BRISBANE VALLEY FLYER

May - 2018

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.

A Weightshift Trike at Watts Bridge All-In-Fly-In

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Ian Ratcliffe (Treasurer)	0418 728 328	Rob Knight (Editor)	0400 89 3632

From the President

Message from the President

April Information updates

Hi All
By now you may have heard that the motion to accept or reject the **Company Limited Liability was defeated**.

Therefore, it's onwards and upwards, now that the decision is final.

It's time to concentrate on the upcoming events such as the Caboolture Gliding Club coming to Watts from the 5th to the 7th May. Please welcome our fellow flying brothers to the field

Red Thunder Information session put on after lunch was presented by Gill Vardy and James Crocket, It was very detailed and informative to say the least, the preparation and planning is extremely detailed.
Site layouts plans (visitor parking, aircraft parking, air show plans and timing of each event, vendor location, security at the event, alcohol and entertainment location, kiddies entertainment area, aviation displays the list goes on.

Club members will be given an airshow family pass along with parking passes

For those members wishing to park at the clubhouse there will be only limited space available This area will be reserved for volunteers at the BVSAC club over those days

There will be plenty of parking for members in the general parking area

Plans for the sale of Pies and Sausage rolls are well under way, A cold room has been hired to store the Pies and Drinks

Food warming equipment has been sourced there will be a Gas powered oven to heat the pies initially then transferred to a maintainer oven prior to placement into the Pie warmers in the servery

It is estimated that at least 10 BVSAC volunteers will be required each day to help sell drinks and pies Please if you can help get in touch with Peter Ratcliffe, Mike Smith or myself, this is a great opportunity to earn money for the club.

A lot of thought and effort has been put into the planning and preparation of the event by the BVSAC committee **WE NEED YOU HELP TO MAKE IT A SUCCESS**

Red Thunder are also seeking volunteers to assist with tasks on the field during the Air show if you want to volunteer please go to the website https://redthunder.com.au(Get Involved section)and complete the volunteer section, follow the prompts.

If you are a BVSAC member but not a Watts member and you wish to help out at the club as a volunteer or the Red Thunder eventyou will need to fill in the volunteer section as well and name BVSAC as your area you want to help in.

By filling in the volunteer section this will get you a parking pass and entry pass to the air show.

BVSAC members and friends, there will be **no alcohol served or consumed at the clubhouse or inside its boundaries during the air show**, if you wish to drink alcohol there is a location set aside.

Email from the BOM
Members

We are calling for volunteers to assist with erecting the carpark and crowd fencing for the Red Thunder airshow. As per previous advice this is part of the agreement we have with the airshow organisers and is similar to that put in place for the BVA in 2016.

Volunteers are required for the weekend of 5-6 May, 12-13 May and 19-20 May. If you can assist, even if only for a day, please let Peter Freeman know at m_i_officer@wattsbridge.com.au

Cheers all

Sandy

Stay Wide O' Wake

By Rob Knight

Wake Turbulence – that trailing issue that can be a problem ahead or Stay Wide o' Wake.

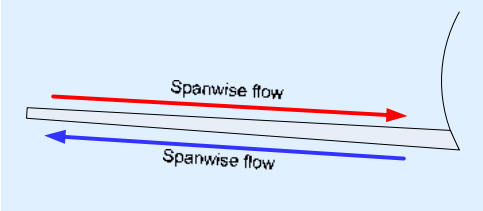
When relative motion exists between a body and a surrounding fluid the fluid will be disturbed. This disturbance is easily viewed when the fluid is visible such as a boat moving across water. Everyone has seen this, from the gentle ripples of a slow-moving sailboat, to the white spray from a speeding boat pulling water skiers.

Wakes also exist in the air; why not – it's fluid? In fact, the atmosphere is full of wakes. Mechanical turbulence is mostly the wakes from upwind obstacles. The downdraft in the lee of a hill, the rotor behind a range of hills, and the standing wave in the lee of a mountain range. These are all natural events cause by a disturbed wake trailing downwind of a geographical obstacle.

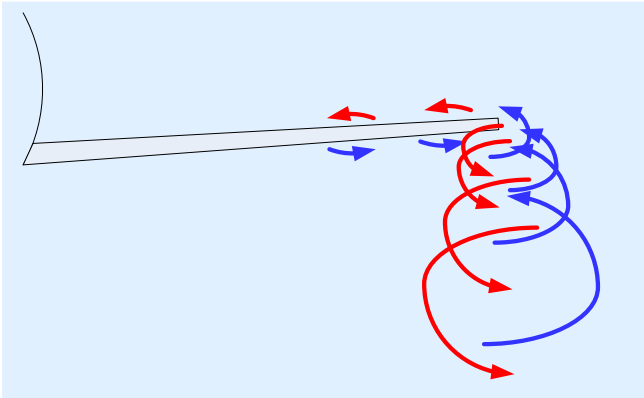
Aircraft also have wakes, in exactly the same way as boats. But boat's wakes are visible whereas aircraft wakes cannot be directly seen as air is invisible. Only when an additional medium such as smoke or water condensate is introduced into the part of the atmosphere where wake is present can an aircraft's wake actually be seen. However, once felt, it is seldom forgotten.

