BRISBANE VALLEY FLYER
July 2024

Brisbane Valley Sport Aviation Club Inc

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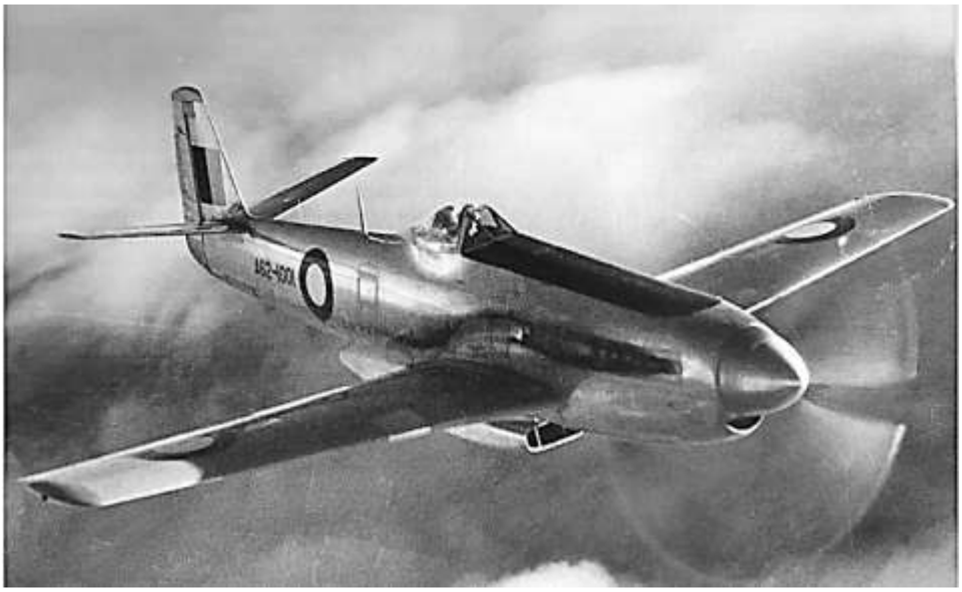

The Australian Fighter that nearly was. See page 12

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Contents

	Page	
From the Club:	3	The President writes….
Pilot Theory:	4	Airscrews - Types and Functions.
A piece of Ultralight History	9	Airfield of Dreams (by Len Neale)
Back in the Day:	12	The CA-15 Kangaroo
Thinking Outside the Square:	16	The Goodyear Inflatoplane
Aircraft Maintenance	18	Warning for Rotax 912 Owner/Operators
Socialising:	19	Fly-Ins Looming.
The Days of Our Lives:	20	Reminiscences of a Flying Instructor.
WTF-The World's Worst Aircraft:	21	The Percival P74 Helicopter
History:	22	The PWA Piper PA-6 Sky Sedan
Keeping up With the Play:	24	How good are you, really?
Classifieds:	26	Classifieds - Bits 'n' pieces.
Kitset Aircraft for Sale:	27	Build your very own……..
Aircraft for Sale:	28	T85 Thruster Sky Dart III T84 Thruster, and Slipstream Genesis
Aircraft Engine for Sale:	31	Continental 0200

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

Greetings Members,

Welcome all, we are now half way through the year and the weather is getting better for flying.

Our last meeting was very well attended with 18 attending, 15 members and three visitors. Two of the visitors finished up joining our club. They are building their own hanger at Watts.

Our next meeting will be on 6th July 2024. Remember start time is now 10:30am. Come along and enjoy.

Best wishes

Peter Ratcliffe

President BVSAC

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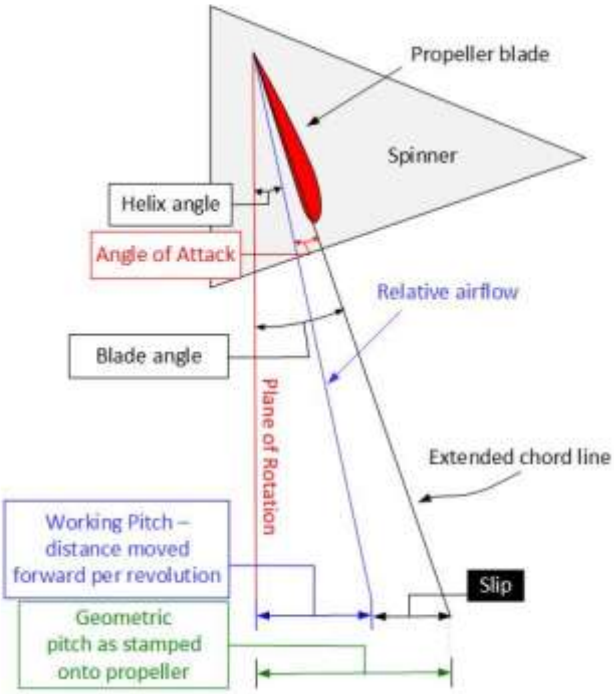
The Types and Functions of Airscrews

By Rob Knight

The very earliest cars had no gearboxes and, initially, without even a clutch to unlink the crankshaft from the axles: the wheels rotated in common accord with the engine RPM. The similarity between these cars and aeroplanes fitted with fixed pitch propellers is stronger than one might imagine.

A propeller works in the same way as does a wood screw, as it uses its ridges (threads) to “grip” the wood around it as it rotates, and so drives itself forward. This parallel is why a euphemism for propeller is “airscrew”.



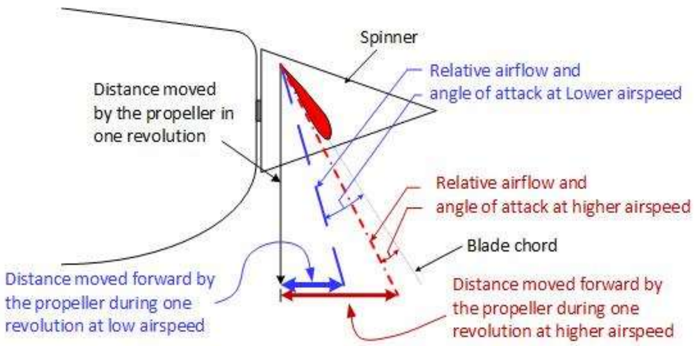
Propeller pitch.

The definition of screw pitch is, “the distance between two consecutive screw threads. The definition of propeller pitch is, the distance the propeller moves forward in one revolution.” These two definitions are identical, merely expressed in different ways

To understand propellers, we need a basic understanding of the manner in which “pitch” works for our propeller.

There are two “pitches” in which we have a personal interest. They are the geometric pitch and the working pitch. See the sketch on the left. If the blade travelled along the chord line, the distance it travelled in one revolution represents the geometric pitch. However, it could only do this in a medium with a far greater density than air. Working in air, the propeller experiences slip so it doesn’t advance as far forward as the geometric pitch would take it. The distance that it does move forward, however, determines the working pitch (the actual effective pitch taking into account the slip) and determines the relative airflow. This also fixes the angle of attack applicable to the propeller blade chord.

Herein lies the limitation of the fixed pitch propeller: it is an aerofoil and aerofoils are efficient at an angle of attack of about 4°. As this angle is controlled by the relative airflow (affected by the magnitudes of the RPM and the forward speed of the aeroplane), once we reach the right ratio of distance moved forward to distance rotated, further performance increases are limited.



The sketch on the left shows the vector relationship between the distance moved forwards by the aeroplane, and the simultaneous distance moved around its arc by the propeller. If we change either the forward speed of the aeroplane or the RPM, we’ll change the relative airflow angle and so change the angle of attack on the blade.

