and pitch without pilot input – in other words the aeroplane will "autorotate", the alternate name for a spin.

The causes of these motions about the three axes are simple. The roll is caused by unequal lift between the wings, the yaw is caused by unequal drag between the wings, and pitch because of the trim change resulting from the Centre of Pressure position on the chord line at high angles of attack.

Let's examine the lift and drag / Angle of Attack graph on the last page and list the relevant details.

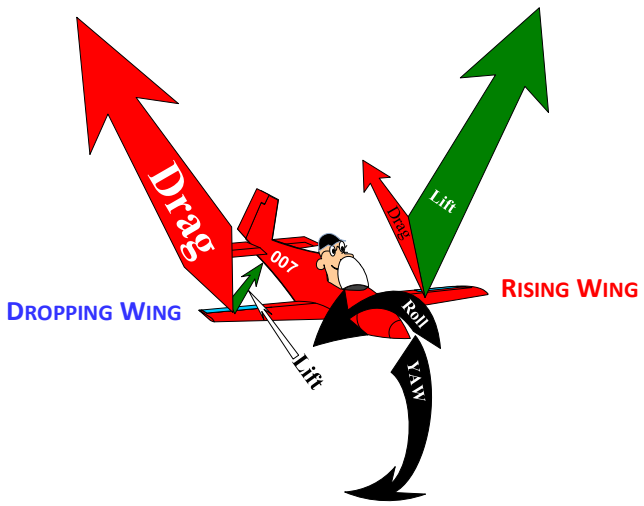
Wing	Angle of Attack	Lift (C_L) produced	Drag (C_D) produced
Deeper Stalled (dropping - red lines)	**21°**	**0.82**	**0.70**
Lesser Stalled (rising – blue lines)	**17°**	**1.07**	**0.425**

What do these values do to the Aeroplane?

The graph on the previous page shows that the wings are both stalled because their angles of attack are in excess of their stalling angles of attack. Note that the red one (dropping) has a higher angle of attack than the blue wing (rising).

The graph results entered into the boxes above are clear. The rising wing is generating about 1/3rd more lift that the dropping wing which is what produces the roll (wing drop) at and after the stall.

The drag generated by the two wings has an even greater differential - the dropping wing has almost TWICE the drag of the rising wing. The sketch above is a schematic presentation (not to scale) indicating the same values but as a visual presentation.



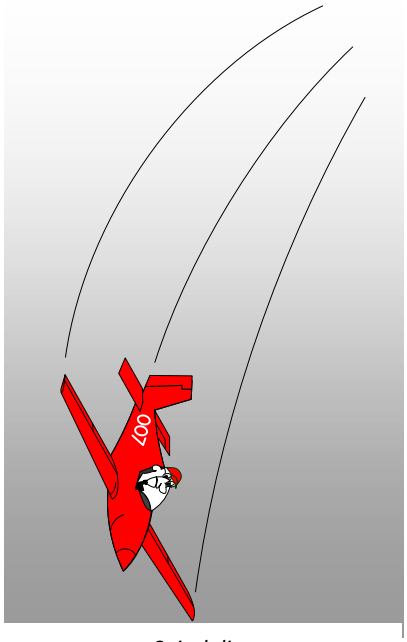
Right hand wing drop.
Schematic impression of the lift and drag forces causing the right wing to drop and the nose to yaw right. If this is allowed to continue, the aeroplane to said to be autorotating

The drag causing the yaw has some people stumped when trying to understand this situation. When the normal axis (about which the aeroplane yaws) is vertical as when the wings are level, right yaw will pull the aeroplane's nose to the right, and vice versa. However, if the aeroplane is rolled, let's say, 60° to the right yaw will pull the nose to the right, but also down, towards the earth. Thus, in this case, when the right wing drops, the aircraft rolls right because of the lift differential and the nose is pulled to the right by the drag differential. The aircraft is autorotating. If this is allowed to continue, the aircraft is spinning and will remain in this state with a relatively low airspeed, a permanently dropping right wing and a permanently right-yawing nose. All without pilot direction! From this you should now see that spins are constant (low) airspeed, low G situations.

To recover from the spin, we must recover from the stall. The following is the standard spin recovery procedure. Note how different this procedure is to a normal stall recovery.

1. Close the throttle.
2. Centralize Ailerons.
3. After noting the spin directions, briskly apply FULL out of spin rudder and HOLD it.
4. Pause briefly, then ease forward on the stick until the rotation stops.
5. Gently level the wings and ease out of the resulting dive to assume the climb attitude, applying full throttle to minimise height loss.

As we are comparing spinning with a spiral dive, we should now look at this spiral problem. Firstly, we are definitely not stalled. A spiral dive is a high airspeed (and rising), high G loading (and rising) situation. Basically, a spiral dive is a turn gone bad.



Spiral dive

If, in a in a turn, the nose is allowed to get low the airspeed will increase and the nose will continue to drop. Unless the pilot makes a deliberate effort to maintain a constant bank angle the aeroplane will continue to roll towards the inner wing so the bank angle will naturally tend to increase. With the rising angle of bank, the nose will tend to fall further so the airspeed will continue to rise and the G loading further increase, so the chain-reaction has begun.