In our training we have all experienced flying through a wake. The instructor watches as we haul our aeroplane's around in a steep turn and comments favourably when, as we roll out, we get the quick rattle and roll as we pass through the air disturbed at our entry point. Whilst this is often termed *slipstream*, and while propeller wash will be a part of the air disturbance we experience, most of it is wake from our wings that gives us this signal of a turn well carried out.

So where does this "wake" come from? As with most things – it's really quite simple. Our wings generate lift using a relatively high pressure region area beneath, and a relatively low pressure region on top. At the tip of the wing, air is free to spill from beneath the wing to the top surface – a direct result of this pressure differential.

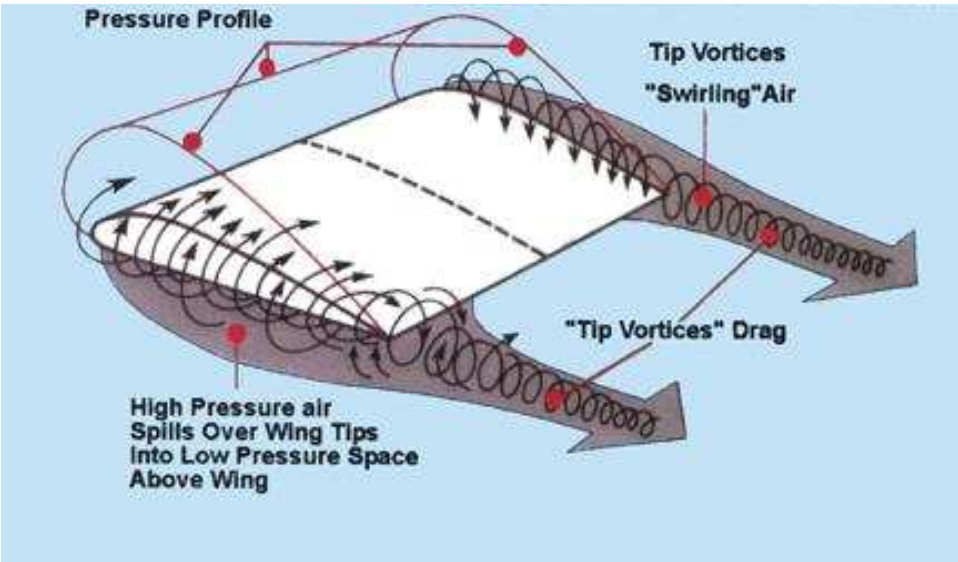


If our wing could experience this pressure differential whilst stationary, there would be a constant spanwise flow, from wing root to wing tip on the underside, and from wing tip to wing root on the top side. But our wing is not stationary. As it travels forward, the wing advances but the air does not and the spillage at the tip becomes a horizontal whirlpool or vortex. The air still flows outwards towards the tip along the underside of the wing and inwards from the tip on the top, but the great significance to us is that swirling of air at the tip, the vortex, that is both the cause of induced drag and the cause of wake turbulence. The sketch on the left is designed to display the concept of general air movement about the wing and tip during flight, but it in no way clearly depict the magnitude of the revolving mass of air behind the wing tops. To illustrate this better, see the images following.



The image below illustrates the effects of

wing-tip spillage on both wings. In both cases the air spills from beneath to the top surface so the two vortexes rotate in opposite directions.



Several factors can modify the amount of wing tip spillage and therefore the amount of spanwise flow. Obviously if there was no wing tip there could be no spillage, so the plan form of the wing is a major factor in the wake vortices developed. In this I mean the size of the tip compared to the wing area. Another name for this is aspect ratio and aeroplanes, such as gliders, that have very high aspect ratio wings (large span/short chord) will have a very small tip for their wing area. Thus there is little wake behind a glider. Another factor is wing loading. The greater the wing loading the greater will have to be the pressure differential and, as it is the pressure differential that causes the spanwise flow, heavier aircraft tend to create far more wake turbulence. That does not mean to say that the wake behind a light aircraft is puny – the wake behind a light twin or a heavily loaded single can easily roll another light or ultralight aircraft inverted, in a fraction of a second.

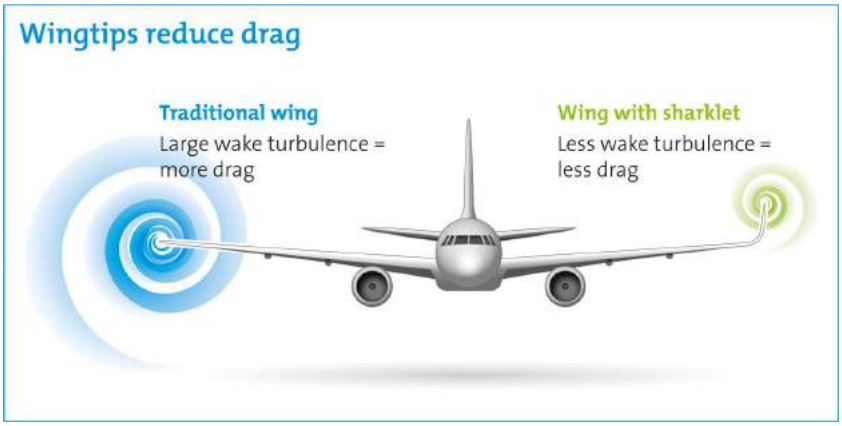
Another primary consideration is the angle of attack of the wing of the aircraft forming the vortices. The greatest pressure differential between the two wing surfaces on any given wing is at the critical angle. In other words, the higher the angle of attack, the greater will be the magnitude and power of the tip vortex.

