BRISBANE VALLEY FLYER

September 2024

BRISBANE VALLEY SPORT AVIATION CLUB INC

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

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Boeing P26 Pea Shooter – A Classic.

See page 17.

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

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

Greetings All,

This last month It has been very slow month with only routine activities going on.

However, having said that, of note is the point that we have submitted the plains to the certifier seeking certificates for the club house extension and we have paid the fees. Now we just wait for the approvals to be released.

We are hoping at the next meeting we will be able to start work on the extension and therefore we would like to have a working bee on the next meeting day.

The day of our next meeting will be on Saturday, September 7, commencing 10.00 hours in the Clubrooms at Watts Bridge.

Please join us and lend a hand. All are welcome and lunch will be provided free.

Best wishes

Peter Ratcliffe
President BVSAC

The Snag Sheet

By Rob Knight

One of the most vivid fears of any thinking pilot is the concern that his/her aeroplane might become un-airworthy during flight. To assuage such fears, we have many safety checks and drills built into our aircraft operations including not only the periodic maintenance aircraft endure during their operational lifetime but the pre-flight checks and others checks during flight itself.

In the sixty-three years that I have been aviating, almost every operator with whom I have flown or from whom I have hired aeroplanes has had a snag sheet[1] for every aircraft. Almost always kept in the machine, these snag sheets form a serious part of ensuring the ongoing airworthiness of the aircraft. Let me give you just three examples of when entries in snag sheets could, or were, beneficial to safety in an aircraft.

In 1962, the year I did my first training flight, the local aero club not only owned the PA18 90hp Cub, ZK-BQY, in which I did my first flight, but also a PA22 Tri-Pacer, ZK-BSE. The home base for the Club was Whangarei about an hours' flight south from Kaitaia where, one weekend per month, the aero club flew the Cub and the Tri-Pacer up for the weekend. Fuel for the aircraft was supplied by the Kaitaia Mobil Fuels agent, in red, forty-four-gallon drums, clearly labelled as 80/87 octane aviation fuel, with an appropriate hand pump to lift the fuel into the aircraft tanks. The drums were kept in a shed owned by NZ Civil Aviation that also contained what we now call MOGAS to run the fire engine for the emergency equipment relating to the scheduled airline services that operated into Kaitaia, and fuel for the airline operator. It also held kerosene in forty-four-gallon, silver painted drums, to fuel the NZ Civil Aviation required flare-path, for emergency night operations.

One Sunday afternoon, the instructor was out in the Cub with a student when a bunch of PPLs decided to go flying in the Tri-pacer. As its fuel was low, they opened the shed and wheeled out a drum of fuel. Talking and joking amongst themselves, they refuelled the aircraft only to realize afterwards they had refuelled from a silver drum so the tanks were now filled with a kerosene/AV-GAS mix, which was surely not conducive to continued running of the engine.

They drained the aircraft tanks, pumping the contents back into the red kerosene drum with the remaining kerosene, and refilled the tanks with 80/87 octane AV-GAS from the silver drum before conscientiously checking the tank fuel drains for contamination. They showed the expected pink 80 octane AVGAS so they put the silver drum away while someone entered the error of partly filling the tanks with kerosene onto the snag sheet. But these were dairy farmers and time was now too short so the flight was abandoned. They left the aircraft tied to its pickets ready to be flown back to Whangarei.

The instructor finished his lesson, the last for the day, and called Cub ferry pilot back to the field for the aircraft to return to Whangarei. When the instructor did the Tri-Pacer pre-flight, he checked the snag sheet and saw the entry and immediately called the local L.A.M.E. to come out and remedy the issues he believed might remain in the fuel system before he flew the aircraft again.

The remedial work required that all liquid in both wing tanks be drained and the fuel tanks thoroughly flushed clean of any discernible oil. This obviously had to include the lines, filters, and contamination traps in each tank. Kerosene is heavier than petrol so the oil could/would collect at the low points in the fuel plumbing system unless the fuel lines were absolutely cleaned of all residue.

In the L.A.M.E.'s report, attached to his bill for the work, was a statement that, with the carburettor bowl full, and the petrol available above the level of the contaminating kerosene, the aircraft could

[1] *Snag Sheet, also called defect sheet, gripe sheet, etc.*

have taxied to the active runway, and, after all checks and drills were carried out, to have taken off and climbed to about 300 feet before a total engine failure would have occurred. Incidentally, the cost at the time (1962) was $328.00 which equates to $3,476.00 in 2024.

Saved by the snag sheet entry

The next two instances where a snag sheet could/might have had an influence on safety relate to me personally.

In late 1969, when I started AG flying, I was allocated to oldest, most worn-out aircraft on the local flight-line. No surprises, but the aircraft carried with it an array of rattles and bangs on every take-off and landing. It carried a snag book – a simple soft-covered note book of the dime-a-dozen variety, its pages ruled vertically into columns with a red ballpoint pen and kept under the thin cushion on the pilot's seat. In this book, I was instructed by the branch's chief of engineering, an ex-pat South African, to include any/all issues I found with the aircraft. Serious ones, that is! I was to enter the details and date, AND advise him or his deputy for more immediate resolution.

On about the third day I made an entry into the book advising of a rattle in the starboard wing. I estimated that it was just a little more than half way out, towards the tip and sounded like a small spanner lose in the area between the wing ribs. When I also mentioned it to him, he was very upset and called me some names that were new to me. He also said that, as the new pilot he was not going to re-arrange his day to suit my inexperienced fears and unfounded trepidations. This outburst was delivered in front of all the maintenance staff, and, in my embarrassment, I took him seriously and never pressed the issue. Then, three-working days later, the aircraft went in for its next due 100-hour inspection.

