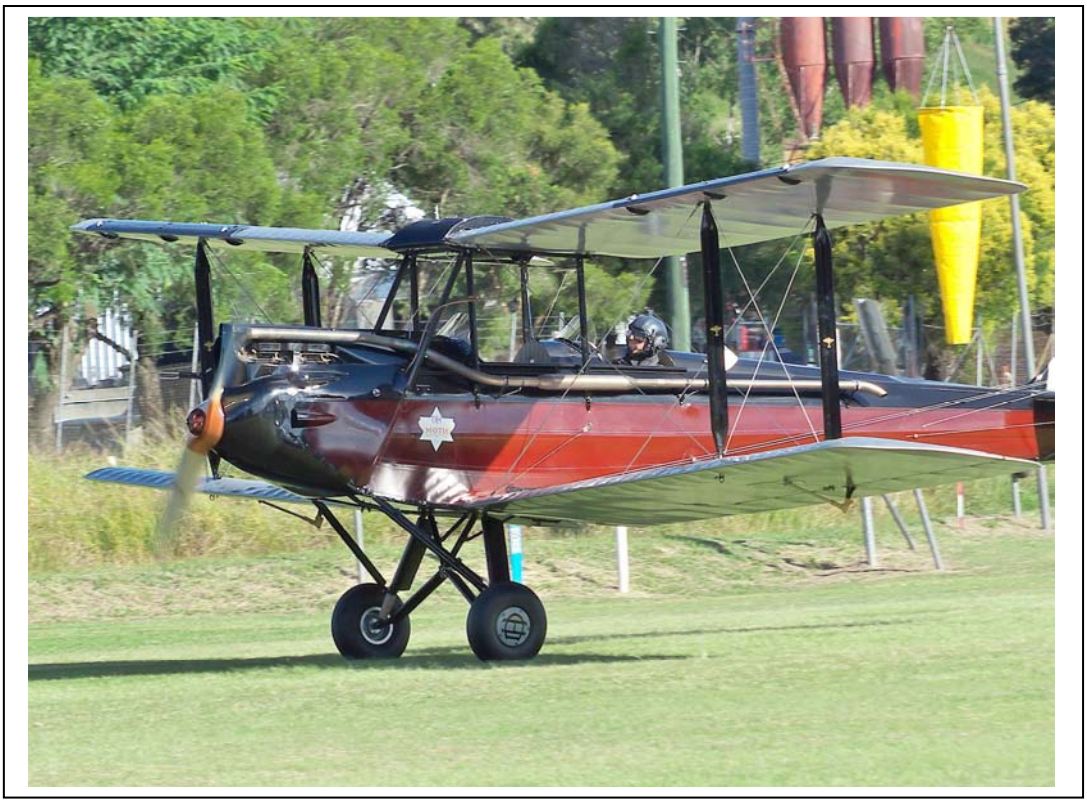
Brisbane Valley Flyer

June - 2015

Brisbane Valley Sport Aviation Club Inc

www.wattsbridge.com.au
www.bvsac.org.au

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



DH-60 Gypsy Moth, VH-UMK, flies again, at Boonah. See story page 6.
(Image by courtesy of Arthur Marcel)

Wayne Petty (President)	0418-602-560	Richard Faint (Secretary)	0412 317 754
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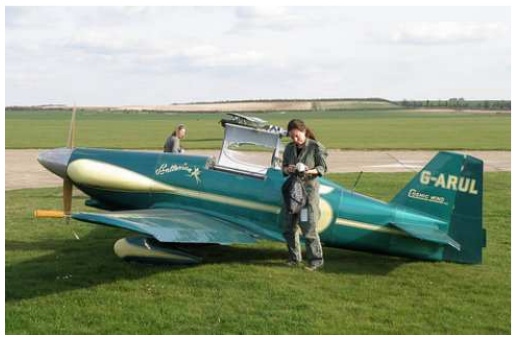
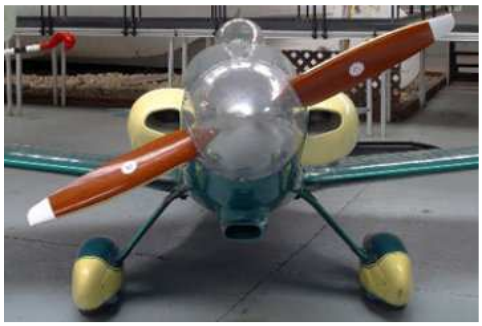
The Cosmic Wind

Condensed from an article by Mark Lambert published in Flight International in 1963.

Through its spectacular performance and manoeuvrability as it streaks through the England's tradition-bound skies, Tony Le Vier's Cosmic Wind has created a tremendous impression since its UK arrival in 1961. Currently registered to Peter Kynsey, it is available for airshows and repeatedly shows just what can be done in the way of speed and aerobatics on a mere 85 hp. and to what a small degree good handling need be compromised in the process.