The two vortices that trail behind the wing tips don't remain at the same level as the aircraft that formed them. They grow larger in diameter, and descend slowly, at perhaps around 100 feet per minute. They also drift apart, at about 5 knots.

The image on the left shows a Boeing 737 leaving a wake that can clearly be seen behind and below the aircraft in the cloud formation which is faithfully displaying the massive power of the two counter-rotating vortices. Keeping in mind that the aeroplane is coming towards you, note how large the vortices must be because they are much

further away from the camera than the aircraft. Note how the vortices have descended. The power in these two horizontal whirlpools of air can be quite sufficient to break another aeroplane up in the air. It needs little imagination to see why this phenomenon is potentially so dangerous. Even large aircraft have suffered structural damage encountering the wake of another "heavy" ahead.

Previously I mentioned that wing tip size was an important factor in the power of the vortices generated . Shape, too, is a factor – the squarer the tip for the wing area, the greater will be the magnitude of the vortex and thus the magnitude of the wake. The elliptical wing on a Spitfire has a very small effective tip for the wing area and this was a major point in its superiority over other similar aircraft. Another means of substantially diminishing the tip size is to fit winglets (or sharklets). Their effectiveness is depicted in the image below.

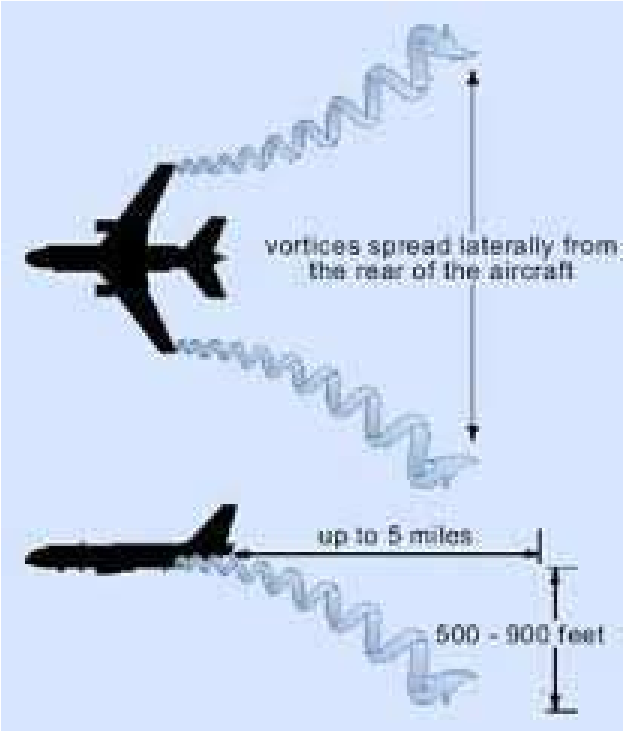


This image depicts a comparison of winglet versus no winglet using a heavy aircraft with a clean tip on its starboard tip and a winglet fitted to the tip on the port side. The vortex behind the starboard wing tip is far larger and far more powerful than that on the port side, behind the winglet. The same will go for light and even ultralight aeroplanes. Winglets reduce induced drag which increases cruise speed for any given fuel consumption; this improving economy and/or range on aeroplanes of all sizes. Jabiru fit winglets to their manufactured aeroplanes, and many Morgan designed homebuilt aeroplanes are equipped with similar tips. Whilst not fitted specifically to reduce wake turbulence, this is a beneficial side effect of the drive for efficiency and economy.

Morgan Cheetah. Note the black winglet formed as part of the tip.

In the same light, turned down wing tips also hinder spanwise flow and will also therefore reduce both induced drag and tip vortices. These tips are now so common as to be almost ubiquitous. Again, fitted to reduce induced drag, their spin-off is to reduce wake turbulence generated by that aeroplane.

So where behind the wake generating aircraft is the likely danger area? As stated, behind each wingtip a vortex forms: a horizontal whirling dervish of air. The size of each vortex grows with time, each vortex descending behind the forming aircraft, and spreading sideways as is shown in the image of the military C17 transport aircraft above.



In this image, the water behind the aircraft is lifted and swirled by the two counter-rotating vortices, wider than the wingspan of the aircraft that formed them.

The next image to the right clearly displays the sink and spread of the vortices, and the distance behind an aircraft in which danger exists. Although these images depict heavy aircraft, don't think for a moment that the little ultralight aircraft ahead and above is too light to leave a noticeable wake. Sure, the wing-loading might be miniscule in comparison, but then, if you, too, are in an ultralight – SO IS YOURS and the effects can be dramatic indeed.

However, and notwithstanding the above, the greatest danger by far is being in a light or ultralight aeroplane and encountering the savage forces in the air being left by heavy aircraft ahead. This is especially so when on approach where you share the same runway as heavier aircraft. It can also be an issue when flying a downwind leg when a heavier, faster aeroplane flies the same leg at a higher altitude. The potential for disaster is so great in this case, too, that minimums are prescribed as listed overleaf.

Exciting, eh!

To assist in minimising the opportunity for following aircraft to encounter wake turbulence, there are standard time separations for the various classifications of aircraft. The table below was produced by ICAO (the International Civil Aviation Organisation based in Montreal, Canada) as a standard set of time separations between the various classifications of aircraft. Ultralight aircraft are not mentioned.