To his horror and now his embarrassment, in the same wing bay as the aileron crank was a lose 7/16 ring open-ender spanner. And, to add icing to the cake, the colour code on it was orange. It was his own spanner. Somehow, the requirement for keeping tabs on his tools had been lost.

I never got an apology, of course, but two things occurred as a result. He never challenged me on any snags/defects I subsequently reported, and I determined that it was ME that decided whether an aircraft had issues or not, not the engineer whose butt would not be BBQ'd in the fire in an accident.

Although I never had a mishap in this case, my entry in the snag sheet SHOULD have added to my safety. Failing to apply it meant that it was ineffective.

The second issue had strange similarities. Now instructing in PA-28 140 ZK-CEQ, at the Waitemata Aero Club, I was booked to fly a map-reading nav exercise with Laurie Chiung, a Singaporean student doing his PPL training. He pre-flighted whilst I finished up with my previous student. I joined him in the aircraft and he showed me he had the maps to be used and I strapped myself in. With clearance, we taxied, did the run-up, and continued to the holding point for runway 21 where he carried out the pre-take-off checks. As he did the controls full and free bit, I noticed the starboard aileron seemed to hardly rise but descended to full travel. I took the yoke and the left aileron seemed normal but the right was not performing as it should in comparison. I cancelled the flight with ATC and we returned to the club. After finding a serious problem with the aileron system, I entered the issue into the snag sheet and I also removed the maintenance release, effectively grounding the aircraft.

The following morning, the Club's engineer, yet another man from the bottom of the African continent, was very irate, claiming that I had no right to remove the maintenance release from the aircraft and thus deem the aircraft un-airworthy. He claimed, very loudly to several committee members, that my actions were a slight on his professionalism and that he'd be looking at legal action for defamation. The Club President at that time was more cautious and suggested that,

before any action to replace the maintenance release and scrub out my snag sheet entry was taken, my report should be checked. In high-dudgeon, the club's own L.A.M.E. pulled the starboard wing inspection covers off to find the mounting plate to which the starboard aileron crank mechanism was bolted was broken. The aircraft, if flown in that state, could conceivably have suffered locked/jammed ailerons in any applied position, at any time. Considering that the next booking on the aircraft was a PPL flight with his wife and two small children to Palmerston North, it could easily have resulted in a four-person fatality. Not a single comment was made to me in regard to the issue, but each club instructor was individually and quietly advised to pull the maintenance release for any serious airworthiness issue. Shortly after, without stating a reason, the L.A.M.E. left the club's employ.

For owners, you should have your own snag sheet system operating. I do, it's printed on the back of every daily flight sheet. However, personally, when I find a snag, I prefer to fix it immediately, either before or after that flight, but I don't let it linger in case it inspires the aircraft to fail somewhere else.

Should I ever hire another aircraft to operate as the PIC, I'd be checking any available snag sheet as part of my pre-flight inspection.

Happy flying

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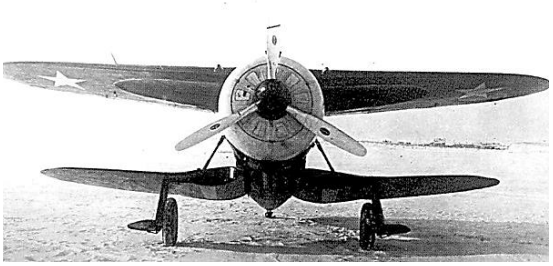
------ ooOOoo ------

The Nikitin Shevchenko Polymorphic Fighters (1938)

By Rob Knight

The Nikitin-Shevchenko IS series of fighter aircraft were both a monoplane and a biplane because their folding lower wings were retractable into their fuselages and upper wings.



The Nikitin-Shevchenko IS-1

These unique aircraft had two sets of wings in a biplane arrangement, but, unlike other biplanes, the lower set of wings could be folded and retracted into the fuselage and upper wing. This enabled the pilot to take off as a biplane whilst enjoying the advantages of greater lift, and then fold up the lower wing and remove it from the direct airflow to morph into a much faster monoplane.

The concept is often jointly attributed to a pilot, Vladimir Shevchenko, a test pilot for the Soviet Air Force Research Institute, and Vasilii Nikitin, an aircraft designer/manufacturer. Shevchenko had jotted down calculations and drawings for the proposal and brought them to the attention of the Air Force board who granted him facilities and a team to develop his ideas. This decision was well supported by senior Soviet fighter pilots including the famed ace Anatoly Serov.

Construction of a functioning demonstrator was begun in February 1938 and the following year was boosted when Joseph Stalin was present at a demonstration flight and became so enthusiastic about the potentials of the folding lower wing concept idea that he provided 76 million rubles to assist in getting the aircraft into the air as quickly as possible. It was Stalin's fervent hope (and order) that the aircraft be available for demonstration at the October Revolution parade scheduled for November that year.

The IS-1, the first aircraft in the series, was designed to resemble the Polikarpov I-153 biplane fighter then in service, including the use of several components from that aircraft. This shortened the development time as the basic aircraft was already available, as were parts for its construction and required, as an aircraft type, no testing. Only the folding wing part of the design required development and testing.

The IS-1 construction included a steel tube framework fuselage with a mixed metal/fabric skin, powered by a 900 hp M-62 radial engine driving a three blade propellor. The primary, upper wing was of a gull wing type.

The lower wing comprised two sections with flexible joints in the centre of the structure. Folded, the inner section, which also mounted and now contained the retracted undercarriage, was absorbed into a recess in the fuselage, whilst the outer section and wing tip retracted into a grove in the lower surface of the upper wing.