Cosmic Wind G-ARUL, aka "Ballerina", is one of three such aircraft designed and built in about 1947 for racing by Tony Le Vier, the then chief test pilot for Lockheed, and his engineering associates. The all-metal airframe is very smoothly finished, and designed for a never-exceed speed of no less than 260 kts and formidable + and - g-loadings. The extremely clean wing, with a span of only 5.94 metres, carries virtually full-span ailerons that give prodigious roll rates while the elevator and rudder are also exceptionally powerful. The aircraft is starkly simple. It has no drag-inducing or high-lift devices or trimmers. The tailwheel, although tiny and solid-tyred, is mounted in the base of the rudder and offers precision ground steering. The main wheels, mounted on leaf-spring legs, have toe-operated hydraulic brakes and offer easy handling on grass or bitumen. The cockpit has ample room, even for larger pilots, and the only intimidating feature is the diminutive bubble canopy. This should be called a flying helmet: It caresses the brow of even the shortest pilot, and soundly boxes all ears on rough taxiways and on take-off. Even so, it affords uninterrupted upward and rearward visibility and provides a quite adequate view over and immediately beside the aircraft's long tapering nose.



The 'Wind". Note the monstrous spinner and the tiny bubble canopy above it.

The little Continental C-85-8-J, the aircraft's powerhouse, turns the remains of a McCauley fixed-pitch metal propeller — remains, because the original blades have been ground down to leave a narrow scimitar shape to allow operation at well over 3,000 RPM. Nominal red-line RPM on the C-85 is listed at 2,575, but during full-throttle racing the RPM can build up to at least 3,200 without apparent distress, and the engine then probably produces about 110 hp.

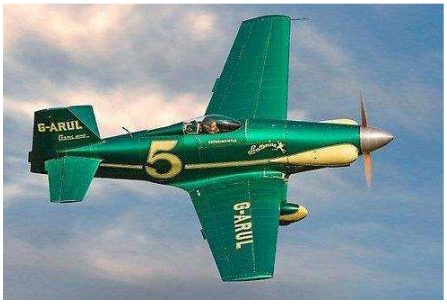
There is no starter and priming in warm weather is simply pulling the prop through a few compressions for sucking-in. In colder temperatures, raw liquid fuel is sprayed into the air intake. During my two flights the engine started on first and fourth swings respectively and the ground-crewman's hands remained reasonably undamaged by the sharp-edged blades.

The "Wind" weighs in at a modest 246 kg empty and 386 kg at gross, which, when pulled by 85 hp, impart a very assertive power / weight ratio. The Cosmic Wind is every inch a thoroughbred; very stimulating and totally delightful to fly.

Although no inverted fuel system is fitted for aerobatics, the engine displays no abnormal tendency to cut under negative G. It does, disconcertingly, tend to cut late in the take-off if the fuel tank is not completely full. The fix seems to being either to close then reopen the throttle, or to apply carburettor hot air. The predisposition can be alarming when one is using rough or short fields.

The normal fuel load of 55 litres is held in a tank ahead of the instrument panel. Another tank – a ferry tank— is located behind the cockpit with an on/off cock way forward above the pilot's shins. The cock is normally

left on at all times, but to satisfy an airworthiness requirement a small white knob and wire are provided beside the instrument panel so that the pilot can cut off fuel in emergency without loosening his seat harness. Fuel cannot be turned on again with this control— and thereby have hung some rather unpleasant moments, because the knob is readily confused with the carburettor hot air control, which has to be actuated in the same direction when the engine is throttled back.



A picture in flight

Normal fuel consumption is 21 litres/hr at 2,500 RPM., at which figure the Cosmic Wind bowls along at 140 kts. The fuel gauge is a float-and-wire assembly sticking up just ahead of the canopy. Safe endurance is stated to be 2 hours, giving an extreme range of 320 miles.

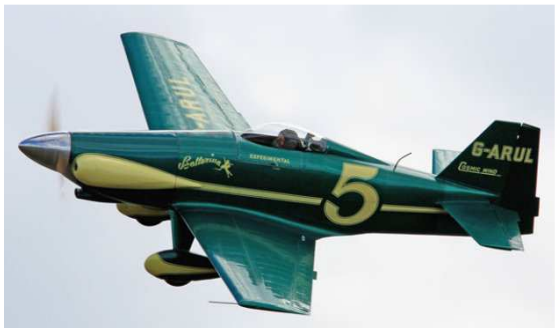
The Handbook V_Y speed of 100 to 105 kts gives a climb rate of 2,500 ft/minute. On approach, the same Handbook requires 74 kts with a trickle of power. The basic stall speed is listed as 55 kts.

Cockpit instruments include two special clocks, g-meter, airspeed indicator, turn-and-slip, altimeter, two magnetic compasses, Tachometer, intake pressure gauge, oil pressure/temperature gauge, and cylinder-head temperature indicator with its sender selector. The seat is set to take the pilot plus a back-type parachute; the safety straps are the standard American quick-adjusting four-point harness. The access panel on which the little canopy blister is mounted is normally hinged open and bolted shut with a single three-point piano-hinge-type bolt. Both hinges can be released from either inside or outside the cockpit and the canopy can be very simply released.