Minimum Distance Separation for ***level flight***:

Minimum distances apply whenever:

- an aircraft directly follows another at the same altitude or less than 1,000 ft below it, or
- if both aircraft are using the same runway or parallel runways separated by less than 760 m or

- an aircraft is crossing behind another aircraft, at the same altitude or less than 300 m (1 000 ft) below.

Preceding Aircraft	Following Aircraft	Minimum Separation
HEAVY	HEAVY	4.0 NM
HEAVY	MEDIUM	5.0 NM
HEAVY	LIGHT	6.0 NM
MEDIUM	LIGHT	5.0 NM

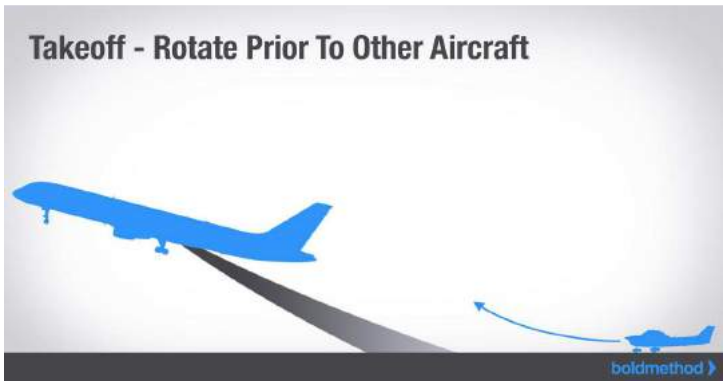
Minimum Time Separation: ***Successive Landings or Full Length Take Offs***

Minimum time separation for arriving aircraft not radar-separated is 2 minutes for a MEDIUM aircraft behind a HEAVY aircraft and 3 minutes for a LIGHT aircraft behind a HEAVY or MEDIUM aircraft.

Minimum time separation for departing aircraft which are using:

- the same runway or
- parallel runways separated by less than 760 m (2 500 ft) or
- crossing runways if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 300 m (1 000 ft) below or
- parallel runways separated by 760 m (2 500 ft) or more, if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 300 m (1 000 ft) below.

is 2 minutes between a LIGHT or MEDIUM aircraft taking off behind a HEAVY aircraft and a LIGHT aircraft taking off behind a MEDIUM aircraft.

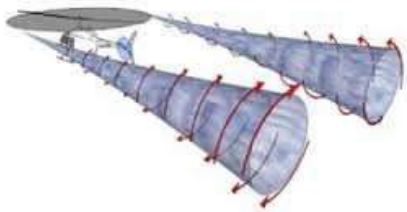


Take-off technique when following a heavier aircraft (even after the standard time separation has elapsed). The recommended technique is to ensure that the following aircraft should rotate and fly clearly above the path and thus the wake of the aircraft

departing ahead. At busy airports, Air Traffic Controllers are usually sympathetic to pilot's requests relating to wake safety because the law does not allow them to insist another aircraft begins its take-off if there is a chance of wake turbulence ahead.

But wake turbulence is not restricted to fixed wing aircraft. Helicopters are just as bad. The image on the right, was taken in New Zealand of a Bell 47G on spraying operations. Note the wake displayed in the swirling swathe. If you were to fly through that in a light aircraft your world would be turned upside down as they say. In an ultralight, with its usually lighter wing loading..... well – I'll let you be the judge of that.

In general, whilst moving, helicopter wake is just as severe as any comparably weighted fixed wing aircraft. The trailing wake from the rotor disc follows the same counter-rotating, spreading, and descending traits, and is just as predictable as long as one considers that the helicopter wake is not always behind the aircraft's longitudinal; axis as the machine can fly in any direction. Rather, the wake trails the helicopters direction of motion.



In hover, the helicopter has no wake; instead it has a very heavy downwash equal to the weight of the aircraft. This is a great danger to aircraft (especially light or ultralight ones) that may pass beneath a hovering chopper. Obviously, the closer beneath the helicopter the lighty passes, the worse the effects of the turbulence and downblast will; be, and the heavier the helicopter, the more severe the downwash and turbulence consequences will be. When hovering close to the ground, the rotor wash can be disastrous. The heavier it is, or the slower it is travelling, the greater the potential to damage or overturn aircraft or other vehicles beneath. Rotor downblast is dangerous up to 3 times the total rotor span.

With all these examples relating to heavy aircraft, does this mean that light aircraft and ultralights flying around small airfields as we do are unlikely to suffer a wake event, The answer is an emphatic NO. I personally have been rolled inverted in a Victa 100 at 300 feet AGL when overtaken by a Cessna 707, heavily loaded on approach for a parallel runway. Initially there was no issue

but when the 207 pilot slowed down and extended full flap, a very powerful rotating vortex remained. It sank slowly and drifted across directly into our flight path and my student flew straight into it. Sadly, that student never continued their training.

Be aware of the propensity for wake behind any other aircraft ahead and above, flying a similar track. If you run into it, you will likely have difficulty maintaining roll and/or pitch control of your aircraft for the time that you are in the grip of the vortex.

It's always better to dodge a bullet than try and fix it after it hits you.