At this point most pilots become alarmed and decide to get out of this scary situation by pulling the stick back. However, because the wings aren't level, all the back stick does is pull the aeroplane tighter into the spiral, further increasing speed and G loadings. Note – this is non-habit forming!

Allowed to continue, the spiral dive can easily cause the Vne to be exceeded, and structural loadings in excess of the limit G Load factors to be applied to the machine. Either of these excesses will likely cause a catastrophic airframe failure of the aircraft.

Symptoms of a spiral dive: The aeroplane is in:

1. A steep bank in a steep dive,
2. With rapidly rising airspeed and a fast-increasing G loading, at a
3. Very high rate of descent.

To recover from a spiral dive properly, the pilot should first

1. Close the throttle, then
2. Use coordinated aileron and rudder to return to a wings-level state, then
3. Smoothly use the elevator to ease the nose up into the required attitude.

Common errors during spiral dives include:

1. Failure to recognize a developing spiral dive.
2. Rough, large, abrupt, and/or uncoordinated control applications to effect recovery.
3. Improper sequence of control applications.

Summary:

Spins are entered when a pilot enters an unintentional and uncoordinated stall where one wing stalls before the other. This can occur in banking scenarios with low airspeeds such as turning base to final with a crosswind. When a spin is entered the aircraft autorotates around the more stalled wing at a constant airspeed and altitude loss. Airspeed remains the same due to aerodynamic forces being in balance

Spiral dives, on the other hand, are usually entered when a pilot is not focused on flying the aircraft or when a VFR pilot flies into IMC. Once in a spiral dive, the airspeed will start increasing along with the descent rate and angle of bank. This will impose high g-loads on the aircraft.

When you need to decide which you're in – you'd better be right!

Happy Flying

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A Thrilling Landing, Followed by a Shocking Twist

By Jessica Cox (Flyingmag.com)

The author taxiing by the tower at KJFK. [Photo: Blue Slate]

Earlier this spring, we set out to take the Ercoupe cross-country to inspire kids with disabilities for the third year in a row. This year, I would be in New York to speak at an annual convention for SITA Aero. SITA provides software and IT systems for airports and aircraft globally. When they heard about our work at Rightfooted Foundation, my non-profit that aims to inspire children through aviation, they wanted to sponsor a Limb Different Airport Day. I would fly into KJFK in the Ercoupe to a group of children and people with disabilities.

The author's aircraft required no investment for modifications. [Courtesy: Jessica Cox]

First, I did not have permission to fly into a Class Bravo primary airport as a sport pilot. Plus, the Ercoupe's home base is Tucson, where I live, so it would be at least a five-day journey to KJFK.

Then, there was figuring out the logistics. On top of KJFK being a major U.S. hub, it sits under some of the busiest airspace in the country. I knew there would be an overwhelming number of radio calls in such an active sector.

The Ercoupe lands at about 60 mph, while the jets at the airport land at much more than twice that speed. That made me remember my flight training and the lessons I learned about wake turbulence, and the terrifying possibilities of not waiting long enough to take off or land behind a jet.

My first flight instructor, Glen Davis, is based in New Jersey and a CFII, and he reassured me by offering to fly with me. This was an ambitious thing to ask him, but how many pilots get an excuse to

fly into KJFK? With the encouragement from Glen and SITA Aero, we began the process of making it happen.

We did a month and a half of phone calls and emails coordinating with the KJFK FBO, the tower, the Port Authority, and TRACON. They all agreed on how important it is to plant seeds in the next generation of pilots and gave us their full support. They decided to reroute the jets on a different runway so we would be allowed to land at that slow speed.

That, for me, was unbelievable.

We also knew we needed someone local to organize the group on the ground. After posting to the 99s, emphasizing that March (the month we were arriving) is Women's History Month, the governor of the local 99s chapter, Suzanne, volunteered to help and even got other volunteer 99s to help out on the day itself.

My fellow Ercoupe pilot, Syd Cohen, volunteered to get the Ercoupe to Morristown Airport in New Jersey (KMMU) for us. After a month of preparation, we approached the big day.

We knew this would be an unforgettable flight, so we rigged up three cameras in the cockpit and two audio recording devices, one for each pilot. All was set, and at about 1 p.m., we took off.

It was a short flight, but I took a moment to soak it in despite the overwhelming radio chatter. I will forever remember seeing the Manhattan skyline off in the distance and then glancing over at my instructor. Glen had this excited face and clapped his hands as we were getting ready to land.

We landed beautifully on 22R and began the longest taxi of my life. The only FBO, Modern Aviation, was ready to receive us. Glen helped turn the three cameras off as we climbed out, but we forgot to stop the audio recording. This turned out to be a blessing because that is the only reason you can hear anything sound-wise on the security footage that captured what happened next.