Having absorbed this "miscellany" from the handbook and from careful briefing by members of the Tiger Club, I found myself sitting in the little beast with engine running, feeling nervous and looking up at the encouraging smiles of various people looking down at me. Engine noise was surprisingly low, even though I wore no helmet, and I was very comfortable. Taxying out across fairly rough grass, I found that the nose had to be swung slightly from side to side to keep the ground ahead in view, and a good deal of clanking and rocking accompanied my slow progress.

I chose the longest take-off run available, accepting the light cross wind. I ran up the engine. Satisfied, I checked the fuel and instruments, and that my harness was tight. There were no flaps or trim, this is a very simple aircraft. I swung onto the imaginary centre line and gradually increased power for the takeoff.

The Wind began bounding across the turf more and more purposefully, and the nearer it seemed to getting airborne the more my head bounced around inside the canopy blurring my eyes to the external scenery. I kept the stick pretty well still because I had been shown that, with the fuselage level, the propeller tip clearance was minimal. At one stage I thought the Wind was airborne, though I couldn't focus on the ASI, but it sank back and continued its rabbit-like advance.



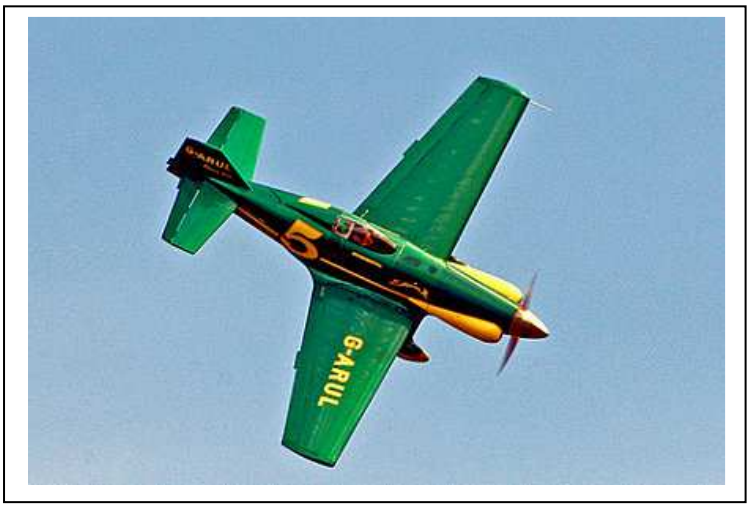
Finally I felt and saw that it was flying, the head-butting ceased and the view came into focus. Speed was building up rapidly past 70 kts as I kept the aircraft poised close to the ground only allowing the nose to gently ease up when I reached 105 kts. Then we were really in business and the ground fairly melted away as we zoomed straight up through 1,000 ft.

I quickly realised that the Wind was beautiful to fly. Its large powerful ailerons requiring such a light touch to operate it was stable and delightful to handle. I watched the RPM carefully as it built up quickly, but managed not to exceed the book limit (which I proposed to observe) until we had got to somewhere near 150 kts. The nose was well down below the horizon and the forward view had greatly improved. Longitudinal stability made itself felt by a gently increasing nose-up

tendency, but the stick force was not at all uncomfortable to hold. Rapid wing waggling showed virtually no adverse yaw and the rudder was extremely powerful. A few fairly fast turns and some zooms showed no untoward tendency to lose speed in turns, despite the very low horsepower. I had rarely known an aircraft which so deftly inspired confidence

Before doing anything more with the Wind I wanted to assess the stalling behaviour, particularly under acceleration, and, at 3,000 ft, flew to the east of Biggin Hill. I wanted plenty of height to spare. It was then that I gave myself my nastiest moment by throttling back and cutting off the fuel instead of applying carburettor heat. I wrestled beyond the instrument panel to find a fuel cock I had never seen - and would never see anyway – until, with a good thrust with my right toe, I finally found it and fuel flowed again.

I found that the Wind's initial stalling characteristics are interesting insofar as the long-span ailerons will stall a wing at well above the real stalling speed with any coarse control application. From about 60 kts downwards I managed to stall each wing with aileron, then achieved full-blooded aileron reversal and finally got the stick firmly back at about 55 kts. The nose hardly dropped and there was ample rudder to juggle the aircraft downhill in a level attitude. There was no apparent inclination to spin, but I lost well over 1,000 ft during my slow and rather experimental deceleration to the full stall. There was virtually no warning of the stall onset and the stalled wing dropped hard and noisily, though not far. My overall impression was of distinctive but surprisingly civil stalling characteristics.

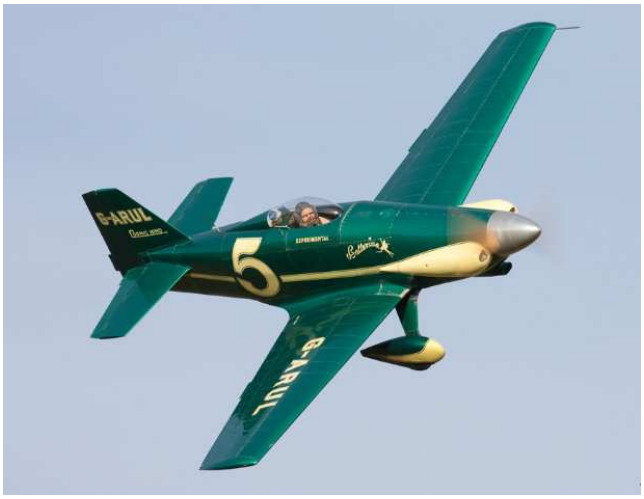


A jet fighter on just 85 hp.