Websites that will interest the interested are:

https://www.skybrary.aero/index.php/Mitigation_of_Wake_Turbulence_Hazard#ICAO_Prescribed_Separation_Minima.

www.airservicesaustralia.com/wp-content/uploads/wake.pdf

You Tubve

https://www.youtube.com/watch?v=qMpNThOKTuE

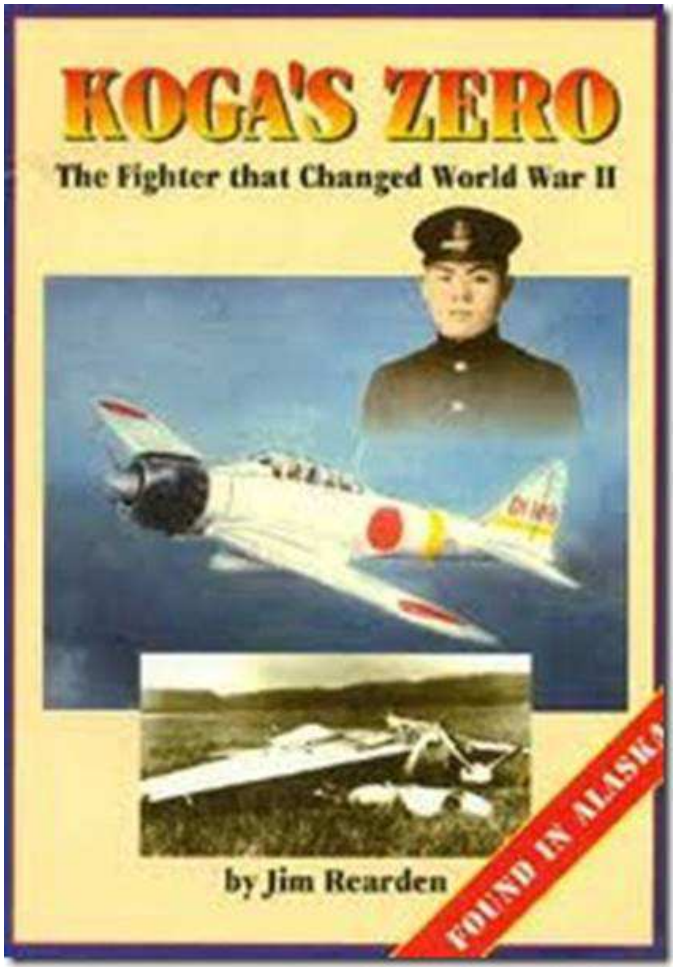
https://www.youtube.com/watch?v=s6K1ArSyiuI

https://www.youtube.com/watch?v=WXjbVLgK-fU

Happy Flying

KOGA's ZERO – By Jim Reardon

10 Jul 1942 Mitsubishi A6M2 Zero found on Akutan Island



An interesting bit of history and a true! story

In April 1942 thirty-six Zeros attacking a British naval base at Colombo, Ceylon (now Sri Lanka), were met by about sixty Royal Air Force aircraft of mixed types, many of them obsolete. Twenty-seven of the RAF planes went down: fifteen Hawker Hurricanes (of Battle of Britain fame), eight Fairey Swordfish, and four Fairey Fulmars. The Japanese lost one Zero.

Five months after America's entry into the war, the Zero was still a mystery to U.S. Navy pilots. On May 7, 1942, in the Battle of the Coral Sea, fighter pilots from our aircraft carriers Lexington and Yorktown fought the Zero and didn't know what to call it. Some misidentified it as the German Messerschmitt 109.

A few weeks later, on June 3 and 4, warplanes flew from the Japanese carriers Ryujo and Junyo to attack the American military base at Dutch Harbor in Alaska's Aleutian archipelago. Japan's attack on Alaska was intended to draw remnants of the U.S. fleet north from Pearl Harbor, away from Midway Island, where the Japanese were setting a trap. (The scheme ultimately backfired when our Navy pilots sank four of Japan's first-line aircraft carriers at Midway, giving the United States a major turning-point victory.)

In the raid of June 4, twenty bombers blasted oil storage tanks, a warehouse, a hospital, a hangar, and a beached freighter, while eleven Zeros strafed at will. Chief Petty Officer Makoto Endo led a three-plane Zero section from the Ryujo, whose other pilots were Flight Petty Officers Tsuguo

Shikada and Tadayoshi Koga. Koga, a small nineteen-year old, was the son of a rural carpenter. His Zero, serial number 4593, was light gray, with the imperial rising-sun insignia on its wings and fuselage. It had left the Mitsubishi Nagoya aircraft factory on February 19, only three and a half months earlier, so it was the latest design.

Shortly before the bombs fell on Dutch Harbor that day, soldiers at an adjacent Army outpost had seen three Zeros shoot down a lumbering Catalina amphibian. As the plane began to sink, most of the seven-member crew climbed into a rubber raft and began paddling toward shore. The soldiers watched in horror as the Zeros strafed the crew until all were killed. The Zeros are believed to have been those of Endo, Shikada, and Koga.

After massacring the Catalina crew, Endo led his section to Dutch Harbor, where it joined the other eight Zeros in strafing. It was then (according to Shikada, interviewed in 1984) that Koga's Zero was hit by ground fire. An Army intelligence team later reported, 'Bullet holes entered the plane from both upper and lower sides. One of the bullets severed the return oil line between the oil cooler and the engine. As the engine continued to run, it pumped oil from the broken line. A Navy photo taken during the raid shows a Zero trailing what appears to be smoke. It is probably oil, and there is little doubt that this is Zero 4593.