From this it is easy to see that, for an efficient propeller that will provide good performance over a broad range of airspeeds, we need to be able to change its pitch in flight. As we accelerate and cruise at a faster airspeed, we can increase the blade angle to maintain that magic 4° angle of attack. Or, if we slow down, we can reduce that blade angle and still keep that 4° so can enjoy all the power the engine can provide across a much broader range of flight speeds than our old propeller with just one, built-in fixed pitch, can provide.

In the lateish 1930s, with the need to improve military fighter aircraft performance, the first in-flight pitch-changeable propellers came into more general use. In fact, the prototype and earliest production MK 1 Supermarine Spitfires used wooden, two bladed, fixed pitch propellers1 which were phased out with a metal, variable pitch replacement on the MK 2 models. A similar device was also fitted to the ME109, its future opponent in the Luftwaffe in Germany. The Spitfire's pitch-setting control was simple, in essence a 2-position, hand operated hydraulic pump resembling a bicycle tire pump2 with a push/pull action – fine pitch to set a low blade angle for take-off and low airspeed climb on one setting, and an increased blade angle for coarse pitch for cruise and higher airspeed operations at the other setting. However, the pilots quickly discovered that careful manipulation of this push/pull control along its intermediate travel stroke provided intermediate pitch ranges between the fully coarse and fully fine pitch positions. Although devised as a two- setting system, already the advantages of a multiple setting system were obvious and able to be achieved albeit indirectly. This cunning manipulation changed what was essentially the equivalent of a two-gear system, into a sort of manual/automatic multi ratio gearbox arrangement

The dictates of war quickly saw the development of the constant-speed-propeller systems (aka CSU) thus achieving the comparable status of a fully automatic automotive gearbox – a sort of CVT arrangement for aeroplanes, where the pilot set the RPM through a propeller pitch control and the power via the throttle. In this system, and within limits, the propeller will automatically adjust and maintain a blade angle to provide an angle of attack of 4° when indirectly set by the pilot. In this manner propeller efficiency is maximised. This was a giant leap forward in advancing the performance of propeller driven aircraft. It gave the P51 Mustang, accepted as the best performing fighter of WWII, a speed range from zero at the start of its take-off run, to around 435 knots at 35000 feet. Without the CSU, that would have been impossible.

To summarise: an aeroplane with a fixed pitch propeller fitted has a single control for the engine power output – the throttle. Controlling the engine RPM controls how fast the propeller rotates and how much power is supplied by the engine. However, as aircraft airspeed increases beyond a certain point, the propellor's ability to produce thrust diminishes quickly so limiting higher airspeeds.

Moving up a step, we have a propeller pitch changing mechanism where the propeller can be set for two or more stages of flight. There will be a full fine setting for engine start, taxi, take-off, and initial climb, and further settings for cruise and perhaps cruise-climb at altitude. Such a system will require changes to pilot training and to the cockpit checklists to ensure the correct setting is applied appropriately. The affected checklists will likely include pre-start, run-up, pre-take-off checks, after-take-off checklists, downwind checks and short finals checklists.

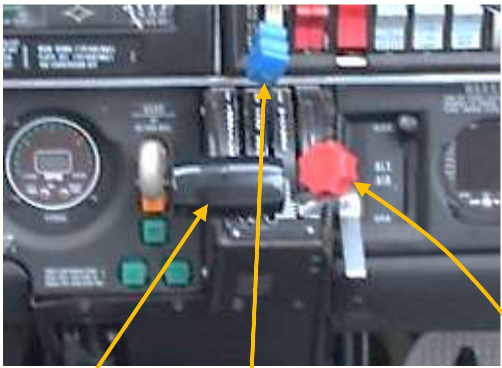
Finally, there's the CSU system in which pilot uses the cockpit propeller pitch control to set to either full fine for low airspeed regimes, or a particular RPM which the system will maintain within its limits during flight to provide the best power at the propeller for any throttle setting.

Whatever control system (levers or knobs) the aircraft uses, convention provides a common arrangement or order of these controls. When the engine controls are clumped in the centre of the

[1] *https://flyaspitfire.com/2019/10/14/what-were-spitfire-prpellers-made-from/*
[2] *https://theairtacticalassaultgroup.com/forum/showthread.php?t=12445*

panel, convention places the controls in the same left to right order. This is illustrated in the following images.

1. On the left, **BLACK** throttle lever or knob: push forward to increase power, pull back to reduce power. Pulled full back is a closed throttle.
2. In the middle, **BLUE** pitch control lever or knob: push to fine the pitch and increases RPM under normal circumstances. Pull back to coarsen the pitch. Fully fine for tale-off is pushed fully forward.
3. On the right, **RED** mixture control lever or knob: push forward to richen the mixture. Pushed fully forward sets a full rich mixture.



*Piper Arrow lever engine controls. Colour coded **BLACK** throttle knob, **BLUE** pitch (RPM) control, and **RED** mixture control.*

*Cessna182, vernier type knob engine controls. Standard colour code – **BLACK** throttle, **BLUE** pitch (RPM), and **RED** for Mixture*

Operating a CSU.

The initial pilot-check on the pitch control setting is in the pre-start check when the control is checked as being in the full-fine position (full forward). Whilst set in this position, the blades are locked in the finest position available, against the fine pitch stops, and the engine operates and behaves just as it would if fitted with a fixed pitch propeller. You could say that it is – it's mechanically fixed in fine pitch.

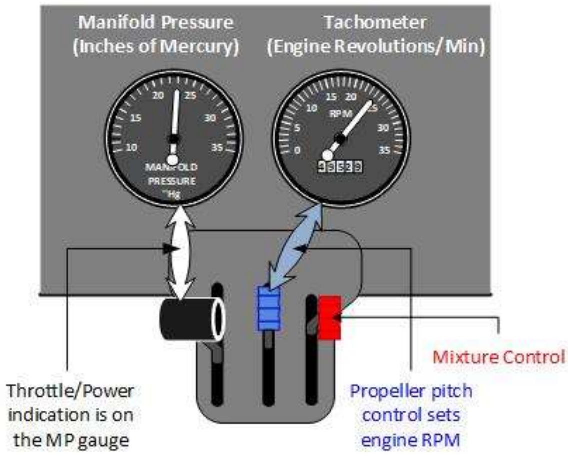
After start, operations are normal as for a fixed pitch for taxi until the run-up. Here the pitch is checked as being in full fine before the RPM is raised to check the magnetos. During this checklist, the propeller is checked for operation immediately after the mags are checked so, whilst still with the raised RPM, the pitch control is moved from full fine (fully forward) to about halfway to full coarse position. This will coarsen the pitch sufficiently to increase propeller drag, reduce the RPM, and deepen the engine note without any throttle input. However, too much of a good thing can become bad, and to avoid possible engine damage, on seeing the drop in RPM and change in engine note, we immediately press the pitch control back to full fine. This process checks that the propeller's reaction to the pitch control is correct, but there's also a second advantage to this procedure.