I next made increasingly steep turns and found that the Wind would snap into a stall extremely firmly but, if the back pressure was immediately released, would just as immediately re-establish normal flight. There was again no undue tendency to flick in the rolling sense. I found that I could pull two extra g (3g indicated) at 85 kts and well over 5g at 145 kts, the first figure signifying a very good manoeuvre capability for the initial approach to landing. I next tried slightly upward rolls at 115 kts and found that they could be made at the rate of approximately one per second without the need for any rudder or elevator co-ordination—just like a jet fighter. Four or five consecutive rolls in level flight tended to end nose-down simply because the flight trajectory tended to droop. My first loop from 150 kts included a couple of rough g-breaks as I was too keen not to lose speed at the top, but subsequent loops were complicated only by having to make fairly precise use of the sensitive rudder. Rudder loads were rather lower than is comfortable for such precise control with a powerful surface. I looped at 140 kts and felt that the aircraft would quite happily have looped from an entry speed considerably lower. In all accelerated manoeuvring the stalling due to high loading had to be watched, but I managed to not once flick it onto its back. Engine RPM rise was very rapidly and could easily exceed the book limit in a dive at anything over 150 kts but could be held in check by normal use of the throttle. There may have been some constant-speeding effect, but it was not conspicuous. It was very noticeable that engine thrust acted through the centre of the aircraft and changes in power produced virtually no detectable trim-changes.

By now I was really enthusiastic about the Wind and returned to Redhill to settle any landing issues. I flew the downwind leg at 105 knots at 500 ft, exactly as instructed, and turned in late for a long final approach, again, with the slight crosswind. I found it very difficult to reduce speed and lose height at the same time, but by carefully juggling the speed and height, and throttling well back, I managed to set up a very shallow approach

at about 75 kts to cross the threshold at about 15 ft. In view of the Wind's known tendency for excessive float after the flare, this seemed a fraction high, so I opened up and made another circuit.
The next time I arrived a touch slower and lower; there being much more sink available at this reduced airspeed. The float was indeed lengthy and visibility not too good over the nose, but control was so precise and easy that I found I could accurately brush the wheels on the ground when the time came. Directional control on the ground was excellent and the actual run not too long, though the usual bucking made progress rather blurred. Provided one achieves a key position—speed and height correct over the threshold—there are no problems at all and landing was delightfully easy. Speed and height on the final approach have to be juggled with care, just as they do in any low-drag aircraft, but the overshoot is sufficiently positive to make another try well worth making if there is any doubt. My second landing was in a fairly strong crosswind, but by approaching slightly wing-low I had no trouble in countering drift and felt absolutely no effects once on the ground. One could approach rather more slowly but only at the risk of experiencing the various pre-stall phenomena, particularly in bumpy weather.



Quite the most exhilarating small aircraft
in the British Isles.

The primary purpose of my second flight was to sit in close formation with the Tiger Club's Super Cub for a photo shoot. I used a relatively modest 85 kts to fit with the Cub, and the Wind handled magnificently. I tucked close in under the Cub's wings with precision and ease , although the rudder was a trifle over-powerful for small corrections. The engine did cut during my second take-off, but I quickly half-closed the throttle and it picked up again.
The reactions of club-trained pilots to the Wind seem to vary a good deal. They MUST become accustomed to reacting promptly to an incipient stall out of a steep turn, which is unusual in the average club aircraft nowadays. They also have to learn to live with rather slippery characteristics, particularly during the approach. But the hurdles are not major ones; and if these small points of technique are understood the Cosmic Wind presents no problems (except for that fuel cut-off knob). To my mind, it is quite the most exhilarating small aircraft in the British Isles.

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

Addendum

At Christmas, in 1958, my parents gave me a book, "The Eagle Book of Aircraft". I still have it and on page 115 is displayed a photograph of the original Cosmic wind as flown by Tony Le Vier. This little aircraft has haunted me all my life as being one of the most desirable little aircraft I have ever had the fortune to notice. Even now, 57 years later, if I was looking to build a small single seat aeroplane I would be considering it.

The Cosmic Wind on page 115.

Rob.