After the raid, as the enemy planes flew back toward their carriers, eight American Curtiss Warhawk P-40s shot down four Val (Aichi D3A) dive bombers thirty miles west of Dutch Harbor. In the swirling, minutes-long dogfight, Lt. John J. Cape shot down a plane identified as a Zero. Another Zero was almost instantly on his tail. He climbed and rolled, trying to evade, but those were the wrong maneuvers to escape a Zero. The enemy fighter easily stayed with him, firing its two deadly 20-mm cannon and two 7.7-mm machine guns. Cape and his plane plunged into the sea. Another Zero shot up the P-40 of Lt. Winfield McIntyre, who survived a crash landing with a dead engine.

Endo and Shikada accompanied Koga as he flew his oil-spewing airplane to Akutan Island, twenty-five miles away, which had been designated for emergency landings. A Japanese submarine stood nearby to pick up downed pilots. The three Zeros circled low over the green, treeless island. At a level, grassy valley floor half a mile inland, Koga lowered his wheels and flaps and eased toward a three-point landing. As his main wheels touched, they dug in, and the Zero flipped onto its back, tossing water, grass, and gobs of mud. The valley floor was a bog, and the knee-high grass concealed water.

Endo and Shikada circled. There was no sign of life. If Koga was dead, their duty was to destroy the downed fighter. Incendiary bullets from their machine guns would have done the job. But Koga was a friend, and they couldn't bring themselves to shoot. Perhaps he would recover, destroy the plane himself, and walk to the waiting submarine. Endo and Shikada abandoned the downed fighter and returned to the Ryujo, two hundred miles to the south. (The Ryujo was sunk two months later in the eastern Solomons by planes from the aircraft carrier Saratoga. Endo was killed in action at Rabaul on October 12, 1943, while Shikada survived the war and eventually became a banker.)

The wrecked Zero lay in the bog for more than a month, unseen by U.S. patrol planes and offshore ships. Akutan is often foggy, and constant Aleutian winds create unpleasant turbulence over the rugged island. Most pilots preferred to remain over water, so planes rarely flew over Akutan. However, on July 10 a U.S. Navy Catalina (PBY) amphibian returning from overnight patrol crossed the island. A gunner named Wall called, 'Hey, there's an airplane on the ground down there. It has meatballs on the wings. That meant the rising-sun insignia. The patrol plane's commander, Lt. William Thies, descended for a closer look. What he saw excited him.

Back at Dutch Harbor, Thies persuaded his squadron commander to let him take a party to the downed plane. No one then knew that it was a Zero. Ens. Robert Larson was Thies' co-pilot when the plane was discovered. He remembers reaching the Zero. 'We approached cautiously, walking in about a foot of water covered with grass. Koga's body, thoroughly strapped in, was upside down in the plane, his head barely submerged in the water. We were surprised at the details of the airplane,' Larson continues. It was well built, with simple, unique features. Inspection plates could be opened by pushing on a black dot with a finger. A latch would open, and one could pull the plate out. Wingtips folded by unlatching them and pushing them up by hand. The pilot had a parachute and a life raft. Koga's body was buried nearby. In 1947 it was shifted to a cemetery on nearby Adak Island, and later, it is believed, his remains were returned to Japan.

Thies had determined that the wrecked plane was a nearly new Zero, which suddenly gave it special meaning, for it was repairable. However, unlike U.S. warplanes, which had detachable wings, the Zero's wings were integral with the fuselage. This complicated salvage and shipping. Navy crews fought the plane out of the bog. The tripod that was used to lift the engine, and later the fuselage, sank three to four feet into the mud. The Zero was too heavy to turn over with the equipment on hand, so it was left upside down while a tractor dragged it on a skid to the beach and a barge.

At Dutch Harbor it was turned over with a crane, cleaned, and crated, wings and all. When the awkward crate containing Zero 4593 arrived at North Island Naval Air Station, San Diego, a twelve-foot-high stockade was erected around it inside a hangar. Marines guarded the priceless plane while Navy crews worked around the clock to make it airworthy. (There is no evidence the Japanese ever knew we had salvaged Koga's plane.)

In mid-September Lt. Cmdr. Eddie R. Sanders studied it for a week as repairs were completed. Forty-six years later he clearly remembered his flights in Koga's Zero."My log shows that I made twenty-four flights in Zero 4593 from 20 September to 15 October 1942," Sanders told me. "These flights covered performance tests such as we do on planes undergoing Navy tests. The very first flight exposed weaknesses of the Zero that our pilots could exploit with proper tactics. The Zero had superior manoeuvrability only at the lower speeds used in dogfighting, with short turning radius and excellent aileron control at very low speeds. However, immediately apparent was the fact that the ailerons froze up at speeds above two hundred knots, so that rolling manoeuvres at those speeds were slow and required much force on the control stick. It rolled to the left much easier than to the right. Also, its engine cut out under negative acceleration [as when nosing into a dive] due to its float-type carburettor.