To our surprise, there were no tiedowns at the FBO. While waiting for my husband Patrick to catch up to us in the rental car, I stepped into the restroom. After coming out, there was a scene at the Ercoupe. Jet blast had hit my tiny airplane. A business jet did a normal 180-degree turn to leave the ramp. The resulting jet blast hit the Ercoupe enough to lift one wing, causing the other wing to slam into the ground. It almost flipped over.

A quick repair [Photo: Todd Galloway]

The Ercoupe still looked intact. So, the FBO brought out snow-plows and tied the Ercoupe down on both sides. We filed a police report and started the report with the FAA. A mechanic came out and thoroughly inspected the wings and spars. He determined the Ercoupe was (mostly) undamaged.

With a little bit of speed tape on the wing, we could ferry it out of KJFK and back to Tucson. My insurance approved the flight and the $9,000 estimate to repair the sheet metal on the wings.

As much as I regret what happened to the "Jessi-cab," I still feel fortunate. We pulled off a fantastic flight and hosted an unforgettable airport day for the young people who came out to be inspired by

aviation. I am sure the children didn't even notice the road rash on the wing of the Ercoupe. Instead, they will remember that if I can fly an airplane with my feet, they can do anything!

I am so glad that our Rightfooted Foundation could spark confidence in those kids. I couldn't have done it without the help of everyone who made the day possible. Thank you!

Jessica Cox

Born without arms, Jessica Cox is the first and only licensed armless pilot in aviation history. When she's not flying a 1946 Ercoupe in Arizona, Jessica trains in Taekwondo, mentors children with limb differences, and travels the world as a keynote speaker.

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Millicent Bryant, the first Australian woman to get a pilot's licence

From *theconcversatiopn.com*

Before the glamorous flyers of the 1930s like Amelia Earhart, "Chubby" Miller and Nancy Bird Walton, another woman opened the way to the skies — and were it not for a tragic twist of fate, her name might now be just as familiar.

Her name was Millicent Maude Bryant, and in early 1927, she became the first woman to gain a pilot's licence in Australia. She was also first in the Commonwealth outside Britain.

A boundary-pusher who met an untimely end, Millicent was born in 1878 at Oberon and grew up near Trangi in western New South Wales. Her family, the Harveys, moved to Manly for a period after a younger brother, George, contracted polio (one of the treatments was "sea-bathing"). She met and married a public servant 15 years her senior, Edward Bryant. They had three children but the couple separated not long before Edward died in 1926.

Millicent Bryant (second from left) with other aviators beside her De Havilland Moth. Author provided courtesy of Mary Taguchi.

Later that year, Bryant began instruction with the Australian Aero Club at Mascot in Sydney. At the time, the site of the current international airport was just a large, grassy expanse with a few buildings and hangars.

Bryant was accepted by the Aero Club's chief instructor, Captain Edward Leggatt (himself a noted first world war fighter pilot), soon after the club had opened its membership to women.

Even then, though, she was unusual: here was a 49-year-old mother of three taking up the challenge of flying which, in the 1920's, was still as dangerous as it was exciting and glamorous.

She quickly progressed, ahead of two other younger, women students, and made her first solo flight in February, 1927. By this time, newspapers all around Australia were following her story, and in late March she took the test for the "A" licence that would enable her to independently fly De Havilland Moth biplanes.

She passed, and with the issue of her licence by the Ministry of Defence, Bryant was acclaimed as the first woman to gain a pilot's licence in Australia.

Why, then, isn't she better known in our day? While Bryant immediately began training for a licence to carry passengers and flew regularly in the months that followed, it was her particular misfortune to step onto the Sydney ferry Greycliffe on its regular 4.14pm run to Watson's Bay on November 3, 1927.

Millicent Bryant's training certificate from the Aero Club of Australia (NSW Section). Her 'A' Licence was issued by the Department of Defence in April, 1927. Author provided

Less than an hour later, she was among 40 dead after the ferry was cut in half off Bradley's Head by the mail steamer Tahiti. It was Sydney's worst peacetime maritime disaster. Bryant was still only 49.

Her funeral two days later was attended by hundreds of people and accorded a remarkable aerial tribute, as the Wellington Times reported:

> *Five aeroplanes from the Mascot aerodrome flew over the procession as it wended its way to the cemetery. As the burial service was read by the Rev. A. R. Ebbs, rector of St. Matthew's, Manly, one of the planes descended to within about 150 feet of the grave, and there was dropped from it a wreath of red carnations and blue delphiniums … Attached to the floral tribute was a card bearing the following inscription:*
>
> *5th November, 1927. With the deepest sympathy of the committee and members of the Australian Aero Club — N.S.W. section.*

Bryant's story quickly lapsed into obscurity. Fortunately, some 80 years later, the rediscovery in the family of a collection of letters and other writings has enabled Bryant's life beyond her flying achievement to be rediscovered.

The letters were — and are still until they are added to the collection of Bryant's papers in the National Library — held by her granddaughter, Millicent Jones of Kendall, NSW, who rediscovered them in storage at her home.

The main correspondence is a conversation with her second son, John, in England. It covers the period she was flying, though it only moderately expands on the flights recorded in her logbook.