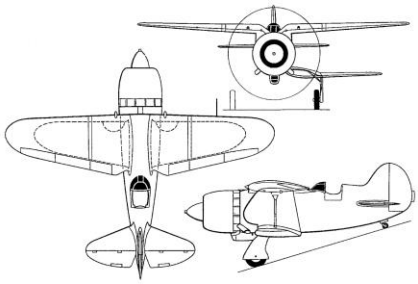
Regardless of the design team's best efforts and the obvious disadvantages and dangers of failing Stalin's demands, the intent of achieving a first flight so quickly proved optimistic, and the IS-1 first flew in May 1940. About three weeks later this was followed up with an inflight test of the folding wing operation, which was completed successfully.

The process was reportedly very simple. The pilot operated a single lever with position locks – 1.– Wing and gear lowered., 2. – Wing down, gear raised, and 3. – Wing raised.

Flight testing continued, but the record becomes somewhat confused. While some sources (mostly pilot reports) painted the aircraft as highly successful and showing great promise, others record that the test flights indicated that it was very definitely inferior to existing aircraft in Soviet service and the over-all design and concept was a total failure.

It is more likely the latter is the more correct. The IS-1 with all the extra weight of the retract and fold systems was considerably heavier than the Polikarpov I-153 it was modelled around. Also, the recesses in the underside of the upper wing for housing the lower wing when retracted, would inevitably have rendered turbulent all streamline airflow in its vicinity. Thus, it is hardly surprising that the IS-1 failed to attract any production orders.

Perhaps Stalin's enthusiasm for the aircraft meant the test pilots were more careful (????) in what they recorded in official reports, and what those making the decisions officially reported to so fundamentally different.



The Nikitin-Shevchenko IS-2

However, the adverse issues did not kill the concept and a second aircraft in the series was built – the IS-2 – which contained design changes to rectify some of the issues discovered in the IS-1. These changes included slimming down the fuselage profile, and reducing the wing area, both intended to reduce drag and raise the performance. It also had more power, replacing the 900 hp of its predecessor with a 1000 hp l M-88 radial engine. The armament was also improved to two 12.7mm BS heavy machine guns and two ShKAS machine guns.

However, the political and military scenes drew the curtain on the further development of the IS-2 and it's uncertain if the sole-built aircraft even got airborne. Some sources state that it first flew in January 1941, made a few test flights and then was shelved because of the German invasion in June that year. Others state that the IS-2 wasn't ready until April of that year and never got its wheels off the ground.

As performance figures, even in the most optimistic sources, are listed as "provisional", it seems most likely that no flight ever took place. Although its available but unconfirmed maximum speed figures were recorded as high as 324 knots (600 km/h (373mph), it's more likely that the IS-2 could not have exceeded 274 knots (507 Km/h or 315 mph). This would certainly make the IS-2 slower than all other monoplane fighters of the time, and its only advantage then being its ability to operate off shorter airfields, may not have been worth the overall effort. This would have been compounded by the added complexity of maintenance in the field for the retract system and the need for additional replacement parts manufactured. Was it all worth it? did the aircraft advantages actually outweigh its disadvantages - an important consideration in wartime? Was it a real performer, or merely another ultimate dead-end experiment in aircraft engineering? Alas – although innovative and clever, it was the latter!

The sole example of the IS-2

The IS-2. Note the recess in the top wing underside to house the retracted lower wing.

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Don't be Surprised!

By Rob Knight

When a person is surprised, like any other animal, their reactions may not always be ideal, correct, or even considered, appropriate, or desirable. In fact, an ill guided, and/or inappropriate reflex action can cause exactly the result the surprised party is attempting to avoid.

But this is not the only adverse result from a surprise. There is also the time it takes to:

1. Gather your thoughts and make sense of a surprise event,
2. Decide that the event requires your attention,
3. Assess the event situation,
4. Decide if remedial actions are required,
5. Consider all various remedial options,
6. Decide on the best or most appropriate remedial action option,
7. Command one's body to make the required control inputs,
8. Have the aeroplane respond to those inputs.

But wait – there's more. The times for each of the listed segments above can be substantially aggravated by a

9. High ambient noise environment,
10. A stressful environment,
11. Personal safety issues,
12. The degree of unexpectedness of the event.

For a piano tuner, being surprised by breaking the piano string he is tuning, this list of items in the action process of resolving the cause of the surprise is no issue whatsoever – he/she has all the time in the world. But for a pilot, surprised by a sudden and total silence at 150 feet AGL just after take-off, it's an entirely different thing. In aviation, there is simply no time to spare, and the lack of time necessary to process and sort the unexpected issue in itself, can be as dangerous as the cause of the surprise. For me, and I'm sure, for all pilots, a headstone statement of, "I died because I followed due process", is unacceptable.

This has long been recognised in aviation training and here, using the example of an EFATO[2] as above, student pilots are taught a mantra checklist of remedial action to be carried out ONLY AFTER the nose has been lowered, to keep the aeroplane from losing airspeed and a potential stall. Even now I can hear my old instructors blasting my ears with the mantra – "Engine Fails - STICK FORWARD, then carry out trouble checks as time permits.

This makes a pilot's vitally necessary reactions to an EFATO much quicker. It doesn't matter at all how good or thorough a set checks or drills is if the aircraft crashes whilst they are being carried out.

For any pilot - FIRST, CONTROL OF THE AEROPLANE MUST BE MAINTAINED. ABSOLUTELY NOTHING ELSE MATTERS IN THAT FIRST INSTANCE.

This can be an important factor in general flying as well, especially where stress is involved. Checking out a pilot in a Mooney M20C one day, we were returning to the circuits for some practice. He was loving the crisp feel and power of the aircraft, and was enjoying the sensations too much: not being a pilot in command of the aircraft. In other words, he was setting himself up for a big surprise.