Most light aircraft pitch control mechanisms are hydraulic and use engine oil and having warm oil in the pitch changing cylinder makes for smooth changes in propeller pitch. Cycling the propeller from fully fine to partially coarse and back, draws warmer engine oil into the propeller's mechanism after a cold start and assists in smooth operation of the mechanism after take-off. Obviously, this is not necessary for any systems that are electrically operated. As always, all processes and procedures must be in accordance with the aeroplane's flight manual/POH. As I am writing for all types I am speaking of general principles, and all definitive consideration must be taken from the appropriate documentation relevant to the aeroplane that you are operating. Such new details will include engine and propeller checks, established climb RPM, and manifold pressure (MP) for the climb power. From the pre-flight inspection, until we shut down, the engine must be operated differently to its fixed pitch counterpart so we need to examine the actual processes in using the engine and propeller controls.

With full power applied for take-off, the black, blue and red levers or knobs will ALL be in their full-forward positions. The only change might be for the mixture. Usually set full-forward for best power, it could be leaned a little (in accordance with the flight manual/POH) when departing from airports above about 5,000 feet density altitude.

After achieving the climb speed and establishing a positive climb rate, it's now time to start bring back some levers or knobs.

1. First - the **BLACK** throttle lever/knob is gently and precisely moved back until the manifold pressure gauge reads the proper value for the climb - usually about 25 inches of mercury ("Hg). When this is set….
2. Then we'll cautiously ease the **BLUE** pitch lever knob back until the desired climb RPM is set (usually to about 2500 RPM).
3. NOTE: The **RED** mixture control will remain full forward its full rich position until an altitude is reached where it needs adjustment.



Typical quadrant throttle and instrument layout for CSU equipped aircraft

WARNING – For systems of this type, this procedure is specifically sequenced, and must take place exactly in the order given. If the pitch is coarsened by pulling the pitch control back before the power is reduced, the engine can quickly begin to detonate and little holes are likely to appear, punched right through your pistons. Maintenance engineers will surely put you on their Christmas card list for next year!

You have now have set the climb power at 25/25. That means 25 "Hg MP, and 2500 RPM, otherwise known as "25 square". Generally, it's OK to operate such engines square, or under square" (meaning that the first set of digits is lower than the second set, or that the RPM value (in hundreds) is higher than the manifold pressure setting e.g., 24/26, or 22/23). An "over square" setting (e.g., 25/23), with the first set of digits larger than the second set (the equivalent of overdrive in your car) should only be done after careful consultation with the flight manual/POH to avoid detonation and engine damage as mentioned above.

On reaching the desired cruise altitude, we lower the nose to the level-flight attitude and allow the aeroplane to accelerate to, or close to, the anticipated cruise airspeed. Then, *because we are again powering down*, we'll draw the **BLACK** throttle back to our cruise MP, commonly 23 "Hg. Then we'll draw the **BLUE** pitch lever/knob back until we have the tacho reading 2400 RPM.

ALWAYS let the airspeed increase after you level off, and then reduce power by first pulling the throttle back and then the prop back.

If we now decided we wanted to climb, we would be powering UP so we work in reverse to keep the RPM value higher than the MP reading. We'll start by easing the **BLUE** prop lever/knob forward and increasing the rpm to 2,500. When this is set, we can push the **BLACK** throttle lever/knob forward to increase MP to 25 "Hg. Once we level off at our new altitude, we draw the throttle back to our desired MP and draw the pitch control back to our desired RPM.

A way to remember this sequencing is this: To reduce power start with the knob closest to us, pulling the **BLACK** throttle lever back first and then moving to the pitch lever. To increase power, it's the opposite: start by moving the **BLUE** pitch control forward and then move the throttle forward. ALWAYS keep the two sets of numbers equal or the second set higher than the first set.

The descent is easiest. We simply ease the throttle back to the desired setting and let the nose sag to descend until we choose to level off. Leave the RPM where it is. When we get to where we want to be, let's say our downwind altitude, we want to increase power to return to level flight. Adjust the nose to the level flight attitude and increase the power to the MP value you want, probably 22 or 23 in Hg for the pattern airspeed desired by moving the throttle forward (remember, the propeller pitch is already far enough forward).

Now, for the last important step in flying an aeroplane with a CSU, we need return the propeller pitch to full fine (full forward position on the propeller control) before landing so we'll have full power and our best climb performance available to us in the event we have to go-around. Again, I advise you to follow the dictates of the appropriate flight manual/POH. In my own history, the pitch was usually returned to the full fine position during the downwind checks and the throttle adjusted accordingly to provide the power I needed for the approach. Then I used, and we universally taught, a short-finals "CUP" check of, "Carburettor heat OFF (where appropriate), Undercarriage lights 3 greens (where fitted), and Pitch fully fine", at about 300 feet AGL, before we crossed the fence to flare.

A timely caution - take the pitch control to full fine for the approach slowly, don't be too quick to push the propeller pitch to the full forward/fine position for the approach because it will be annoyingly loud if the power is still up. If you need to go around, just be sure to push the throttle and the pitch levers/knobs fully forward together as you apply full power.

Cutaway showing the complexity of a CSU propeller hub.

After checking out on a CSU fitted aircraft, fixed propellers will appear over basic, and one can suffer a sense disappointment in the lost power and performance. However, it's really like driving two cars – one with electric windows and the other without. You must fly the aircraft that you have strapped to your butt, so just get on with it and enjoy the simplicity of its operation.

Lastly – it is vital that you always consult and apply the directions and advice of the specific flight manual for the aeroplane that you are flying. This is especially important when seeking explicit details including fuel consumption and speeds at precise power settings to aid longer-range economy flight. While this is important for any aeroplane that you are flying, when operating sophisticated systems such as a CSU, the detailed knowledge is even more important.

Happy Flying

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Airfield of Dreams

By Len Neale

Word travels fast, and Graham Orphan, editor of the “Classic Wings Downunder” magazine, picked up news of the restoration of “Miss Sandgate”. It had been known to Graham’s father Keith Orphan, who was a founder of the original “Ultralight Aircraft Association” based at Redcliffe. Indeed, it was Graham that alerted us to the fact that the Heath Parasol had originally been named “Miss Sandgate” by Bill Slusar (Vladimir Slusarenko).

Graham organized an invitation to the 1996 Vintage Aircraft Fly-In at Watts Bridge near Toogoolawah in the Brisbane Valley. So on the 16 July 1996, with just 30 hours in the logbook post-restoration, I set off for the “Airfield of Dreams”, accompanied by my good friends John Rasmussen and Kevin Wilson in John’s 1956 Aeronca Champion “Tri-Traveler”. We tracked from Smoky Creek via Thangool and Monto, landing at Gayndah for refueling and a hot pie. This little aeroplane was not made for long distance flights and the open cockpit and cramped conditions were taking their toll. I felt sympathy for people like Keith Smith and Bert Hinkler who endured these conditions on their epic England to Australia flights. We took off from Gayndah slightly refreshed, next stop, Watts Bridge.

The little aeroplane dipped its nose into the Brisbane Valley and commenced a long shallow approach from 4,000 feet. “*Go discover your flying heritage*”, a voice in my head said. Ahead, spread out on the river plain lay Watts Bridge, an ex- bomber airfield from World War Two. The Heath Parasol joined the circuit and crossed the Brisbane River on finals. A poorly judged and bouncy landing was made due to the fatigue caused by hours of sitting in the cramped open topped cockpit, with only the continual noise of the Rotax for company.

There to meet us were two Bobs.