However, her letters and writings reveal much more about Bryant herself, her relationships, her feelings and her leisure, business and political activities. And they make it apparent that she was as much a pioneer in life as well as in the sky.

For one, flying was not Bryant's only unconventional interest. She was also an entrepreneur, registering an importing company in partnership with John, who went on to become a pioneer of the Australian dairy industry.

She opened a men's clothing business, Chesterfield Men's Mercery, in Sydney's CBD. However, disaster struck when it was inundated with water mere weeks after opening, following a fire in the tea rooms upstairs.

Bryant then became a small-scale property developer, buying and building on land in Vaucluse and Edgecliffe. She'd been well tutored in this by her father, grazier Edmund Harvey (a grandfather of billionaire Gerry Harvey), whose own holdings eventually included a large part of the Kanimbla Valley west of the Blue Mountains.

An excellent horsewoman, Bryant was also an early motorist who had driven over 35,000 miles around NSW and who could fix her own car. She was a keen golfer and reader and even a student of Japanese at the University of Sydney.

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Friendly message from Vlad Putin to Finland.

Being intelligent and of sound mind, I must now advise you that if you don't trust me, I'll blast your country into eternity with my Nukes. It'll take me 10 minutes!

Now, Let's Not Get Heated

By Rob Knight

With our moving towards winter, now's a good time to consider heat management that isn't just about comfort.

Before you fly on a hot day, there are some things you should consider

For some pilots, their least favourite time of year to fly is the summer. Why? It's the heat of the season.

Like an irritating adversary, Australia's summertime heat is the cause of many undesirable events. We are all taught about the evils of high temperatures and high density-altitudes damaging aeroplane performance, but what is seldom mentioned is that high temperatures also have an effect on pilot performances. Why doesn't human physiology get the same attention? While it does get a mention in the syllabus for the Human Factors exams, it is not given the same priority and prominence operationally as the aeroplane's performance drop off with rising temperatures.

However, as soon as you step out into the Australian sunshine and begin walking to the flightline for your pre-flight, it becomes even more apparent what the most challenging aspect of a flight might be. Authorities describe this as thermal stress.

Jane's Aerospace Dictionary, in the context of aviation, defines stress being a generalised term for psychological, physiological, or mental load on a human which reduces performance.

Specifically, thermal stress on pilot performance becomes a weighty factor in fatigue and diminished performance. Although many aeroplanes now have some form of an air-conditioning system, heat

stress lingers as an essential concern because the capacities of many onboard cockpit/pilot cooling arrangements are deficient on the ground and at low altitudes.

Pilots, and students/passengers of course, are as individualistic as any other segment of the population so the degree of diminishment of individual performance and behaviour must also vary under any given set of conditions. Every pilot must exercise their own good judgement in taking care of students or passengers because, they will all tend to differ. This can be costly if you try to push another person to go along with you, as heat's effect on them might not be immediately apparent until in a critical situation.

All my operational ag flying was done in the 300 hp powered FU24 Fletcher aircraft. These models featured two augmenter tubes to aid the exhaust efflux that pass through the lower forward cockpit areas. If you were silly enough to rest your boot on one it would melt the sole off it so they were hot, hot, hot. I know – I did, once, and it cost me another pair of new boots.

Me and my Fletcher, 1971. See the augmenter tubes (like walrus tusks) ahead of the leading edge of the wing, and the cockpit being closed to load the super.

However, it was the heat these tubes created in the cockpit that was their worst effect. In northern New Zealand, summer temps regularly get into the late 30s Celsius, even at times to 40C and above. With these tubes heating the inside of the cockpit as well as the sunshine, the temps in the office could become unbearable. The cockpit canopy had no lock, it wasn't necessary, so, on every landing, on the roll-out, I slid the hood back. But the benefit was short lived as it had to be closed again so the loader could fill the hopper.

Some pilots flew in thongs (jandals in kiwi-talk) which was completely against company rules; in an accident you couldn't easily walk through a fire in what was virtually bare feet. I continued to wear boots but with no socks. We were all issued with white cotton overalls, and that was all we wore on our bodies – underwear was out of the question. One of my colleagues carried a little more body hair that I did and he suffered with boils on his bum because of the excess sweat that we sat in most of the day. He used a ring cushion (often used by haemorrhoid-harried people) to ease his lot, but I do recall the intense discomfort that he went through every summer.

In later times, as an instructor, I learned to keep a close eye on heat affecting the learning experiences and performance of my students. If they seemed sluggish, mentally and physically, even if they assured me that they were OK, it was my job to terminate a flight early if need be.

When considering the effects of heat stress on your passengers or students, note that there are at least eight performance and physiological issues that people often demonstrate when suffering from heat stress or exhaustion. The list includes (in no particular order):

- Delayed reaction times
- Increased error rates
- Decreased attention spans
- Poor responses to emergencies
- Deterioration of physical stamina
- A reduction in the pilot's ability to handle cockpit management appropriately
- Physical discomfort due to sweating, in particular vision issues with sweat running into eyes
- Vomiting, sometimes without prior warning

The problem is in determining what the effect of a temperature rise will have on a particular person. While one person will show no ill effect with a 10C rise, someone else might display serious issues following a mere 5C rise. We are all different.