Cleared to make No3 behind a Grumman AA1B ahead, he trundled down wind, not immediately carrying out the down-wind checks. Late down wind, as he was about to start them, the Tower

[2] *EFATO – Engine Failure After Take-Off.*

changed our clearance to make us No4, behind an additional charter aircraft joining straight-in for our runway. Whilst my student was answering and acknowledging the Tower, he suddenly realised where we were and how little time remained to maintain a correct circuit. He stopped flying and became deeply involved in confirming with the Tower that he had No3 in sight to follow. Suddenly he realised we should have turned base, so he yanked the aircraft around, no checks, gear still up, flaps likewise, and prop still in cruise pitch, airspeed still around 130 KIAS. His hand slammed back, reaching for the undercarriage lever between the seats. But my hand was there first and stopped him: our V_{LO} was only 104 knots. Then he attacked the flaps (which were hydraulic and had to be pumped) but again my hand beat his to the lever. We still held 130 knots and our V_{FE} was a mere 84 knots.

He shoved the prop control fully forward and the propeller RPM rose close to the red-line as the pitch moved towards the fine stop and yanked the throttle closed. I took over and restored power to maintain engine temperatures and prevent the pitch control hitting the full-fine stop. He had completely lost control of the aircraft and his situational awareness. Had he been the P. in C, with passengers, he could easily have set up his own and their demise. Being in a traffic patten, with several other aircraft with lower approach speeds. He was a danger to all as his lookout was, by then, non-existent.

I instructed a go-around from mid base leg. It was the only way I could reduce the stress and over-load, and get him to reset his mental defaults and get his thinking straight so he could again fly safely.

By the time that we had again reached down wind, abeam the upwind end of the runway, the pilot had got the speed under control and lowered the undercarriage. The pitch had been set into full fine and the aircraft was stabilised and trimmed at 100 knots ready to slow down to lower the flaps in the base turn, and make a totally normal approach and landing. He set himself up to be surprised and that surprise robbed him of his ability to fly AND operate the aircraft. When mental overloads occur, a pilot cannot manage everything and so manages nothing. In the situation depicted, the pilot should have flown the aircraft (1), sorted the circuit pattern (2), and then spoken to the tower (3). But, because he tried to do everything at once, he actually achieved nothing.

First, you must AVIATE. Then, and ONLY when aviating safely, you may NAVIGATE. Then, lastly and ONLY, WHEN both aviating AND navigating safely, may you COMMUNICATE.

So important is this issue of avoiding surprise in the cockpit, many aviation authorities implement a special cockpit management scheme. Called the "sterile cockpit rule," regulations specifically prohibit crew member from performing non-essential duties or activities including idle and non-relevant or essential chatter while the aircraft is involved in taxi, take-off, landing, and all other flight operations conducted below 10,000 feet MSL, except cruise flight. Crew members are even prohibited from talking about non relevant issues during these times, so all members can concentrate on their roles in maintaining aircraft and position control without cockpit distraction. Imagine having a detailed discussion on the pleasures of an encounter last night when something unexpected and serious occurs to the aircraft. There is little enough time to cope anyway, and the time lost in such a pilot getting up to speed with his/her flying could be the difference between a successful arrival or a disaster to all on board.

But this is not restricted to heavy aircraft. When I was a junior “C” category instructor, I had a Canadian student called Harvy Sandimirsky. He was a lively character, filled with jokes and good humour and not so much common sense. One hot, mid-afternoon flight we were returning to Ardmore after his first lesson on basic stalling. On short finals, I was pattering the end of the lesson by describing how I was going to land by actually doing a stall so the Victa we were in would land as

[3] Aviate, Navigate, Communicate.

it stalled. Suddenly, taking his cue from the multitudes of war movies he watched avidly, he screamed “Bandit, 12 o’clock high”, when he saw an aeroplane joining 1000 feet above us on the crosswind leg. With his abrupt and extremely loud shout, I nearly died.

As required, I had explained the use of the clock face for indicating relative aircraft positions but his screaming shout was totally unexpected and I lost my concentration. I went around and used the circuit time to set a speech for him back in the briefing room when we got back to the club.

For any pilot carrying passengers, regardless of whether they are friends on a jolly, or charter passengers, they should be asked to remain silent unless something serious is occurring. They should also be advised on how to bring a situation to your, their pilot’s, attention.

The special times for this restricted action are:

- On taxi.
- When doing the run-up,
- On take-off and climb out to 1000 feet,
- On the circuit rejoin,
- Right throughout the approach and landing, and
- During taxi back.

These are the times when you, as a proficient pilot, really don’t want to be surprised.

Happy flying

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If you think you’re smarter than your previous generation….
50 years ago, the owners’ manual of your car showed you how to adjust your engine valves.
Today, the same manuals advise you not to drink the contents of the battery.

The Miles M.9-The RAF's Master Trainer

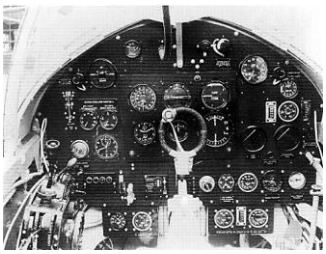
By Rob Knight

Training pilots to fly advanced and sophisticated aircraft is not a one-stop-shop. To be efficient and cost-effective, the machines on which they train must be appropriate to the stage of proficiency at which the trainee rests.