Bob Brown (then aged 83) from Greenslopes had built another Heath more than 60 years ago at Ayr in North Queensland. He made his fuselage from wood rather than steel tube, and he had modified his Henderson engine to have larger cylinders with brass heads with overhead valves, similar to that used in the Australian copy of the Heath, the Clancy Sky Baby. This had improved the performance considerably, though unfortunately his Heath came to a sudden end in a crash caused by wind shear. Meeting the surviving Heath Parasol at Watts Bridge had been the fruition of many ‘phone calls and much planning by Bob Brown. I’m sure it brought a liveliness back to this man, the like of which he had almost forgotten. He entertained us all of the Saturday at the fly-in with a plethora of early Australian aviation stories.

Bob Cannell from Toogoolawah had come to meet us and make us welcome at his home during the fly-in. He had been a Fitter 2E in the RAAF during World War Two, as was my father Reg Neale. Ironically, Bob’s brother John had been a good mate of my dad’s back in the small crops growing area around Nambour. Bob’s love of flying had spread to his son Dave, who flew a Hughes Lightwing. Bob and Mrs. Cannell’s humble hospitality made us feel right at home. So much so in fact, that when Kev and John walked up for a beer at the local hotel, Kev did his usual trick of winning the meat tray raffle. When it was presented to an astonished Mrs. Cannell, she vowed that it could not be so, as “the Toogoolawah butcher does no open on Saturday!”

On the Sunday of the fly-in, the weather turned inclement. As I sat forlornly on a fuel drum under the sodden wing of the Heath, a sprightly old gentleman by the name of Douglas Power sauntered up. “Do you have something to do with this aircraft?” he asked. “Yep, I flew it here”, I said. “Well, I helped build it and was one of the first to fly it”, he replied. What a strange feeling this gave me, to meet one of the “early birds” who had actually been part of "Miss Sandgate's" first life. Of course, Bob Brown had something to do with rounding Douglas up. After exchanging notes and reminiscing for a while I walked over in the drizzle to his car to meet his lovely Canadian wife, Jean. I then had to say goodbye to a walking, talking part of history. Sadly, Doug has passed on since, but I was privileged to visit Jean in Toowoomba in December 2003. During our conversation, she asked me to reach up into the top of a kitchen cupboard. There was Douglas's original RAAF logbook, in pristine condition. It told the story of his Ab-initio flying training in Australia where he really only had to do a flight test because of his Archerfield experience, some of it having occurred in the Heath. It went on to record his Air Training Corps flying in Canada and his ferry pilot duties in England up to 1942.

Another "early bird" who had flown the Heath, Bill Maddox, sent his daughter Robyn to represent him at the fly-in. Robyn's son was photographed sitting in the Heath, the prints were to be taken back to Bill to remind him of his part in "Miss Sandgate's" history.

Apart from the "early birds" welcome at Watts Bridge, the initial reception from the other vintage buffs, at first, seemed rather cool. I couldn't figure this out, until someone pointed out that my aeroplane had registration numbers painted on the side, not registration letters, thus labeling it an "Ultralight". It transpired that the local Ultralight fraternity were not on the best of terms with the Vintage Group, and it had caused some consternation when by far the oldest vintage aircraft at the meet turned up registered as an Ultralight. This demarcation seemed to immediately vanish when Graham Orphan appeared and welcomed me, also making quite a fuss about "Miss Sandgate". In the end, all differences were forgiven, and "Miss Sandgate" was voted "best homebuilt" at the meet. It proudly took its place amongst the Tigers, Austers, Cubs, Ryans, Moth Minors, etc. as a significant Australian Vintage aircraft.

Heath Parasol at "Watts Bridge" with Len Neale and Kev Wilson 17 July 1996

The inclement weather remained all day Sunday, and we all packed into the main hangar to witness the formalities. Come Monday, a strong South Westerly sprang up and started to disperse the clouds. It was time to go home. The wind had increased to around 30 knots as I taxied to the Watts Bridge cross strip with Kev walking the wing. I turned into wind, opened the throttle and sprung off the ground, climbing at my usual 40 knots. What happened, of course, was the aircraft climbed almost vertically like an elevator at an amazing rate, with little forward motion. The owner of a Trinidad Tobago, who witnessed this from the ground, swore that I was going to stall the aircraft. Such thoughts were dispelled when I turned downwind, and disappeared like a scalded cat.

The trip home was horrific. The effect of wind rotor from the hills on the Heath when climbing out of the Brisbane valley was akin to that of a bucking horse. I just hung on, one hand on the stick, and one on the throttle. As there was not the remotest chance of reading a map under these conditions, I simply followed Geoff Craig's trusty fishing Garmin GPS. This was taped to my left leg, as there was no other room in the cockpit for it. What became apparent was the tailwind component of the southwesterly was negated by the crosswind component. Thus, my heading was 45 degrees to track, with a 60-knot ground speed strangely equivalent to the aircraft's 60-knot air speed. Who, amongst "Miss Sandgate's" early pilots, who only ventured out on calm mornings, would have imagined that she could fly in these conditions?

Luckily the wind was down the strip at Gayndah, where almost full throttle was required to taxi into wind. After the inevitable fuel and pie stop, we again leapt from the ground to buck our way back to Thangool. By this time, I'd had enough. On reaching Thangool, I searched for a runway that was into wind, to no avail. On the verge of exhaustion, I elected to land across the grass cross-strip. This direction had once formed another short cross strip at Thangool in front of the pepperina tree, now the terminal building. This short strip had been successfully used by Tiger Moths on just such days, but had succumbed to the niceties of lit windsocks and paved apron. The Heath pulled up in less than 50 meters. I pushed it into Laurie McDonald's maintenance hangar, and left it there for a week.

So ended the first epic I shared with "Miss Sandgate" on our visit to the "*airfield of dreams*".

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The CA-15 Kangaroo –

When Australia built One of the Fastest Piston Fighters Ever

By Rob Knight

WWII was progressing. The Japanese were proving formidable opponents, and the allies' fighter aircraft manufacturing capabilities were working to capacity. Yet still more fighter aircraft were needed urgently in the Pacific theatre to counter the seemingly invincible Japanese Mitsubishi A6M Zero.

Currently in use were a number of American fighters that had proved inadequate in other regions of the war including the Brewster Buffalo and the P40 Kittyhawk. What was needed were a few squadrons of P51 Mustangs, or P47 "Jugs", the fast-diving and heavy Thunderbolts. Whilst the Australian forces had some American fighters at their disposal, their own in-house contribution to the fray was the CAC Boomerang whose combat performance somewhat mimicked the look-alike and inadequate Brewster Buffalo. Whilst the Boomerang was faster in level flight than the Buffalo, and it was superior in armament, the Buffalo was more manoeuvrable, which was a telling point in combat with the Zero.

A CAC Boomerang- upgrade or replace.

With the natural attrition of military assets during combat operations, it was decided that rather than continue to produce the only Boomerangs, it would be sensible, even as a cerebral exercise, to look to a new aircraft design to give the desired improvements in capabilities and performance. upgrading the aircraft and so improve their capabilities. The primary proposal for the new design considered fitting a Pratt & Whitney R-2800 Twin Row Wasp 1200 hp engine.

The decision to consider a new aircraft being made, by February 1943 the general new design had been completed and a wooden mock-up completed around the same time that the project design was officially christened CA-15. In June 1943, following approval by the Royal Australian Air Force (RAAF), the design was registered as specification 2/43 issue 1 and serious design and development exercises commenced.

The CAC CA-15 concept was an Australian piston-engined fighter that was to be the successor to the Boomerang. However, its ultimate development was severely limited by the delays caused by wartime logistical problems, accidents, and the postwar arrival of state-of-the-art jet technology.