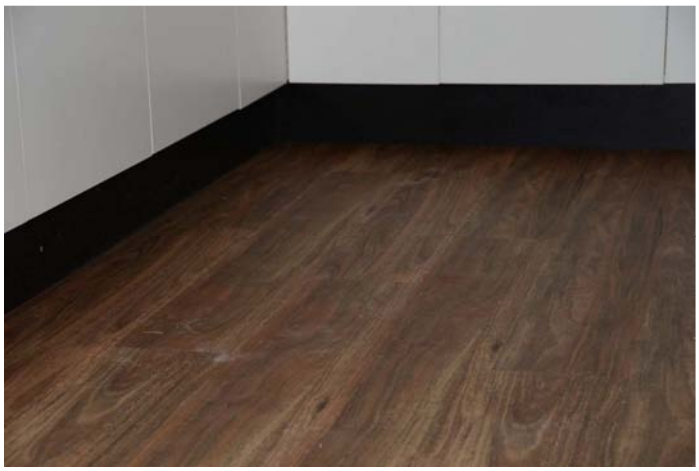
The June Front Cover

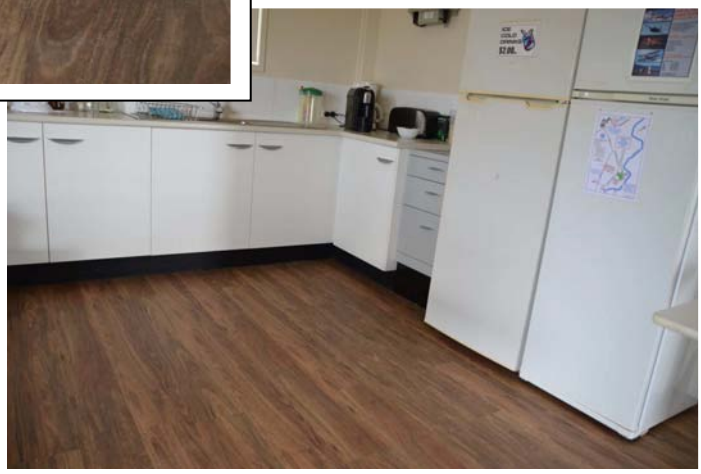
Bill Finlen at Boonah has a new addition to his mechanical avian menagerie. It's Gypsy Moth DH-60M, VH-UMK. It was manufactured in Australia in 1929 by Genairco before the Genairco Company began to build their own equivalent aircraft in the early 1930's.

This DH-60 received its Australian Certificate of Registration on 19 November 1929. In 1934 the aircraft was sold in New Zealand where it was registered ZK-ADW and operated around the central North Island until it was withdrawn from service in 1947. This DH aircraft type has a significant Australian history in that they were used in the 1930's search for Lasseter's gold reef by the Central Australian Gold Expedition. In the photograph on the front page, the aircraft is being flown by one of the Southern hemispheres most prominent guru's on DH Moths, New Zealander John Pheasant.

BVSAC's Clubroom Floor now Covered

At last the floor in our BVSAC clubrooms has been covered. It's thanks to President Wayne Petty who carried out the deed. Many thanks, Wayne. What will you do now that it's been competed?





Remember now – WIPE YOUR FEET - before entering!

REMINDER – 2015/16 Club Fees due 30/6/15

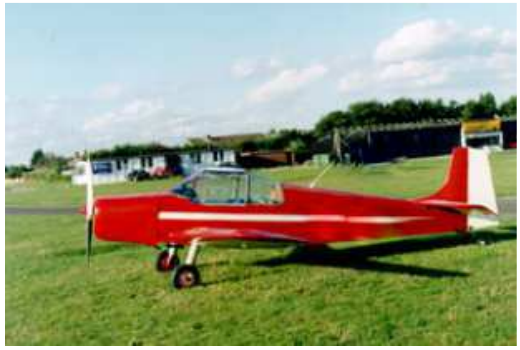
Look out for your BVSAC Renewal of Membership invoice in the first week of June.
Please note that, if you have changed your email address in the last year, please advise the BVSAC treasurer at treasurer@bvsac.org.au or phone 07 3206 3548.

FLY-INS Looming

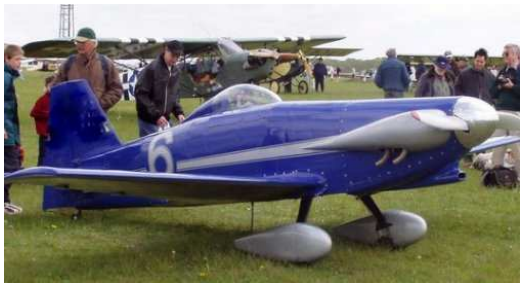
June 06 - 07	Mt Archer	Wings of Life vintage Fly-In
June 06 - 07	Inglewood	Inglewood Fly In
June 13	Murgon	Angelfield Morning Breckie Fly-In

Mystery Aircraft (June Issue)

What's this?