History tells us that the RAF used DH82A de-Havilland Tiger Moths and M.14 Miles Magisters for their elementary pilot training. From these two types, successful trainee pilots then proceeded to advanced trainers such as the Miles M.9 Master. This was a far cry from the two 130 hp basic trainers as the M.9s were vastly more powerful and potentially three times as fast so pilot proficiency had to be raised which was the target for flying operations fighters and other combat aircraft

The Miles M.9 Master I was a two-seater low-wing cantilever monoplane selected late by the British Air Ministry to replace the failed de Havilland DH93 Don. With the initial order of 500 aircraft costing the British taxpayer £2,000,000 in 1938, it was claimed to be the biggest and the most expensive order for training aircraft ever made in Britain to that time, and the aircraft purchased were the most advanced and fastest training aircraft in service use by the RAF throughout the war and, indeed, the world at that time. These M.9A Masters were powered by one Rolls Royce Kestrel XXX, V12, 21.25 litre, 715 hp engine, it reached a maximum speed of 260 knots at sea level. Miles had designed and developed an advanced trainer that could not only perform to similar speeds as the Spitfire and Hurricane, but also duplicated many of their flying characteristics

Miles M.9 Master 1



M.19 Master II Instrument Panel.

The M.9 Mk 1s first flew on 31 March 1939 and, in all, 900 Master 1s were built to train RAF and Royal Navy pilots. Once in service, the type provided a greatly needed powerful, fast, strong, and fully aerobatic aircraft that functioned as intended to prepare pilots for the Spitfires and Hurricanes and other fighter aircraft adopted into the RAF that lay ahead as the war progressed.

An M.19 Master II with a Bristol Mercury engine. Note the glider tow apparatus behind the tailwheel.

Throughout its production life, thousands of aircraft and various variants of the Master were produced, many variants being the result of changing engine availability. The versatility of the design also allowed numerous Masters to be modified for such uses as glider tugs and target towing aircraft, in the form of the Miles Martinet, a dedicated target tug adopted by the RAF.

When production ceased of the Kestrel engine, a new variant of the Master was produced that was engined by an air-cooled Bristol Mercury 870 hp radial. Thus configured, on 30 October 1939, the first M.19 Master II prototype made its first flight. 1,748 M.19 Master IIs were ultimately produced.

Then, later again, after the Lend-Lease program provided a supply of engines from the United States to Britain, a third variant of the Master was produced. Designated as an M.27 Master III, it was powered by the American-built Pratt & Whitney Twin Wasp Junior, a two-row radial engine generating 825 hp. At the end of production, 602 Master IIIs were constructed.

M.27 Master III, with the Pratt and Whitney powerplant.

Perhaps the most radical use of the aircraft was the M.24 Master Fighter. Armed with six 0.303-inch machine guns, it was intended for mass production as an emergency fighter during the Battle of Britain but this model did not ultimately see combat. Ordinary trainer models could also be fitted with armaments, including a single .303 in Vickers machine gun and eight bombs, for training purposes only.

In a typical trainer configuration, all versions of the Master were equipped to carry eight practice bombs, plus the single .303 that was mounted in the front fuselage. During 1942, it was decided to have the wings of all variants clipped by three feet (c. one metre); this modification reduced the stress imposed upon the wings while also increasing the aircraft's maneuverability

Beyond the British air services, other nations also chose to adopt the Master, including the South African Air Force, United States Army Air Force, Irish Air Corps, Royal Egyptian Air Force, Turkish Air Force, and the Portuguese Air Force. Although thousands of Masters and variants were built, as far as is known, no complete examples have been preserved.

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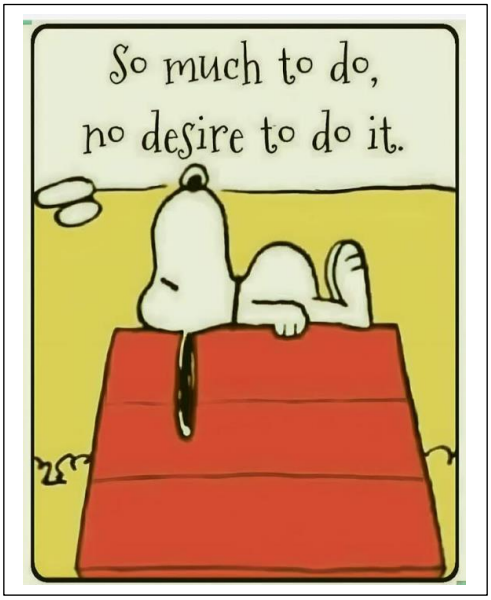
I want a job cleaning mirrors. It's always been a job I could see myself doing



About 100 years ago a couple of brothers said they could fly. They were Wright

FLY-INs 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**

Why I Want to Be a Pilot

By Tommy Tyler, 5th Grade
Jefferson Grade School, Beaufort, S.C.

When I grow up I want to be a PILOT because it's a fun job and easy to do. That's why there are so many PILOTS flying around these days. PILOTS don't need much school, they just have to learn to read numbers so they can read instruments. I guess they should be able to read road maps too, so they can find their way if they get lost.

PILOTS should be brave so they won't get scared if it's foggy and they can't see, or if a wing or a motor falls off they should stay calm so they'll know what to do. PILOTS have to have good eyes to see through clouds and they can't be afraid of lightning or thunder because they are much closer to them than we are.

The salary PILOTS make is another thing I like. They make more money than they know what to do with. This is because most people think that PLANE flying is dangerous, except PILOTS don't because they know how easy it is.

I hope I don't get airsick because I get carsick and if I get airsick I couldn't be a PILOT and then I would have to go to work.

Laughing at your mistakes can lengthen your life.

HOWEVER ...

Laughing at your wife's mistakes can end it mmediately!

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

By Rob Knight

In 1986, as the still-new CFI at the Wellington Aero Club in Wellington, New Zealand, I saw I had a booking with a Dennis T. My deputy of the time, Tim Peake, smiled and wished me luck as Dennis was a renowned and difficult Club member and created issues and social mayhem with every visit.