We now had an answer for our pilots who were unable to escape a pursuing Zero. We told them to go into a vertical power dive, using negative acceleration, if possible, to open the range quickly and gain advantageous speed while the Zero's engine was stopped. At about two hundred knots, we instructed them to roll hard right before the Zero pilot could get his sights lined up. This recommended tactic was radioed to the fleet after my first flight of Koga's plane, and soon the welcome answer came back: "It works!" Sanders said, satisfaction sounding in his voice even after nearly half a century.

Thus by late September 1942 Allied pilots in the Pacific theatre knew how to escape a pursuing Zero. "Was Zero 4593 a good representative of the Model 21 Zero?" I asked Sanders. In other words, was the repaired airplane 100 percent? "About 98 percent,?" he replied.The zero was added to the U.S. Navy inventory and assigned its Mitsubishi serial number. The Japanese colors and insignia were

replaced with those of the U.S. Navy and later the U.S. Army, which also test-flew it. The Navy pitted it against the best American fighters of the time; the P-38 Lockheed Lightning, the P-39 Bell Airacobra, the P-51 North American Mustang, the F4F-4 Grumman Wildcat, and the F4U Chance Vought Corsair, and for each type developed the most effective tactics and altitudes for engaging the Zero.

In February 1945 Cmdr. Richard G. Crommelin was taxiing Zero 4593 at San Diego Naval Air Station, where it was being used to train pilots bound for the Pacific war zone. An SB-2C Curtiss Helldiver overran it and chopped it up from tail to cockpit. Crommelin survived, but the Zero didn't. Only a few pieces of Zero 4593 remain today. The manifold pressure gauge, the air-speed indicator, and the folding panel of the port wingtip were donated to the Navy Museum at the Washington, D.C., Navy Yard by Rear Adm. William N. Leonard, who salvaged them at San Diego in 1945. In addition, two of its manufacturer's plates are in the Alaska Aviation Heritage Museum in Anchorage, donated by Arthur Bauman, the photographer. Leonard recently told me, "The captured Zero was a treasure. To my knowledge no other captured machine has ever unlocked so many secrets at a time when the need was so great."

A somewhat comparable event took place off North Africa in 1944, coincidentally, on the same date, June 4, that Koga crashed his Zero. A squadron commanded by Capt. Daniel V. Gallery, aboard the escort carrier Guadalcanal, captured the German submarine U-505, boarding and securing the disabled vessel before the fleeing crew could scuttle it. Code books, charts, and operating instructions rescued from U-505 proved quite valuable to the Allies. Captain Gallery later wrote, "Reception committees which we were able to arrange as a result may have had something to do with the sinking of nearly three hundred U-boats in the next eleven months." By the time of U-505's capture, however, the German war effort was already starting to crumble (D-day came only two days later), while Japan still dominated the Pacific when Koga's plane was recovered.

A classic example of the Koga plane's value occurred on April 1, 1943, when Ken Walsh, a Marine flying an F4U Chance-Vought Corsair over the Russell Islands southeast of Bougainville, encountered a lone Zero. "I turned toward him, planning a deflection shot, but before I could get on him, he rolled, putting his plane right under my tail and within range. I had been told the Zero was extremely manoeuvrable, but if I hadn't seen how swiftly his plane flipped onto my tail, I wouldn't have believed it," Walsh recently recalled. "I remembered briefings that resulted from test flights of Koga's Zero on how to escape from a following Zero. With that lone Zero on my tail I did a split S, and with its nose down and full throttle my Corsair picked up speed fast. I wanted at least 240 knots, preferably 260. Then, as prescribed, I rolled hard right. As I did this and continued my dive, tracers from the Zero zinged past my plane's belly.

"From information that came from Koga's Zero, I knew the Zero rolled more slowly to the right than to the left. If I hadn't known which way to turn or roll, I'd have probably rolled to my left. If I had done that, the Zero would likely have turned with me, locked on, and had me. I used that manoeuvre a number of times to get away from Zeros."

By the war's end Capt. (later Lt. Col.) Kenneth Walsh had twenty-one aerial victories (seventeen Zeros, three Vais, one Pete), making him the war's fourth-ranking Marine Corps ace. He was awarded the Medal of Honour for two extremely courageous air battles he fought over the Solomon Islands in his Corsair during August 1943. He retired from the Marine Corps in 1962 after more than twenty-eight years of service. Walsh holds the Distinguished Flying Cross with six Gold Stars, the Air Medal with fourteen Gold Stars, and more than a dozen other medals and honours.

How important was our acquisition of Koga's Zero? Masatake Okumiya, who survived more air-sea battles than any other Japanese naval officer, was aboard the Ryujo when Koga made his last flight. He later co-authored two classic books, Zero and Midway. Okumiya has written that the Allies' acquisition of Koga's Zero was no less serious than the Japanese defeat at Midway and did much to hasten the final defeat of Japan. If that doesn't convince you, ask Ken Walsh.

INSIDE THE ZERO

The Zero was Japan's main fighter plane throughout World War II. By the war's end about 11,500 Zeros had been produced in five main variants. In March 1939, when the prototype Zero was rolled out, Japan was in some ways still so backward that the plane had to be hauled by oxcart from the Mitsubishi factory twenty-nine miles to the airfield where it flew. It represented a great leap in technology. At the start of World War II, some countries' fighters were open cockpit, fabric-covered biplanes. A low-wing all-metal monoplane carrier fighter, predecessor to the Zero, had been adopted by the Japanese in the mid-1930s, while the U.S. Navy's standard fighter was still a biplane. But the world took little notice of Japan's advanced military aircraft, so the Zero came as a great shock to Americans at Pearl Harbor and afterward.