Pre-departure, what can you do to mitigate the effects of heat?

Flight planning must be carried out in the normal and correct manner, but now, that planning might also include a look at considering an alternate - somewhere you might divert to if you or your passenger suffers heat stress whilst flying enroute. After the flight planning has been completed, further operational planning would be wise to potentially mitigate the effects of high temperatures on the people involved. For example, including carrying a 600ml bottle of drinking water for each occupant, and maintaining/acquiring a good knowledge of the systems of the particular aeroplane that is being flown, especially in regard to air vents etc. and the flight manual details and comments on open doors whilst taxiing.

Pilot's adjustable air vent in Zodiac. The passenger side has a vent of its own

Pilot's adjustable air vent in GR Lightwing. There is another vent on the starboard side for the passenger

As mentioned above, the wearing of clothing appropriate to the weather and the extreme heat is important. Breathable fabric, similar to the lycra that sports people wear, ensures that your body can cool down by sweating/perspiring. Perspiration evaporates to cool the skin but this can only occur when the sweat is exposed to the air. When hidden by heavy clothing, there is little evaporation at the skin so much reduced cooling effect.

Good workload management is also essential. Pilots flying alone must be critically aware of themselves because, when flying unobserved, external influences such as increased traffic or thunderstorm activity in the airspace will increase that workload and thus increase the opportunity for heat stress to appear and to further accumulate. All potentially without notice by the pilot.

Finally, consider all your options and maybe reflect on whether it would be prudent to make the flight either early in the morning or later in the day. But regardless of all else - pilots must hydrate, so drink water before the flight, during the flight, and have some more post flight.

The Eagle DW-1 Is Wacky, But Effective

By Jason McDowell May 24, 2022

Dean Wilson's agplane design may look like a mistake, but it served its purpose well.

The Eagle DW-1 utilized high-aspect ratio wings to provide a more efficient and effective platform from which to spray crops. [Photo: Jason McDowell]

Every now and then you run across a dog that has completely mismatched body parts. A Doberman with tiny, stumpy legs, or a bulldog with floppy ears and a gangly build. Dogs that make you wonder how in the world their collection of genetic material ever made it through the final approval stage.

In addition to being more aerodynamically efficient, the massive wingspan also requires fewer passes over a field when spraying crops. [Photo: Jason McDowell]

The Eagle Aircraft DW-1 is an agricultural airplane with a similarly bizarre set of characteristics. It was designed by a man named Dean Wilson, who also designed the Avid Flyer and the Global Explorer, a twin-engine amphibious aircraft optimized for the exploration of remote parts of the globe. In every case, Wilson prioritized function over form, and in every case, he delivered an aircraft that delivered on its technical promises.

For the DW-1, Wilson harnessed his experience with sailplanes and aerial application (crop dusting) to completely reimagine the agplane. An experienced sailplane instructor, he understood the benefits of a long wingspan with a correspondingly high aspect ratio. Such a configuration had the

potential to reduce the wing loading and enable slower flight…both of which would allow an ag pilot to quicken their turns and spend more time actually spraying crops.

At the same time, a wing with a greater span would be inherently beneficial in that each pass would result in a wider swath of spray, reducing the number of passes required for each field. Wilson's overall goal in designing the unique DW-1 was aimed at creating an agplane that was more efficient and thus more profitable than the competition.

The result was a biplane with seemingly mismatched components. Long, thin, sailplane-esque wings with a 15:1 aspect ratio were mounted to a fabric-covered steel tube fuselage. And while the prototype utilized a Jacobs radial engine, production aircraft would all be fitted with a sleekly cowled 300 horsepower Lycoming IO-540, an engine more commonly found on things like the Piper Navajo and Cessna 206.

Eclipsed by the massive wingspan, the choice of a compact flat-six engine provides superior forward visibility, a smaller frontal area,

The Eagle's 55-foot wingspan dwarfed other similarly-powered agplanes such as the Piper Pawnee (36 feet), the Embraer Ipanema (38 feet), and the Cessna AgWagon (41 feet). At the same time, the Eagle's 386 square foot wing area easily topped the others, which ranged from about 180 to 215 square feet. Clearly, Wilson wasn't afraid to commit to his initial design concepts.

Roll-control spoilers work in unison with the ailerons to deliver the snappy roll rate necessary for aerial application. [Photo: Jason McDowell]

Wings of such length aren't typically as manoeuvrable as shorter-span wings, however, particularly when filled with fuel and festooned with spray equipment. This presented a roadblock to Wilson's goal of enabling the high roll rates necessary for quick 180-degree turns while spraying a field. The solution? Long, thin roll-control spoilers on each lower wing that worked in unison with the ailerons to deliver a quick, crisp roll rate.