Projected to be more powerful and faster than even the Spitfire, and in the time frame before the jet engine had made its appearance, the CA-15, at least on paper, would have been the fastest piston engined fighter ever produced and perhaps Australia, rather than the USA, would now be world leaders in aviation.

Interestingly, the aircraft design chief was Friedrich David, an Austrian Jew who had escaped Germany before the eruption of WWII. He was experienced and had been involved in the development of several German pre-war war aircraft as an employee of the Heinkel company.

Now in Australia, David was tasked with designing and manufacturing another fighter, one that must inevitably confront many of the Axis war planes he had already helped create.

However, it was not all beer and skittles – challenges quickly grew and soon the engineering team were forced to redesign the entire plane due to supply issues with the R-2800 engine. This initial setback would prove a harbinger of what was to come, for by October 1944 the enterprise was halted by the War Cabinet.

Optimistic that with the right argument the project could be resumed, Commonwealth Aircraft Corporation's (CAC's) general manager, Lawrence Wackett, kept development going under the radar, and was rewarded for his perseverance in February 1945 when development was once again given the green light after the British Air Ministry expressed interest in the design.

The propulsion system of the CA-15 was rethought, and the R2800 replaced with a Rolls Royce Griffon 125 V12 engine. The envisioned power plants however also turned out to be unavailable, but with the British eager to get the ball rolling two Griffon 61 engines were offered (on loan) instead.

In October 1945 the Department of Aircraft Production issued order No. CS1502 for one CA-15 fighter to be constructed on a budget of 150,000 dollars and flightworthy within 3 months. No longer a mere academic exercise Wackett, reassigning many of his company workers to the job, so something concrete could be achieved.


The nearly completed airframe fitted with the R-R Griffon 61 V12.

The CAC CA-15 was a piston fighter with a length of 11.03 meters, a height of 4.34 meters, and a loaded weight of 4,882 kilograms. Powered by a Rolls-Royce Griffon 61 V12 engine with 2,035 horsepower, its design maximum level flight airspeed speed was 430 knots, and it was anticipated to have a service ceiling of 28,000 feet that it could climb to at 5570 feet per minute.

Its wings spanned 10.97 meters, and were the first of any Australian craft to utilize NACA 6000 laminar flow aerofoil sections. This aerofoil markedly improved performance by reducing wing drag, and were much better than older configurations such as the British and American NACA 4 figure segments, which suffered from transitional flow over the upper wing surface. The rest of the CA-15 design was more conventional, featuring a semi-monocoque fuselage with stressed skin, a bubble Perspex cockpit canopy protected by an armoured glass windscreen.

Armament for the CA-15, although never actually installed, was intended to be either six 0.5 inch Browning machine guns each with a capacity of 250 rounds, four 20 mm cannons loaded with 120 rounds each, or two of each armament, with mounting stations pre-built into the wing structure. Provision was also made under the belly to carry bombs.

The end of the war in September 1945 did nothing to dampen passion for the CA-15, and it quickly began to take shape as the world fell into the postwar era. Following the necessary plethora of structural evaluations at the CAC factory, including wing torsional tests, fuselage torsional and bending tests, and fuselage stress distribution tests, the manufacture of the prototype aircraft took shape. Then CA-15 was ready to make its flight debut.


The prototype CA-15. A P51 Mustang on steroids.

Piloted by the CAC test pilot James Schofield, the single CA-15, climbed away from its runway took to the skies for the first time on March 4th 1946. This first flight lasted for just 15 minutes before the wheels again kissed the bitumen. However, it was followed up by 24 more test flights which were not completed until mid-June 1946. During these flights, a comprehensive investigation of the CA-15's performance and handling characteristics was done, including detailed assessments on the controls, control surfaces, brakes, and engine. Ongoing modifications were carried out during this testing period to maximise the outcoming results.

At 16.5 hours of test flight time, on July 2nd 1946 the aircraft was transferred to Laverton RAAF Base in south-west Melbourne for its final assessment stage. Whilst it was at Laverton, the CA-15 acquired its nickname of ‘Kangaroo’, an inevitable result of its landing struts being inadvertently over-pressurized, and causing the aircraft to bound, in the style of Australia’s national animal, during a routine taxi run.

The CA-15 prototype, though, would suffer yet more bad luck. Flight trials were stopped until March 1948 after an incident on December 10th 1946. The pilot, Flight Lieutenant Lee Archer, was forced to carry out a wheels-up landing after the hydraulic system suffered a major failure.

Wheels-up - post hydraulic failure.

Beautifully streamlined to get its speed.

The service span of the CA-15, a piston driven fighter, which ultimately never completed its testing process, was ultimately cut short by the emergence of jet powered fighters providing performance that piston engines could, simply, never equal. Piston engined fighters were at the end of their development road and there were plenty already produced to carry the loads until they could be retired from active service. However, the tragedy of the CA-15’s demise is even more relevant considering that it was set to be the fastest piston-aircraft ever made.

With a predicted maximum level flight speed of 430 knots, and climb rate of 5570 feet per minute, the CA-15 was going to be considerably quicker than the Hawker Tempest (350 knots / 4700 ft/min), Republic Thunderbolt (350 knots), North American Mustang (377 knots / 3475 ft/min), and even the iconic Supermarine Spitfire (385 knots / 5000 ft/min). In one of the few recorded measurements to its name, it had already shown promising signs it would live up to expectations after making headlines in Australia on May 25th 1948 after clocking a speed of 502 miles per hour (436 knots) in a dive performed by Archer in Melbourne, but unfortunately the rapid pace of technological advancement was to stop it in its tracks.

Port side, in profile.

From this point, the CA-15 disappeared from the record for several decades, only remerging in 1986 when an American aircraft enthusiast, keen to build a replica, asked the CAC for the blueprints. Obliging, CAC packed them up in a box set for delivery, but in a tragic twist of fate, a rubbish collector accidentally collected the boxed set and tossed it into a local tip where the only known CA-15 schematics were incinerated before staff could intervene.

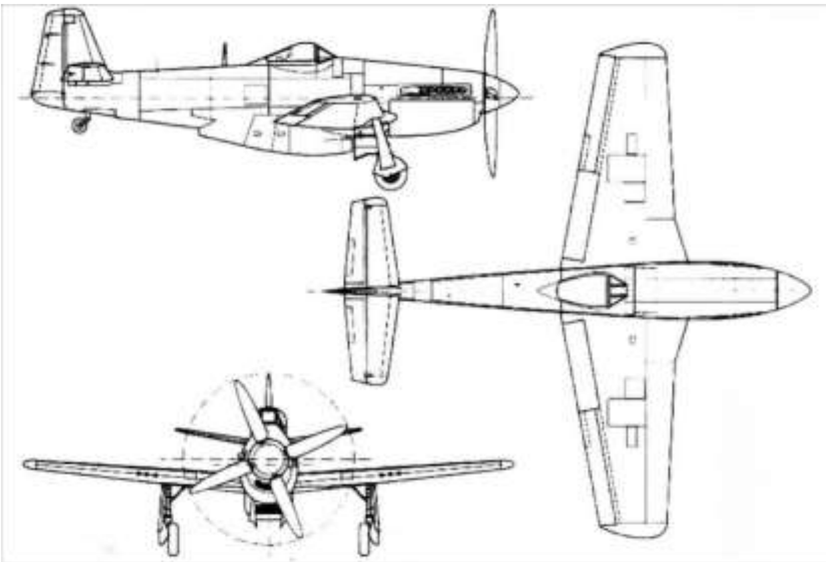
Currently only a couple of sketches of some minor components, and the general layout are known to remain. Therefore, now without the detailed drawings and calculations available, the fastest piston-engined plane ever conceived can now never again see daylight.