Dennis was a part owner in a Grumman Traveler AA5, ZK-DLB, that was on contracted hire on the Club's flight line. Tim advised that this had caused serious difficulties for my predecessor as Dennis was very religious and carried God with him. He used God to issue and support edicts about how the Aero Club was to manage DLB and even its own affairs when he saw fit.

Dennis was tallish, wore his yellow-blonde hair short, above wide, staring eyes. He reminded me of the typical self-righteous religious bigot, so often in the cast of B grade western movies. He commonly wore white, baggy clothing and when talking, his hands gesticulated incessantly, and his words came as fast as a machine gun fires rounds. He was decidedly unpleasant and I found very quickly that he saw everyone as either members of HIS congregation, or the enemy.

When we met, he told me that God had directed him to do a CPL and go to Africa to form a Church ministry using aircraft to fly around his congregation. I was to get him a CPL, an instrument rating, as far band a multi-engine rating, all as quickly as possible. And, to conserve costs, I was to do all training possible in the AA5. I sat him down in my office, and told him that it all seemed very laudable, but there were some obstacles. Firstly, the contract between the multiple owners of DLB and the Club contained a paragraph excluding CPL training in the DLB to save insurance costs. We could only use it for conversion-to-type training, private hire, and air charter. I also pointed out that DLB wasn't IFR equipped, so instrument training in it for a rating was impossible except for some very limited panel work.

Several loud and fierce letters passed between him and the club's solicitor but eventually he returned and said that he would train in a Club B77 Skipper and I made his first booking.

I think he was the most difficult person I have ever worked with to get a CPL. Every briefing given raised issues and I had to prove that my briefing was right and his God given understanding of the topic was flawed. God was everywhere. On one flight, at about 200 feet AGL, we hit a black-backed gull which burst the engine cowing apart. He had the quivering, knife-edged sheet of tearing, twisting aluminium filling his windscreen and I took over, did a low-level emergency circuit at about 50 knots so the damaged metal didn't come back on him and send him off to meet his God personally. After I landed, he immediately got on his knees on the tarmac on the flight line and gave his fervent thanks to God for saving him. Note that was "him", and not "us"!

Eventually he passed his CPL and embarrassed both me and the examiner from CAA when he wanted us to join together in yet another prayer. I irritated the hell out of him when he said that God had trained him well and I interrupted and said that, no, it was me, because God had obviously sent him to me to do the training, otherwise anyone could have done it. We did not part as friends.

Our instrument trainer was involved in a ground incident at Woodbourne and was out of the air for an extensive period so his instrument and multi-engine ratings were done elsewhere. After collecting his list of qualifications, he resigned from the club, and packed his family off to Africa.

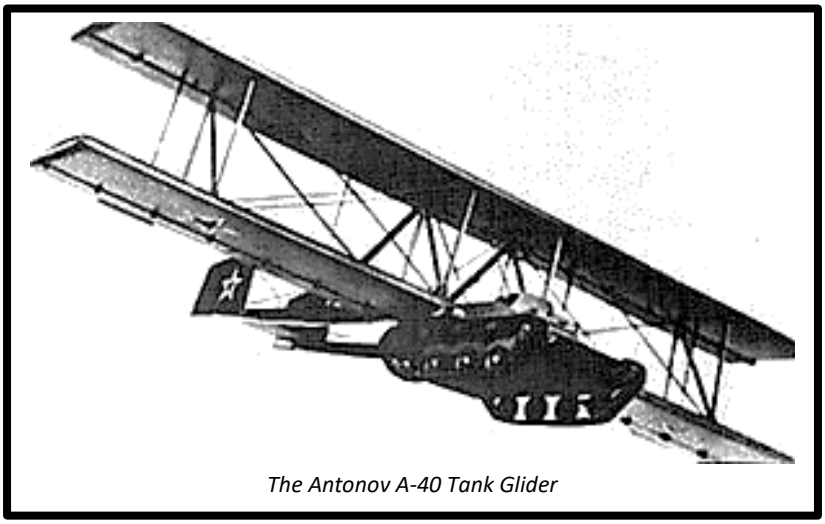
About six months later I was advised by the flight examiner that had done his test that Dennis had died in a Piper Senecca crash. He had impacted a ridge after descending below his approach profile on an instrument approach into an outlying uncontrolled airport at night. There were five on board and they all died of injuries and hypothermia before they were discovered just after dawn. His God must have been still having breakfast at the time.

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

WTF - The World's Worst Aircraft – The KT Flying Tank - 1942

By Rob Knight

During WWII, the Russian military authorities decided to implement measures to improve the supply of light armoured weapons to partisans behind German lines. Hence the A-40 KT Kryl'ya tanka (tank's wings) concept was birthed. The said authorities quickly passed a T60, 5.8 tonne military tank to the Antonov development team and demanded that they produce a set of wooden wings and twin-boomed wooden tail surfaces that could be attached to the tank and thus convert the lumbering tank into a capable and controllable glider.

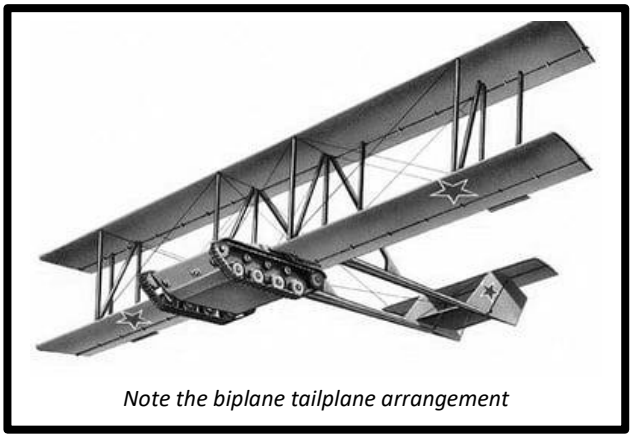


The Antonov A-40 Tank Glider

The Antonov team hit the drawing boards running, and produced the required design, a biplane and tail structure, and the manufacturing side assembled a single set for prototype testing. Unique was the control system – the tank gun was to be raised or lowered to provide elevator control, and the turret rotated left or right for aileron/roll control. No mention is made of how directional control was achieved.