When the Eagle entered production in the late 1970s, Wilson took advantage of a slowing economy by hiring a number of workers from the Bellanca aircraft company. He was able to use their significant experience in wooden aircraft structures and fabric covering to manufacture around 100 examples of the wooden-winged DW-1 and exported them to Canada and as far as Australia. While the airplane was ultimately not profitable for the manufacturer, it performed its mission as designed and served its operators well for decades

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Competitor Killed in STOL Competition Crash

By Russ Niles, Published: May 22, 2022Updated:May 23, 2022

Tom Dafoe's Classic Cessna 140

A competitor in an AOPA-sponsored STOL competition in Nebraska was killed Friday when his Cessna 140 appeared to stall and spin while setting up to land. According to AOPA, Tom Dafoe's 1946 140 "rolled and dove during or soon after the base-to-final turn, and struck the ground in view of shocked spectators." The accident happened on the second day of the planned four-day MayDay STOL 2022 event at Wayne Municipal Airport/Stan Morris Field in Wayne, Nebraska.

Dafoe was taking part in an unscheduled heat of a traditional STOL competition where take-off and landing distance is all that is measured. The STOL Drag heats, where speed is an added element, were postponed because of high winds. A fundraiser has been launched by jetAVIVA, Dafoe's employer, to help his family. AOPA President Mark Baker also pledged support. "We are heartbroken that we lost a member of the general aviation community, and our thoughts are with the family and friends of the pilot," Baker said. "We will continue to support the community as needed."

Editor note:
Further reports state that the pilot, on finals, was number two to land and was closing on a slower aircraft ahead. To aid his spacing, he began "S" turning, when the Cessna snapped into a right-hand spin, too low to recover. Let's look at the scenario.

His airspeed was low, and he would have had substantial power applied. Further reports state that he got below the height of the aircraft ahead and was warned over the radio that he looked too slow and should lower his nose. The day was described as being windy, to such an extent that the planned competition had been postponed.

To roll into the reported "S" turns, aileron must be applied, the right wing requiring down aileron to enter a left roll to S turn left. If the right wing was already close to the critical angle, applying down aileron to instigate the roll left, the action is likely to have induced a stall on that right wing and the snap situation becomes highly likely. Also, if the aircraft was also descending, relatively nose high in mechanical turbulence created by the windy conditions, that situation would have further increased the angle of attack because the relative airflow would have been approaching the aircraft from below the leading edge.

Lesson. The windier the approach conditions, the less a pilot can afford to reduce the airspeed because to do so will necessitate a higher angle of attack and thus less margin between the required angle of attack and the critical angle for that aerofoil.

At high angles of attack (such as when the aircraft's airspeed is low) aileron MUIST ONLY be used with caution lest the pilot, themselves, induce the very stall they are trying to avoid.

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FLY-INS Looming

Murgon (Angelfield) (ALA)	Burnett Flyers Breakfast Fly-in	**CANCELLED – June 12th, confirm at http://www.burnettflyers.org/?p=508**
Murgon (Angelfield) (ALA)	Burnett Flyers Breakfast Fly-in	**Next Planned – AUGUST 14th, confirm at http://www.burnettflyers.org/?p=508**
Shute Harbour YSHR	Fly-In and Runway Dinner	**Whitsunday Airport 10/09/2022**

As I have grown older, I have found that pleasing everyone is impossible, whereas pissing everybody off is dead simple

When I was young, I was poor, but after many years of hard work I am no longer young.

There is no such thing as a grouchy old person. The truth of the matter is, once you get old you stop being polite and start being honest!

As I've got older, I've thought that I was getting lazy. But now I find out that I'm only getting more energy efficient

Martin-Baker MB 5: A 'Most Magnificent' Might Have Been

By Robert F. Dorr - August 10, 2021

Britain's Martin-Baker MB 5 fighter could have been in service in time to fight in the skies over Germany

History never works out according to plan. Today, the Martin-Baker Aircraft Co. Ltd is famous as a manufacturer of ejection seats but almost forgotten as a plane-maker, having assembled exactly four airframes in its history.

The MB 5, which would have been one of the best-performing propeller-driven warplanes of all time, is instead a "might have been" – an aircraft that excited onlookers and performed well, but never became operational.

Looking something like a P-51D Mustang on steroids, the MB 5 was a low-wing, tail-wheel aircraft with a 2,340-horsepower Rolls-Royce Griffon 83 engine driving a pair of three-bladed contra-rotating propellers. It "was an aircraft of sleek and pleasing lines," the Martin-Baker firm's own website reminds us. James "Jimmy" Martin (later, Sir James), often described as loud and flamboyant, and his partner and chief pilot, the very businesslike Royal Air Force Capt. Valentine Henry "Val" Baker, produced two aircraft designs before coming up in the early 1940s with a fighter called the MB 3.

James. "Jimmy" Martin in front of the MB5.

Martin Baker Aircraft Co. Ltd photo

Also, an attractive design, the MB 3 used a 2,000-hp, 24-cylinder Napier Sabre engine and was armed with no fewer than six 20 mm cannon in the wings. First flown on Aug. 31, 1942, and seemingly headed for production with a speed of 415 miles per hour, it appeared to be a world-beater. But less than two weeks after its first flight on Sept. 12, 1942, a dead-stick landing went awry. Making a dead-stick touchdown in a field after an aborted take-off, the MB 3 slammed into a tree stump. The aircraft was demolished. Baker lost his life.