GENERAL SPECIFICATIONS AND PERFORMANCE CA-15 KANGAROO

Crew: 1	**Powerplant:** 1 × Rolls-Royce Griffon 61 V-12 liquid-cooled piston engine, 2,035 hp (1,517 kW) with 18 psi (120 kPa) boost.
Length: 36 ft 7 in (11.15 m)	**Propeller:** 4-bladed Rotol, 12 ft 6 in (3.81 m) diameter constant-speed propeller
Wingspan: 35 ft 6 in (10.82 m)	**Maximum speed:** 442 mph, 384 kn) at 25,600 ft and 368 mph (320 kn) at sea level.
Height: 15 ft 7 in (4.75 m)	**Range:** 1,150 mi (1,000 nm) on internal fuel.
Wing area: 253 sq ft (23.5 m^2)	**Ferry range:** 2,540 mi (2,210 nm) at 5,000 ft at 1,600 rpm.
Empty weight: 7,540 lb (3,420 kg)	**Service ceiling (tested):** 34,000 ft
Gross weight: 9,500 lb (4,309 kg)	**Rate of climb:** 4,900 ft/min
Max take-off weight: 12,340 lb (5,597 kg)	**Time to altitude:** 20,000 ft in 5 minutes 30 seconds
Fuel capacity: 500 L in each wing tank + 140 L in one fuselage tank and 2 optional 450 L under-wing drop tanks.	**Wing loading:** 37.5 lb/sq ft (183 kg/m^2) normal load

PROPOSED ARMAMENT

Guns: 6 × 0.5 n (12.7 mm) machine guns
Rockets: Provision for 10 × rockets
Bombs: 2 × 1,000 lb (450 kg) bombs



The CA-15.

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

Thinking Outside the Square - The Goodyear Inflatoplane

By Rob Knight

Whilst being well known for their production of the Goodyear inflatable blimps, the Goodyear company also had another aviation avenue – in 1956 it built a number of military aircraft under license. The Inflatoplane gave them an opportunity to produce a military aeroplane in their own right.

The GA-468 single seat version.

The 1950s saw the US Army looking at options to improve the transport options for their troops in the field, especially those that provided greater freedoms in regard to terrain Issues. When Goodyear suggested the Inflatoplane (aka Inflatobird) as being suitable for many field operations including reconnaissance, the Army immediately offered to sponsor the project development.

The Army requirements were that it had to be completely self-contained and not reliant on any outside equipment. It had to be packable into a single 1.24 cubic metre container, and be transported by truck, jeep trailer, or aircraft, or dropped behind enemy lines to assist in the self-escape of downed pilots. In addition to the two-seat version, a single seater was also constructed and although testing continued from the mid-fifties unto the 1970s, no orders emanated.

The GA-466 two seat Inflatoplane.

The GA-466 was the two-seater version, powered by a 60 horsepower McCulloch 4318 two-stroke engine, and having a maximum take-off weight of 340 kg and cruising at speeds of up to 60 knots. The range of the GA-466 was 255 nautical miles.

The single seat version, designated GA-46 and powered by a 40 hp two-stroke Nelson engine, cruised at around 52 knots and was stated to have a range of almost 400 nautical miles but the engine was also a two-stroke and the fuel consumption of such engines is sufficiently high to make this suggestive of over-optimism. It would require of the order of 100 litres of fuel for this distance which would weight in the region of 72 kg some 70% of the aircraft's maximum take-off weight of 102kg. And, if this wasn't too much, where could you put such large fuel tanks and have an inflatable structure to support the load.?

Inflating a GA-466.

Both aircraft utilised and maintained an internal structure air pressure of only 8 psi – far less than a car tyre. No starter motors were fitted: both models required used hand propping to start their engines.

With the Army's failing interest, and in spite of extensive advertising, the civilian population did not find a good use for it either. The whole project was dropped and has now fallen behind the thickening curtains of time.

The unique Inflatoplane.

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

WARNING

To Rotax 912 Owners and Operators

Issue with carburetted Rotax 912 engines

Check the carburettor butterfly spring and lower anchor point bracket.

This engine has logged only 200 hours.

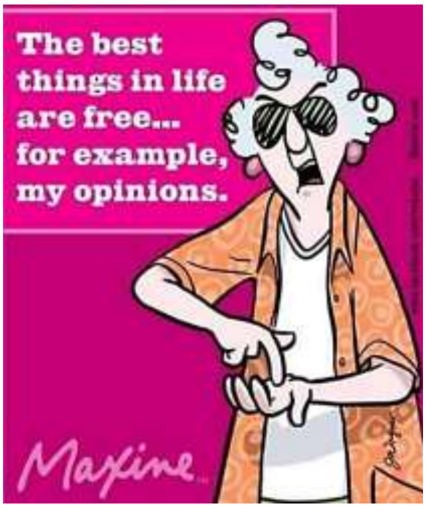
The spring cuts from underneath which makes it harder to spot on inspection. As the spring action is lost from one carburettor severe engine vibration is the result.

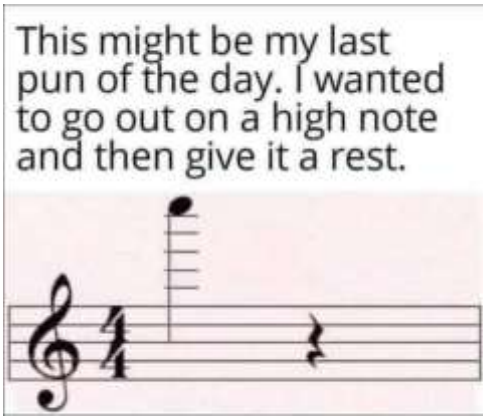
If further details required, contact Graham Roberts, Kilcoy

FLY-IN Invites Looming

WHERE	EVENT	WHEN
Murgon (Angelfield) (YMRG)	Burnett Flyers Breakfast Fly-in	**See website for next planned event". Confirm details at: http://www.burnettflyers.org/?p=508**

THAT MOMENT WHEN YOUR STEAK IS ON THE GRILL, AND YOU CAN FEEL THAT YOUR MOUTH IS ALREADY WATERING, DO VEGANS GET THE SAME FEELING WHEN THEY MOW THE LAWN?





The Days of Our Lives (From a Flying Instructor's perspective).

By Rob Knight

The booking sheet said my next student was a new club member, a medical doctor, who wanted a type rating in the Piper Cub. According to the Office Lady, Doreen, who had taken her call and organised her membership, Meika had already started a Cub rating at Bridge Pa aerodrome at Hastings, New Zealand, and all she apparently expected was a checkout and for me to sign her rating form.

I was late. The Victa I had just been flying had developed a snag and I was tied up discussing the issue with Rob Davies, the Club's L.A.M.E., who did all our maintenance. When finished, I rushed back into the Office and Doreen told me that Meika had already done the pre-flight and was sitting in the aircraft waiting for me.

ZK-BNO was a 150 hp cub. I was aware that the Aero Club at Hastings only had 90 hp models so I was not sure as to exactly what we were to do as I quickly stepped out to the waiting aircraft. I climbed into the back, and, as I strapped myself in, I asked her what she had been flying and she said, "Cubs of course".