On its first (and only) test flight, the test pilot flew a Tupolev TB3 bomber but even this was inadequate. The drag of the KT carrying the tank was such that full power was necessary to remain airborne but only at a marginal airspeed and the aircraft's engine quickly overheated to a level that was dangerous. The tow pilot was forced to jettison the tow and the KT tank/glider made a smooth landing on a rough field perfectly satisfactorily. With the underpowered TB3 being the biggest potential glider tug available, the project was dropped.

Pilot Sergei Anokin flew the KT contraption from within the tank itself. Before the test flight, he'd been given a crash course in tank driving as he had to use the tank gearbox in neutral to minimise ground drag when being towed on the ground, and to have the engine running and tracks revolving to ease the touchdown forces on landing.



Note the biplane tailplane arrangement

The Soviet authorities and designers soon realised that it was more sensible to manufacture a large glider that carried tanks internally than to try kitset devices to fly the tanks themselves. The concept was determined not to be viable and was terminated.

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

The Boeing P-26 Peashooter

By Rob Knight **M24-181**

Designed and built by Boeing, the prototype aircraft leading to the P-26 "Peashooter" first flew in 1932. This chunky little fighter with its short stubby wings and blunt nose was the first American production all-metal fighter aircraft, and the first monoplane fighter to enter service with the United States Army Air Corps. It was still in use with the U.S. Army Air Corps as late as 1941 in the Philippines.

A P-26A Peashooter, against the Rockies

Funded by Boeing, the project to produce what was first known as the Model 248, began in September 1931. It was a split project, with the US Army Air Corps providing engines and instruments and Boeing the aircraft design and the airframe. The aircraft with its open cockpit, fixed landing gear, externally braced by flying-wire wing design, was the very last such design procured by the USAAC as a fighter.

From testing, the Model 248 had a landing speed that was deemed too high resulting in several accidents. Boeing remedied this shortcoming by adding flaps to wing's trailing edges reduce the landing speed and subsequent ground roll. This resulted in the Army Air Corps ordering three prototypes designated as XP-936s. The first XP-936 flew on 20 March 1932.

During further testing, the pilot noted that the XP-936's headrest was too short and offered little protection should the aircraft turn over on landing, so risking injury to the pilot. Consequently, production Model 266s (later designated P-26As) were fitted with taller headrests to provide pilot protection.

A P-26A "Peashooter", at Duxford, in England.

Operationally, the "Peashooter", as it became known, proved faster than other American combat aircraft of the day. But this was 1934, and the beginning of the most rapid aircraft design progress the world has ever seen, and, in very short order this brand new, top-of-the-range design that could fly at a majestic 203 knots, would be reduced to a mere anachronism. In this same year, 1934, the cantilevered-wing French, Dewoitine D.500, flew, and just two years later, the Soviet I-16 with retractable landing gear was flying. By 1935, just three years after the P-26, first flight, the American Curtiss P-36, German Messerschmitt Bf 109, and English Hawker Hurricane, were flying, all enjoying enclosed cockpits, retractable landing gear and cantilever wings, and vastly improved performance. However, in spite of this, some P-26s remained in service until after the United States entered World War II in December 1941.

Another first for the P-26 was that it took part in the first ever dogfights between all-metal monoplane fighters. These took place when Chinese P-26s in the Sino-Japanese war took on the Japanese A5M *Claude* fighters. Although the aircraft were similar in design and performance, the better trained Japanese pilot opponents gave the Claude's an advantage.

However, when flown adequately, the type definitely retained sharp teeth. When the Japanese later turned their attention towards the Philippines, a small number of P-26s being operated by the Philippine Army Air Corps. Filipino-American, Captain Jesus A. Villamor, from his P-26A, complete

with open cockpit and wire-braced wings, shot down a Japanese Mitsubishi G3M2 Nell bomber, while one of his wingmen shot down an acclaimed Mitsubishi A6M2 Zero. Courage was a common virtue among the outgunned P-26 pilots, but in the end, on Christmas Eve 1941, the last surviving Filipino Peashooters were burned to prevent their falling to the Japanese. For his actions, Villamor was awarded not one, but two, Distinguished Service Crosses for his actions in defense of the Philippines during mid-December 1941.

The P-26A instrument panel.

Although the type was first delivered in 1934 and long since retired by the USAAC, Guatemala actually operated P-26s until 1956 when the replaced them with P-51D Mustangs. Another P-26 distinction is that the Peashooter was the last production fighter aircraft Boeing manufactured until the company absorbed McDonnell-Douglas and rolled out the F/A-18 Hornet in 2002.

There are only two surviving Peashooters. But there are also a further three reproductions on display and two more under construction.

Note on bright and non-military P-26 colour schemes.
A fact of life during the 1930s was lean times and the USAAC ordered P-26 squadrons to paint their aircraft in bright and, in some cases, outlandish colour schemes. The USAAC policy was intended to attract the attention and goodwill of the American public. This crude attempt at PR was the reason why so many P-26s were painted in outlandishly bright hues, and art deco-inspired themes and schemes.