Baker's death prompted Martin's decision to focus on pilot safety and reorganize his company to develop ejection seats. In the meantime, however, a modified aircraft based on the ill-fated MB 3

was taking shape. Following cancellation of an unbuilt design called the MB 4, the new aircraft became the MB 5.

Air Ministry specification F.18/39 for a potential successor to the Hurricane and Spitfire had led to the MB 3, but Martin had wanted to use the Griffon. After much haggling, the Griffon was selected for what began as the second MB 3 but was redesignated MB 5. The MB 3 had been designed to enable a mechanic with only a little training to service it, and this remained a goal with the MB 5. Martin decided on a bubble canopy and improved the pilot's visibility by moving the cockpit forward five feet.

Martin, now the sole figure responsible for the aircraft, was a perfectionist, and the MB 5's construction began to take longer than planned. The delivery slipped repeatedly. The MB 5 was once scheduled for a Jan. 1, 1943 delivery, but a first-flight on May 23, 1944, which could have taken place more than a year earlier, was followed by months on the ground during redesign. The aircraft resumed flying near the end of the war in Europe and went to the RAF's Armament Experimental Establishment at Boscombe Down for official trials in February 1946. By the time a serious flight-test program was under way, the war had already ended.

With a wingspan of exactly 35 feet, the MB 5 had a gross weight of 12,090 pounds. Armament was reduced to four 20 mm Hispano cannon mounted in the wings outboard of the wide-track main landing gear.

Bryan Greensted, chief test pilot for propeller manufacturer Rotol, made the first flight of the MB 5 and flew the aircraft again after further modifications. After one of the subsequent flights, Greensted said the MB 5 was "a super ship to fly" and "earns the respect of everyone associated with it." It was considered extremely stable as a gun platform yet highly manoeuvrable for dogfighting, qualities that are difficult to combine. The MB 5's top speed was 460 mph at 20,000 feet, with an initial climb rate of 3,800 feet per minute and a service ceiling of 40,000 feet. Its range was calculated to be in excess of 1,000 miles.

Ironically, when the Korean War began the standard U.S. fighter in the region, by now re-named the F-80, proved too fast to manoeuvre against North Korean propeller-driven fighters, and 145 Mustangs, now called F-51s, had to be rushed across the Pacific to join the fight. Propeller aircraft excelled in Korea, and the MB 5 would have been perfect for conditions there.

The Martin Baker MB5 taking-off from Chalgrove Airfield in 1948. *Martin Baker Aircraft Co. Ltd photo*

But by then not even the sole example built was still in existence. After its flying was finished and its engine removed, the sole MB 5 was used for training at RAF Wattisham, Suffolk, in the late 1940s. The aircraft, which would have made a superb museum display, was scrapped and then burned.

John Marlin of Reno, Nev., began working on a replica of the MB 5 in about 2001 and was putting it through taxi tests in July 2006. The aircraft used a P-51 Mustang wing and had other design changes to improve handling. The replica apparently never flew, and the project appears to have been in abeyance for the past several years.

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

1. Which of the following flap types increase the plan area of the wing when they are applied?
   A. Plain flap.
   B. Slotted flap.
   C. Fowler flap.
   D. Split flap.
   E. Zap flap.
   F. B and C are both correct.
   G. C and E are both correct.

2. When flying at 3500 feet QNH in Class G airspace, over terrain that is marked on an aviation chart as being 2200 feet AMSL, which of the listed MET minima applies?
   A. 1500 feet horizontally, 1000 feet vertically from cloud, with 5000 metres visibility.
   B. Clear of cloud with minimum of 1500 metres visibility.
   C. 1000 feet vertically and 1500 metres horizontally from cloud, with 5000 metres visibility.
   D. Clear of cloud with minimum of 5000 metres visibility

3. An aeroplane is on a stabilized approach, the airspeed is constant, power is set, and the aircraft is trimmed to fly hands-off. Should the aircraft enter a headwind wind gradient and the airspeed reduce, the angle of descent will steepen. What will happen to the angle of attack if the nose attitude remains unchanged?
   A. The angle of attack will increase
   B. The angle of attack will decrease.
   C. The angle of attack will remain the same as before the gradient occurred.

4. From the following select the most correct statement
   A. Speed is a body's rate of change of velocity.
   B. Equilibrium is the state where the resultant of all the forces acting on a body is zero.
   C. Inertia is the tendency for a body to remain at rest or in uniform motion.
   D. B & C are correct.
   E. All the above are correct.

5. The drag force on an aeroplane acts:
   A. Parallel to the thrust line.
   B. Against the direction of motion.
   C. Along the line of total reaction.
   D. Parallel to the chord line.

See answers and explanations overleaf

If you have any problems with these questions, See Notes below or call me (in the evening) and let's discuss them. Rob Knight: 0400 89 3632 (International +64 400 89 3632), or email me at kni.rob@bigpond.com.