"Yes, but 90 hp Cubs or 150 hp Cubs", I replied. "How would I know", was her startling reply.
"What did you log the time in your logbook as? "PA18," she answered.
"Did they have flaps", I asked further. "I don't know", she responded.
I gave up. "Can you remember how to start it, then?" She nodded so I told her to go ahead.

Meika got the motor running and I turned the radio on and called for taxi. Cleared, we moved slowly to the grass area for our run-up checks where I directed her to apply the brakes. With my hand in front of the stick ensuring it was held right back I talked her through the RPM and carburettor heat checks. Temps and pressures were all good according to her (the rear seat can't see them) and I told her to taxi straight ahead and to hold at the holding point for runway 21, behind the waiting Cessna.

The aircraft moved slightly as she took her heels off the brakes. The noise increased in the headphones as she opened the throttle. We swung around to the left, turning towards the drain that lay between us and the runway. I slammed in full right rudder and the aircraft slewed to a stop. I couldn't make it taxi straight. I tried lots of power with full rudder and all the heel brake that I could apply, and was left thinking the port wheel brake had locked in the ON position.

I called the tower and cancelled the flight before getting out and asking her to also climb out, we weren't going anywhere further in BNO today. She seemed reluctant to leave the front seat and was pulling at her left leg but eventually did get out minus her left shoe.

She was wearing stiletto heeled shoes, and the heel of her left shoe had missed the protective floor plate and become wedged between the wooden floor and the pedal structure.

She was very angry when I wrenched the shoe away from the pedal leaving the heel still stuck like an arrow, thin nails visible where the shoe and heel had parted. "They're new – you can pay for another pair, now", she yelled at me.

In a right snot, she refused to get back in the aircraft for me to taxi back to the club line so she limped the few hundred yards we had travelled. Her anger grew when she was told that not only would the club not be paying for new shoes, but she was being billed the time we had spent in the aircraft with the engine running. Initially she just shook her head but Doreen, a PPL herself, was furious as she described the stupidity of trying to fly in high heels, and bluntly questioned Meika's intelligence. Quietened, Meika provided her logbook and she did have a PPL (in a Cherokee 140), but only one single familiarisation flight in a Cub. She was not nearing the completion of her Cub training at all. I wondered how many patients survived her TLC in the future?

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

Disasters in Design - Aircraft that could Never make it
The Percival P.74 1956

By Rob Knight


The failed Percival P.74 Helicopter.

In1951, the British Percival Aircraft Company, renown for building light training, racing, and utility aircraft since 1933, formed a helicopter division. The company's one and only attempt at designing and manufacturing a saleable helicopter was as hilarious as it can get. This tear-drop shaped (or egg-shaped, if you will) creature, designated as Percival P.74, was supposed to carry two crewmembers and eight passengers utilizing an innovative tip-jet propulsion technology. But building a chopper isn't as easy as it may seem, even a small one carrying a crew of two, and eight passengers.

Percival's engineers decided to avoid what tried and tested mechanical means of powering their helicopter's rotor were available at that time, instead, by using a tip-jet technology, experimental, and already giving problems to Fairey developing their Rotodyne. The P.74 power plants were two Napier Oryx gas-turbine engines, feeding compressed air to jets in the tips of each of the three rotor blades. The powerplants were mounted beneath the cabin floor, with ducts running up through the walls between rows of seats, making the cabin decidedly hot and noisy.

To further compound development issues, the P.74's rotor blades were not, like other rotor control systems, controlled by actuators at the hubs, but by ailerons on the trailing edges of the rotors themselves. The helicopter also had a very short tail with a tiny tail rotor. This was appropriate, though, because tip jets placed almost no torque on the airframe. unlike more conventional helicopters' propulsion systems. Rotor pitch was adjustable via a screw jack.

The P.74 was also a little strange in that it didn't have any doors or hatches for the pilots, with the only way in and out of the craft being the large door on the port side of the aft fuselage. A test pilot also complained that the helicopter's cockpit, flying and engine controls had been designed "without any input from a pilot."

During months-long testing in a static rig the power system displayed very poor performance. At some point these problems were deemed fixed, or, at least, seemed to have been fixed. Percival decided to try and lift the prototype, which had been completed by the spring of 1956, in the air. Alas, the helicopter, still badly underpowered, simply refused to take off. The P.74's creators had to admit that Percival's venture into the helicopter business was not a success. The funny-looking non-flying helicopter was ignominiously towed away from the airfield and scrapped. Total cost – about £3,000,000 ,- a lot, lot, lot of money in 1956.

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Piper PA-6 Sky Sedan

By Rob Knight

Piper's PA-6 Sky Sedan

The company that has manufactured Piper aircraft since 1927 when the business was purchased from the Taylorcraft Aircraft CO. Since that time, it has always been renowned for its excellent marketing foresight and sales strategies. This was never more apparent than in the latter stages of WWII when the management could see the turning style of hostilities swinging the Allies way and believed the end of the war was approaching. To ensure they were best placed to maximise the company's share of any post-war requirement for light aircraft designs, they examined and experimented with several new (for the time) aviation concepts.

One of these was initially designated the PWA-6 Sky Sedan (or Post War Airplane 6). Finding the concept had merits, in 1945 they produced a prototype developed from their own unsuccessful two-seat PT-1 trainer. The PWA-6 had a metal airframe that was fabric covered, and the cabin sported 4 seats, for a pilot and three passengers. Retaining the PT-1 overall design, it was a low-wing cantilever monoplane with a conventional tail unit and a retractable tailwheel landing gear. Initially expected to use a 140 hp Franklin engine, by the time it was standing on its wheels, that had been upgraded to a 165 hp Continental E-165 engine. Also, by that time, its official Piper designation had been changed to PA-6. A second PA-6 was built in 1947, which encompassed several upgrades - had been re-designed and was now of all-metal construction, this second aircraft was powered by a 205 hp Continental E-185 engine, and the cockpit now had a one-piece windscreen instead of two separate panels of Perspex. a one-piece windscreen. However, all efforts were ultimately seen to have been in vain as neither was put into production. With the massive surplus of ex-military training aircraft available for a song, there simply was no commercial market for a new and expensive design.

The 1947 second prototype Piper PA-6 Sky Sedan with a stressed skin construction.

To some, now and with hindsight, their failure to make it into production is a pity. The PA-6 (both variants) were very practical Piper with good flying characteristics and were potentially good, sound advanced training aircraft and fun family flyers. The Sky Sedan seemed to have it all, especially the second prototype. It was of all-metal construction, had seating for four, and a modern, powerful and reliable four-cylinder aero engine. Even the first prototype had a 165 hp six-banger giving a good cruise speed - an advertised cruise of 150 mph (130 knots), and the range was given as better than 500 miles. Also – they looked good, the design was very eye pleasing and had a pretty silhouette. Looking back, one can easily imagine the Sky Sedan growing a nose gear, and even growing into a twin. But in the latish 1940s, Piper was into a cutting-losses-mode and shelved the Sky Sedan, relegating it to the annals of aviation history. The development of new models and new markets would have to wait a decade and a half.


The clean lines of the PA-6, especially with the stressed skin.

The demise of the PT-1 left the training area open to developments of the J3 Cub design into the PA-18 Cub which was still in use in some training schools as late as the late 1960s. However, by then, its basic design philosophy had morphed, clipping its wings, shortening its fuselage, changing to 4 seats – 2 rows, side by side, and it had grown a nosewheel. I obviously refer to the PA-22 Tri-pacer after 1949, and its lil' sister, the Colt, in 1961.