Mystery Aircraft (Last Issue)

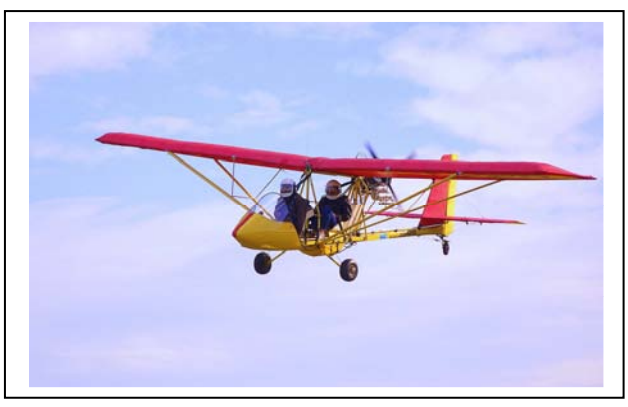


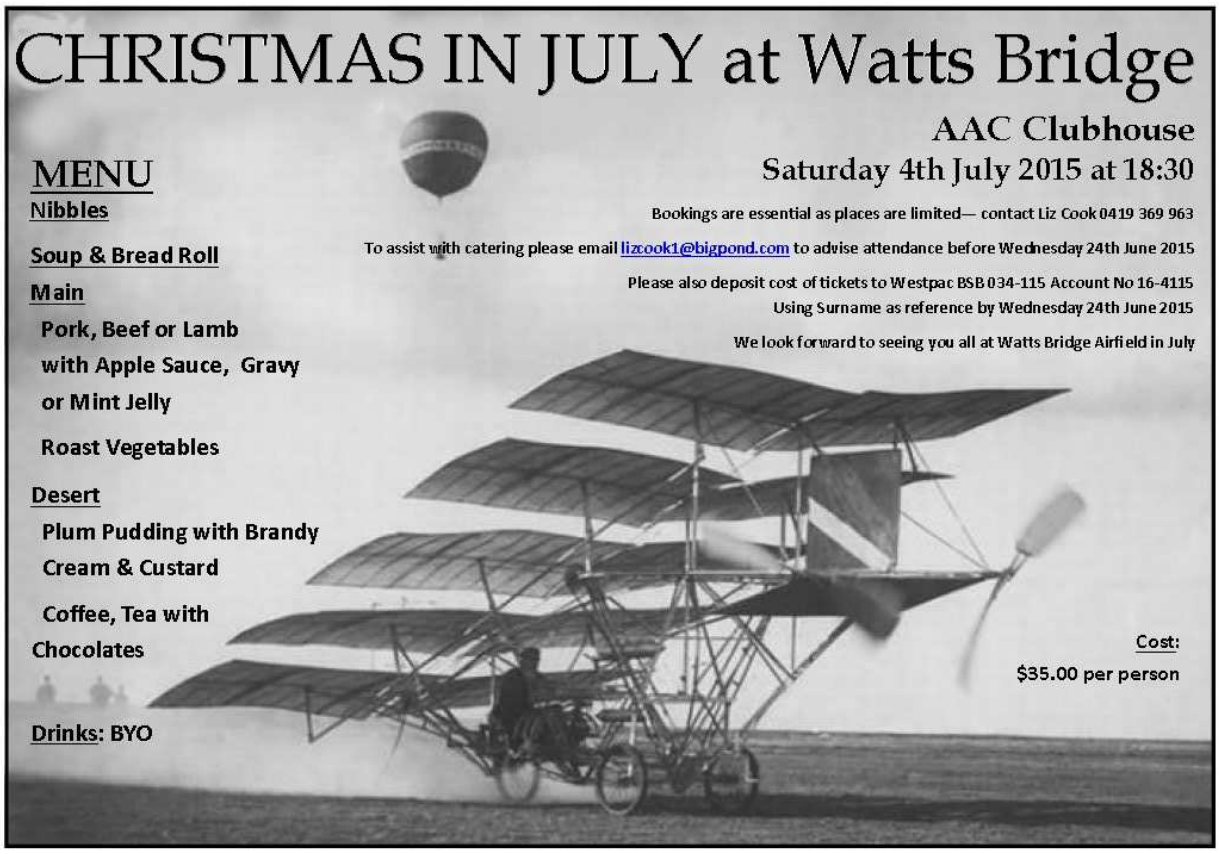
This is a Cosmic Wind. It was designed by Tony Le Vier, the chief test pilot for Lockheed in 1947. Primarily a racer powered by a C-85 (85 hp) hp Continental engine, it was constructed by a group of Lockheed engineers and still flies today in the UK. See the article on page 2 in this publication.

Congratulations to Richard Faint for getting this one. As there are just 4 in the world – he did rather well.

BirdsiPhotography

Want an air-to-air or ground shot of you and your dream machine? It's easy to arrange and will cost less than you might think. Grab the phone and contact Peter Davies or Rob Knight on 0400 89 3632,
or email kni.rob@bigpond.com





Christmas In July.

As the poster above indicates, put Saturday 04th of July 2015 aside for our mid-year festivities beginning at 1830 hours.

The menu is stated above as is the cost.