1. G is correct There are two flap types that increase the surface area of the wing as well as increasing the camber and the angle of attack. These are the Zap flap and the Fowler flap types.
   Check the table on the right and see that both the fowler flap and the zap flap types extend the trailing edge rearwards thus increasing the chord. This must increase the wing area.

Types of trailing edge flaps

2. C is correct. .
   See: VFRG, Version 7.0, page 205.

3. A is correct. The angle of attack will increase as the aeroplane begins to descend and the nose attitude is not lowered. The direction of motion will change which will cause the relative airflow to come from below the aircraft. As the angle of attack is the angle between the chord line and that relative airflow, it stands to reason that the angle of attack must therefore increase. This is a frequent cause of an inadvertent stall on approach when a headwind gradient is encountered.
   NOTE: This is a probable cause of the STOL competition fatal accident – see page 19 in this issue.

4. D is correct. .
   Option A is not correct because speed is the rate of change of position. This is not a vector quantity (having both speed and direction of application).

5. B is correct. Drag acts along a line parallel to, and opposite to, the direction of motion.
   See: https://howthingsfly.si.edu/forces-flight/four-forces

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Aircraft Books, Parts, and Tools etc.

Books (Aviation)

Item	Condition	Price
As the Pro Flies (by John R. Hoyt)	Excellent	**$20.00**

Parts and Tools

Item	Condition	Price
VDO Volt Readout instrument	Brand New	**$70.00**
Altimeter. Simple – single hand	As new	**$50.00**
Oil Pressure indicator, (gauge and sender)	New – still in box	**$80.00**

Tow Bars

Tailwheel tow bar.	Good condition	**$50.00**

Propeller Parts

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**

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

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- Basic plans are included, also
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- Wing spar & lift strut material - 6 tubes of 28 dia. x 2 wall.
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- A ballistic parachute,
- A 4-point harness,
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Box sections and tubes

Flow Meter, Navman, Ballistic Chute, etc

A very comprehensive kit of materials

Ribs, tubes, spats, etc

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

Or Mob: 0419 758 125

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¾ scale replica Spitfire

$55,000 neg

This aircraft is airworthy, flown regularly, and always hangared. Registered 19-1993, it is powered by a 6-cylinder Jabiru engine (number 33a-23) with 300 hours TTIS. The airframe has logged a mere 320 hours TTIS. This delightful aircraft has recently been fitted with new mounting rubber, a new alternator and regulator, a new fuel pump, and jack stands. It is fully registered and ready to fly away by a lucky new owner

Hangared at Kentville in the Lockyer Valley, parties interested in this lovely and unique aircraft should contact either:

Kev Walters on Tel. **0488540011** or

William Watson on Tel., **0447 186 336**

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**

More Aircraft for Sale

$ 2000 ONO $

Cobham Cobra

An opportunity to buy a unique aircraft.

I now have a Foxbat, and can't to afford to keep 2 aircraft. The Cobra was advertised for about a year in Sport Pilot, with many enquiries, but no resulting sale. Rather than continuing to spend on hangarage and advertising I decided to de-register it, remove the wings, and trailer it home to my shed. I don't intend to ever fly it again so, make me an offer. It provides very cheap and enjoyable flying.

It is a one-off design, a single seater with a fully enclosed cockpit. It has a 24-foot wing-span, and is powered by a VW engine that provides sporty performance and superb handling. The airframe has logged 653 hours and the engine 553 since installation. It is easy to start, but requires hand-propping.

To see it in action, go to
https://www.youtube.com/watch?v=V5Qx4csNw_A&list=PLpBv2A6hk66Tg9DiCsjEtt4o4o8ygcTju&index=1&t=22s

It cruises at around 80 kts at 11-12 litres/hr. The tanks hold 48 litres so it has a very reasonable range. For my approaches I use 50 kts on my initial approach down to 40 kts on short final. You will want a fair bit of tailwheel time.

For further details contact Tony Meggs on (02) 66891009 or tonymeggs@fastmail.fm

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AIRCRAFT for Sale - LIGHTWING GA-55.

Registered 25-0374

Engine ROTAX 912, 80HP, 853.3 Hours

Reluctant sale of this great aircraft, I have owned her from June 2004.

Excellent fabric, Red and Yellow, always hangered, and comes with the following extras:

* 2 Radios
* Lowrange GPS
* EPIRB
* Aircraft Dust Covers.
* Manuals – various
* Fuel Pressure Gauge
* Extra Tachometer
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Work performed at Lightwing Ballina:

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Other work carried out:

* Windscreen replaced, door panel replaced, choke cables replaced, ignition upgrade.

Rotax:

* Engine modifications, gearbox rebuild.

Currently hangared at Boonah in Queensland.

Contact Kevin or Natalie McDonald on 07 54638285

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.

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

Phone John on 0417 643 610

ROTAX 582 motor.

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

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

Interested parties should contact…..

Kev Walters on Tel. **0488540011**

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