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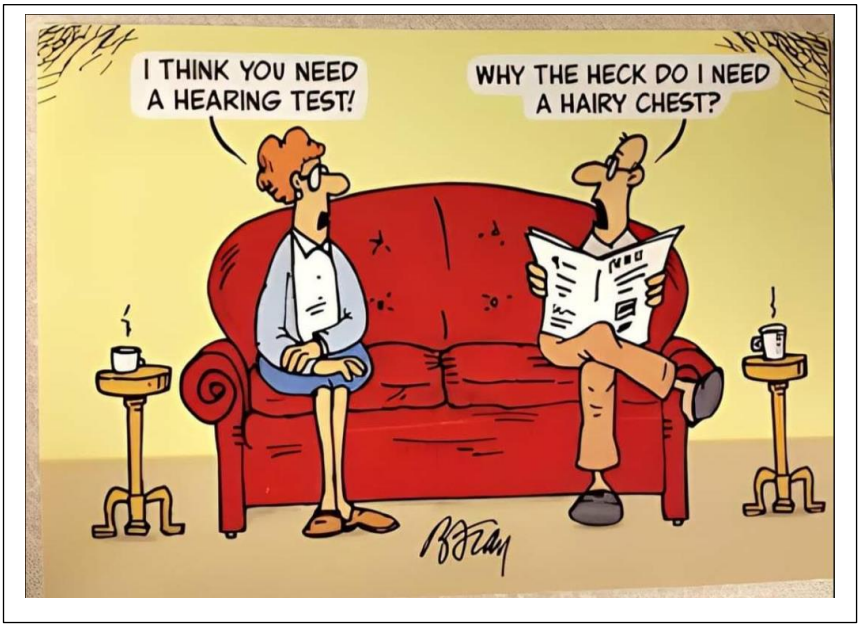


Keeping up with the Play (Test yourself – how good are you, really?)

1. The fixed tab on a particular aircraft rudder normally has no bend. Should the fixed trim tab be bent out to the left accidentally, and not corrected, which what will the pilot need to do to fly in balance?
   A. Hold right rudder.
   B. Hold left aileron.
   C. Hold left rudder
   D. Hold right aileron.

2. An aeroplane is flying around a balloon with a carefully held 45-degree angle of bank at a constant airspeed with a constant arc diameter of 100 feet. If the ambient wind has a velocity of 10 knots theoretically, how long would it take for the aircraft to impact the balloon.
   A. It depends on the gustiness of the wind or it's varying directional component.
   B. 10 orbits of the balloon.
   C. 2 minute and 17 seconds (rounded up to the nearest whole second).
   D. They can never collide.

3. Which of the following cloud options provide rain and showers respectively?
   A. Cb and Cu.
   B. St and Ns.
   C. Cs, and As.
   D. Tcu, Ns.

4. Why is the stalling speed of an aeroplane in a glide lower than in level flight?
   A. Because the angle of attack is lower in a glide than in level flight.
   B. Because lift <weight.
   C. Because thrust <drag.
   D. Because the relative airflow has a lesser angle to the chord line in a glide.

5. What is the minimum flight visibility that must exist for an aircraft to operate under VFR?
   A. 1000 feet vertically and 1500 metres horizontally from cloud
   B. Clear of cloud and in sight of ground or water.
   C. 5000 metres.
   D. A and B are both correct.

See answers and explanations overleaf.

If you have any problems with these questions, see notes below, or call me (in the evening) and let's discuss them. Rob Knight: 0400 89 3632 (International +61 4 0089 3632), or email me at kni.rob@bigpond.com.

1. C is correct.

A left-bent fixed rudder trim tab will hold the rudder out to the right so LEFT rudder will need to be applied to counter the force of the mis-bent trim tab.

2. D is correct.

The aircraft and the balloon will theoretically never collide because they are floating in the same airmass and have no direct movement relative to one another. Their only movement is drift over the surface caused by the wind and that influences them exactly the same.

3. B is correct.

Cumuliform clouds produce showers, because they are cells and have a finite life span, whereas stratiform clouds produce rain. The equivalent of showers for stratiform clouds is intermittent rain. In regards to Cirrus cloud types, these are made of ice crystals and so cannot provide liquid precipitation. Thus, neither rain nor showers fall from cirrus clouds.
Google the key words of, "The difference between showers and rain"

4. B is correct.

In a glide, the total resultant of lift and drag balances the weight, not lift alone. Therefore, drag is supporting some of the weight which, in turn, lowers the wing loading and reduces the stall speed.

5. C is correct.

The minimum flight visibility for VFR operations is 5000 metres. See VFRG.

------ 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:

kni.rob@bigpond.com

Aircraft for Sale

Kitset - Build it Yourself

$1,780.00 neg

DESCRIPTION

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

- Basic plans are included, also
- Hard to obtain 4" x 3" box section, 2 @ 4.5 metres long.
- Wing spar & lift strut material - 6 tubes of 28 dia. x 2 wall.
- 20 fibreglass ribs plus the moulds,
- 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

Ribs, tubes, spats, etc

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

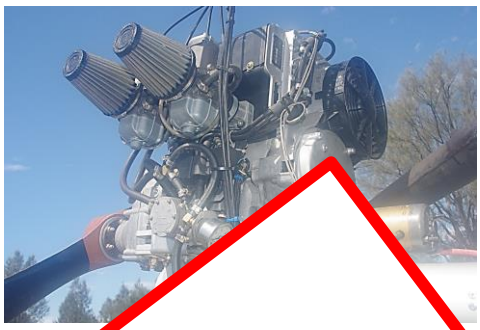
Or Mob: 0419 758 125

Thruster T85 Single Seater for sale.

$9,750.00 NEG

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

The aircraft at Kentville



New E... ...0

Instrument panel

SOLD

Details

Built - 1991	Serial Number - 312
Model - Thruster	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 hangered. 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.

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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