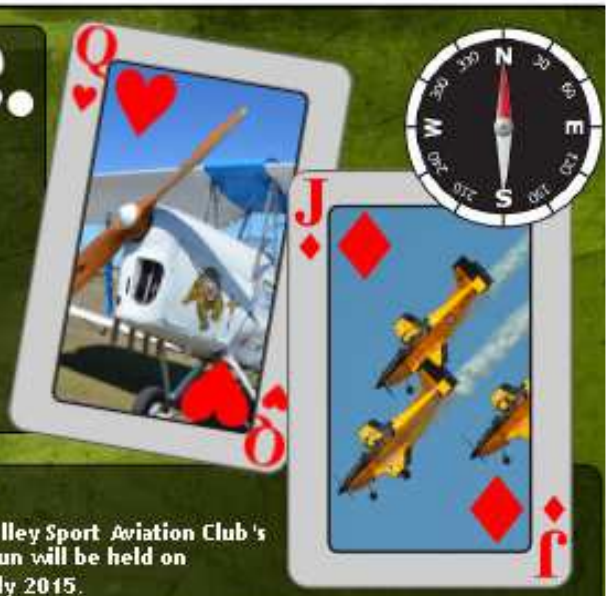
See you there then!

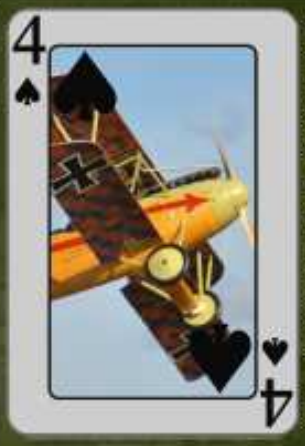
REMEMBER Peter Biddle?

As was indicated in the May Flyer, at the BVSAC's June 6th Meeting we are going to have a guest speaker - Peter Biddle. Peter is a Watts Bridge member and was a founding member of the Queensland Vintage Aeroplane Group. He currently flies a Cessna 170a having also owned an Auster and Tiger Moth.

As given in the May Newsletter, having done a 5 day advanced flying course in Alaska, Peter has generously agreed to speak at our June 6th meeting recounting his Alaskan adventures along with photographs etc.

B.V.S.A.C. FUN FLY POKER RUN 2015





THE EVENT

The Brisbane Valley Sport Aviation Club's Fun Fly Poker Run will be held on Saturday 4th July 2015.

Starting time is 9:00am and finishing at 2:00pm.

It doesn't matter what you fly– Recreational, Homebuilt, General Aviation, Gyroplanes – we would love to have you join in the fun !!

THE GAME

Fly to any three of the participating airfields, Bradfield, Kilcoy, Gatton Airpark or Mc Carron's Field and collect an envelope which contains a playing card from underneath the primary windsock.

DO NOT OPEN ANY ENVELOPES UNTIL REGISTERING AT THE BVSAC CLUBHOUSE – WATTS BRIDGE.

You can start anywhere you like and go to the airfields of your choice in any order that suits you.

Then just fly on to Watts Bridge Memorial Airfield where you pay your entrance fee of $5.00 and register your hand.

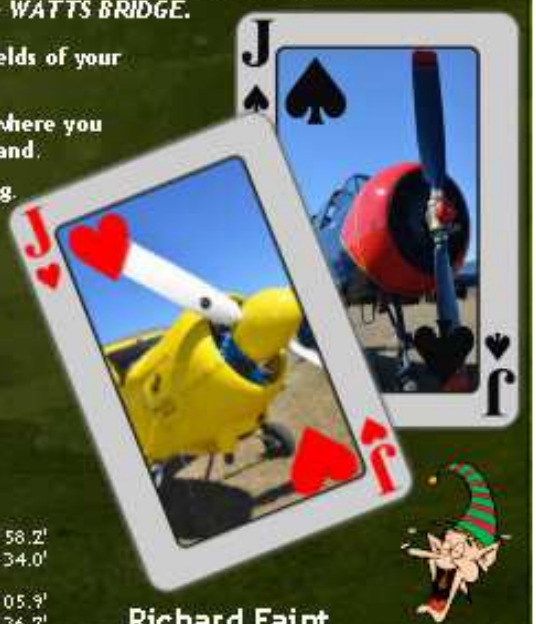
BBQ, Drinks and Snacks will be available all day long.

THE WINNER

The organizers will have drawn two cards at random prior to the start of the game. These cards will complete the five card hands for all players.

The best Poker Hand wins the Trophy for 2015.

THIS IS FUN FLYING AT ITS BEST, SO COME ON AND GIVE IT A GO !!



AIRFIELD LOCATIONS

BRADFIELD	S 27° 25.1' E 152° 24.1'	KILCOY	S 26° 58.2' E 152° 34.0'
GATTON AIRPARK	S 27° 35.4' E 152° 15.4'	MC CARRON'S FIELD	S 27° 05.9' E 152° 36.2'
WATTS BRIDGE	S 27° 05.9' E 152° 27.6'		

If you have any questions : please contact :

Richard Faint
Phone: (07) 5427-0816
Mobile: 0412-317-754
Email: richard@auav.org

Aircraft Tire Care Basics: Inflation

Tires are arguably one of the more important components on an aircraft as they operate under pressure and loads in a variety of environmental conditions. Inflation is a key factor in maintaining any tire's performance and safety characteristics.

In addition to a normal tire care and maintenance routine, a pilot/owner should always pay close attention to the inflation pressures of the aircraft tires. Perhaps the most important service a pilot/owner can perform on an aircraft's tires is to make sure they are properly inflated at all times.