Subsequent to the decision to not proceed with the PA-6 design, the four-seat, single engined, retractable market was ultimately served by the production of the Piper PA-24 Comanche series. This was a new, from scratch, design and first flew in 1957. It too had very attractive lines and it had a sparkling performance to match those great looks. From the initial production of the type with a Lycoming 150 hp engine fitted, the ultimate Comanche had a great 400 hp beast sticking out in front driving a three-bladed paddle which had the ability to startle complacent pilots when the throttle was pushed forward too quickly. The type was developed into a twin engined model – called a "twin Comanche" no less and this is still being operated in some places as a cost-effective IFR trainer. Some designs never seem to die.

Following the Comanche came the PA-28 Cherokee series, from the 140 hp model up to the Cherokee Lance – a 6/7 seater, with a 300 hp Lycoming and retracting undercarriage. Note that the Cherokee six series was re-designated as Piper PA-32 type aircraft with the initial production of the first of the series, powered by the 260 hp Lycoming engines.

Design Specifications and Performance details for the Piper PA-6 Sky Sedan

Crew: 1. **Pax** 3	**Powerplant:** 1 × Continental E165 6-cyl. horizontally-opposed air-cooled piston engine, 165 hp (123 kW)
Length: 26 ft 0 in (7.93 m)	**Propellers:** 2-bladed Sensenich fixed pitch propeller
Wingspan: 34 ft 8 in (10.56 m)	**Maximum speed:** 160 mph (260 km/h, 140 knots)
Height: 7 ft 0 in (2.13 m)	**Cruise speed:** 150 mph (130 kn) at 125 hp, and 120 knots at 100 hp at sea level
Empty weight: 1,360 lb (617 kg)	**Economic cruising speed:** 100 knots at 40% power
Gross weight: 2,400 lb (1,089 kg)	**Landing speed:** 43 knots with flaps; 48 knots without flaps
Fuel capacity: 150 L fuel; 9.5 L oil	**Range:** 540 nm) at 120 knots.

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

1. What force turns an aeroplane?
   - A. The ailerons.
   - B. Centripetal.
   - C. Centrifugal.
   - D. The rudder.
   - E. A and D coordinated

2. In light aeroplanes, what is the primary disadvantage in using slats on an aeroplane's wing to lower the stall speed?
   - A. Slats cause a substantial increase in the stall angle.
   - B. Slats add excessive drag at cruise speeds
   - C. Slats cause a substantial rise in empty weight for only a small decrease in stall speed.
   - D. Slats do not function well in ground effect.

3. What causes induced drag on an aeroplane's wing?
   - A. The aeroplane having too much frontal area.
   - B. The atmosphere acting against the form of the aeroplane.
   - C. The aerodynamic pressure differential creating spanwise airflow across and along the wing.
   - D. Flying at higher speeds.

4. An aeroplane, in a steady 45° banked turn, is:
   - A. Rolling only.
   - B. Pitching only.
   - C. Yawing only.
   - D. Rolling and yawing
   - E. Yawing and Pitching.
   - F. Pitching and rolling

5. Two identical aeroplanes are climbing, the only difference between them is that X is climbing into a headwind, whilst Y has a cross-wind. With no wind shear present, which aircraft will have the higher rate of climb, and why?
   - A. X because the headwind will provide added lift.
   - B. Y because its angle of climb will be higher.
   - C. Neither, they will have the same rate of climb because the W/V only changes ground speed, and rate of climb depends on the correct TAS to be flown.

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. B is correct.

Centripetal force, created by banking that wings, and also known as the horizontal component of lift, provides the turn force to cause an aeroplane to change direction.

2. A is correct.

Slats cause a much higher stall angle at CLmax so a longer set of undercarriage legs must be fitted. This will increase drag and so reduce cruise speed, and will influence forward visibility when taking off and landing.
See: https://en.wikipedia.org/wiki/Leading-edge_slot

3. C is correct.

The higher-pressure air beneath a wing flow back and outwards towards the wing tip spilling around the tip and forming a vortex. The force creating the vortex is, in effect, induced drag, and the larger the vortex the greater the resistance to forward motion (the greater the induced drag). As the vortex is caused by the air pressure differential between the upper and lower wing surfaces, it stands to reason that induced drag is highest when the pressure differential is greatest, i.e., at low airspeeds.

4. E is correct.

If an aeroplane was turning without banking, all the turn would be yaw about the vertical axis. If the aircraft was banked at 90° and turning, it would be all pitch about the lateral axis. However, as the turn uses some bank (but not 90°) it will be yawing some and pitching some – there is both pitch and yaw involved in the turn.

5. C is correct.

Rate of climb depends on maximum surplus horse power. This will be achieved only at full throttle with the best correct TAS for Rate of Climb. As both aircraft (theoretically identical) are operating at that airspeed, they will have the same rate of climb regardless of whether they fly into wind, cross wind, or even down wind. The only thing that will change will be their respective angles of climb. Of course, their angles of climb will be totally disparate in this case.

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

Aircraft Books, Parts, and Tools etc.

Contact Rob on mobile – 0400 89 3632

Tow Bars

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

Aircraft Magnetic Compass (Selling on behalf)

Item		Price
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**

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

Or email me at:

Aircraft for Sale

Kitset - Build it Yourself

$1,780.00 neg

DESCRIPTION

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

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

Box sections and tubes

Flow Meter, Navman, Ballistic Chute, etc

A very comprehensive kit of materials

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

Or Mob: 0419 758 125

Ribs, tubes, spats, etc

Thruster T85 Single Seater for sale.

$9,750.00 NEG

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

The aircraft at Kentville

New Engine Rotax 503 Dual Ignition has only 10

Fuel tank

Instrument panel

Details

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

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

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

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

Offers considered. Call Tony on 0412 784 01

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**

Slipstream Genesis for Sale

Slipstream Genesis. Built 2001. Two seats side by side, powered by 80 hp 912UL Rotax, driving a Warp Drive 3 bladed prop. Cruise 70-75 knots. Empty weight 304kg, MTOW 544 kg, Payload 240 kg. Fuel tanks hold 78 litres. With fuel burn averaging 16 litres/hr, still air endurance (nil reserve) is theoretically 5 hours, or 350 nm. Aircraft always hangared. It has been set up for stock control or mustering, and is not fitted with doors.

Registered until 13 October 2024, currently flying, and ready to fly away

Total Hours Airframe: 149.7. Current, up-to-date, logbook. Aircraft flying so these figures will change

Total Hours Engine: 1673.9. Annuals/100 hourly inspection due 07/06/2024. Sprag clutch replaced January 2020, gearbox overhauled January 2020. Just undergone ignition system overhaul. One CDI Ignition unit replaced PLUS brand-new spare unit included in sale. Easy aircraft to maintain - everything is in the open. Comes with spare main undercarriage legs, spare main wheel, and nosewheel with other assorted spare parts included. Sale also includes spare engine ready to fit (logbook available).

Fabric good, seats are good, interior is tidy. Fitted with XCOM radio/intercom. Basic VFR panel with appropriate engine instruments, and compass.

An article on this aircraft was published in Sport Pilot, June 2019 issue. See front cover and pilot report within.

Must sell: two aeroplanes are one too many. Quick sale - Fly it away for $10,000 including spare engine.

Contact **Rob Knight tel. +61 4 0089 3632**, **or email** kni.rob@bigpond.com for details and POH.

$10,000

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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