Tire pressure should be checked prior to the first flight of the day. If the aircraft makes multiple flights per day, tire pressure should still be checked daily on the first pre-flight inspection. Whether using tube type or tubeless tires, the operating pressures should be set following the instruction given by the airframe manufacturer. To actually read the pressures, a good tire pressure gauge is essential. This precludes all cheap options from such outlets as Supercheap Auto and Auto Barn. For such an important issue, accuracy counts.

During the first 12 hours after fitting and initial inflation, aircraft tires will generally grow between 6–10%. This is due to the stretching of the nylon plies that make up the internal structure of the tire. This growth will cause the inflation pressure of the tire to drop 6-10% as well. This is entirely normal, and is accounted for during fitting procedures.

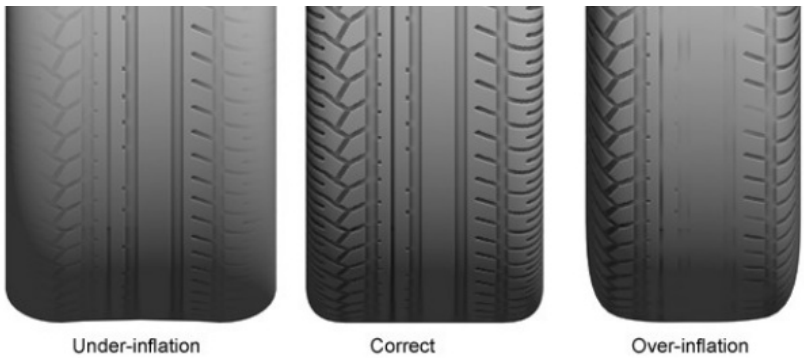
Too little pressure can be harmful to aircraft tires and thus dangerous to aircraft, crew, and passengers. Wear is likely to be experienced on the shoulders of the tire – the outside edges of the tread. Aircraft directional control will also deteriorate as the tires will tend to roll on the rims resulting in directionally instability on the ground. Under inflated tires also tend to creep or slip on the wheel rims when stressed during aircraft operation, especially when brakes are applied. Such creep can tear out valve stems and the tire, tube, or complete wheel assembly can be damaged or destroyed. Excessive shoulder wear may also be looked for during the pre-flight. Under inflation can also allow the sidewalls of the tire to be crushed, causing bead damage and making the tire unsafe to use. Severe under inflation may cause ply separation and tyre degradation. This same condition can cause inner tube chafing and a resultant blowout.

Operating a tire at a higher pressure than required or specified will cause increased wear at the centre of the tread. This will reduce the life of the tire and make the tire more susceptible to bruises, cutting, and shock damage.

Proper inflation is critical to achieve the desired wear characteristics of the tire. The illustrations shown here are examples of both over inflation and under inflation.

Please be aware that the above suggestions are guidelines. Always refer to an aircraft owner's manual or a certified aircraft technician/mechanic for detailed tire care and maintenance.

Images of tire wear on automotive tyres.



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

1. Within what radius of an aerodrome is a TAF valid?
   A. 5 km.
   B. 7 km.
   C. 10 km.
   D. 12 km.

2. When discussing a great circle track, which of the following statements is/are the most correct?
   A. A great circle track may be either a curved line or a straight line in relation to the meridians it crosses.
   B. Only one great circle track intersects the meridians it crosses at 90°.
   C. A great circle track is always the shortest distance between two points on the earth's surface.
   D. To accurately fly a great circle track it may be necessary to change heading regularly regardless of the wind velocity.
   E. All the above are correct.

3. A pilot fails to change his/her altimeter subscale setting to a new and lower QNH at their destination. Will the altimeter read lower, higher, or correctly at the destination?
   A. Exactly as it should – it will still be accurate.
   B. Low.
   C. High.
   D. Possibly none of the above, depending on the pressure lapse rate.

4. What disadvantage/s is displayed by aircraft manufactured with sharply tapered/pointed wing tips?
   A. Because sharply pointed wing tips increase profile drag through induced tip vortices.
   B. Because sharply pointed wing tips adversely influence the L/D ratio.
   C. Because sharply pointed wing tips provide very poor stalling characteristics.
   D. All of the above.

5. Excluding wind velocity and altitude factors, flying for range is essentially a problem involving which of the following?
   A. Flying with minimum total drag,
   B. Flying the aircraft at its best ratio of lift to drag.
   C. Flying with maximum IAS.
   D. Any of the above depending on the aircraft type and the manner in which it was loaded.

ANSWERS: 1. A, 2. E, 3. C, 4. C, 5. B.

If you have any problems with these questions, call me(in the evenings) and let's discuss it! Ed.

--ooOOoo—

BRISBANE VALLEY SPORT AVIATION CLUB Inc

MEETING Minutes

There are no minutes for a May meeting because the meeting scheduled for May was cancelled due to inclement weather

NEXT MEETING: The next meeting will be 06th June 2015 in the BVSAC Clubrooms Watts Bridge at 10:00AM.

As usual, a BBQ lunch will follow the meeting.

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