A combination of nimbleness and simplicity gave it fighting qualities that no Allied plane could match Lightness, simplicity, ease of maintenance, sensitivity to controls, and extreme manoeuvrability were the main elements that the designer Jiro Horikoshi built into the Zero. The Model 21 flown by Koga weighed 5,500 pounds, including fuel, ammunition, and pilot, while U.S. fighters weighed 7,500 pounds and up. Early models had no protective armour or self-sealing fuel tanks, although these were standard features on U.S. fighters. Despite its large-diameter 940-hp radial engine, the Zero had one of the slimmest silhouettes of any World War II fighter. The maximum speed of Koga's Zero was 326 mph at 16,000 feet, not especially fast for a 1942 fighter. But high speed wasn't the reason for the Zero's great combat record. Agility was. Its large ailerons gave it great manoeuvrability at low speeds. It could even outmanoeuvre the famed British Spitfire. Advanced U.S. fighters produced toward the war's end still couldn't turn with the Zero, but they were faster and could out-climb and out-dive it. Without self-sealing fuel tanks, the Zero was easily flamed when hit in any of its three wing and fuselage tanks or its droppable belly tank. And without protective armour, its pilot was vulnerable. In 1941 the Zero's range of 1,675 nautical miles (1,930 statute miles) was one of the wonders of the aviation world. No other fighter plane had ever routinely flown such a distance. Saburo Sakai, Japan?s highest-scoring surviving World War II ace, with sixty-four kills, believes that if the Zero had not been developed, Japan would not have decided to start the war. Other Japanese authorities echo this opinion, and the confidence it reflects was not, in the beginning at least, misplaced. Today the Zero is one of the rarest of all major fighter planes of World War II. Only sixteen complete and assembled examples are known to exist. Of these, only two are flyable: one owned by Planes of Fame, in Chino, California, and the other by the Confederate Air Force, in Midland, Texas.

END

B.V.S.A.C.

FUN FLY POKER RUN 2018

THE EVENT

The Brisbane Valley Sport Aviation Club's Fun Fly Poker Run will be held on Saturday 7th July 2018.

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, Forest Hill*, 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 B.V.S.A.C. 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.

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 2018.

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

CONTACT

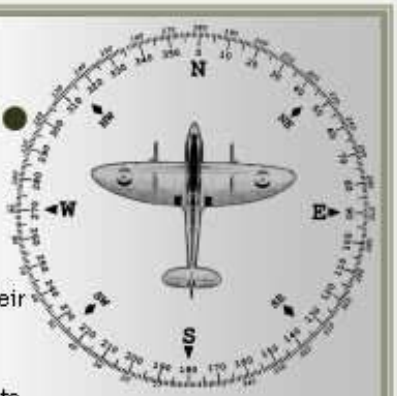
Sandy Walker
Phone: (07) 5496-0331
Mobile: 0424-958-173
Email: president@bvsac.org.au

AIRFIELD LOCATIONS

FOREST HILL*	S 27° 36.3' E 152° 22.3'	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'		

* Kilcoy and Forest Hill cards can be found in the aircraft parking area. Please do not park on the runway.

Pilot Notes.....



SAFETY:

As always in aviation, safe operations are the #1 priority.

All pilots in command are encouraged to make the appropriate decision as to the suitability of each of the airfields based on their own experience, the airfield's characteristics, their aircraft's performance and the weather conditions on the day.

Each of the airfield's owners have granted permission for pilots to operate at their airfield at the pilot's own risk.

AIRFIELD INFORMATION:

NOTE: Unlike previous years, Bradfield is not an airfield for the 2018 poker run.

The organizers of the poker run have been granted permission to use the respective airfields. There is no requirement for individual pilots to seek permission to use the airfields on the day.

E.R.S.A. pages for Watts Bridge, Kilcoy and Gatton Airpark are attached.

An information page for Forest Hill is attached.

There is no documentation for Mc Carron's Field.

The runway is approximately North/South.
The runway has a significant slope with the low end to the north. Due to the slope, runway length is not a factor. Most all pilots elect to land from the north (land up hill) and take off from the southern end (take off down hill). If landing from the northern end, perform a right hand circuit to avoid the hill on the eastern side of the runway. Mc Carron's Field can be visually daunting, but when established on final it is actually not bad at all.
To see a video taken from a Cessna 182G landing at Mc Carron's Field go to:
http://www.wattsbridge.com.au/welcome/archive35.php, scroll down the page to the Poker Run 2016 video and then and fast forward to the 6:00 minutes mark.

CARD LOCATIONS:

At Gatton Airpark, and Mc Carron's Field the cards will be located adjacent to the primary windsock.

At Kilcoy the cards will be located at the base of the corner post of the aircraft parking area. Pilots are requested to park their aircraft in the parking area whilst collecting a card.

At Forest Hill the cards will be located in the aircraft parking area.
Pilots are requested to park their aircraft in the parking area whilst collecting a card.

At Watts Bridge go to the Brisbane Valley Sport Aviation Club to register your winning hand!

B.V.S.A.C.

FUN FLY POKER RUN 2018

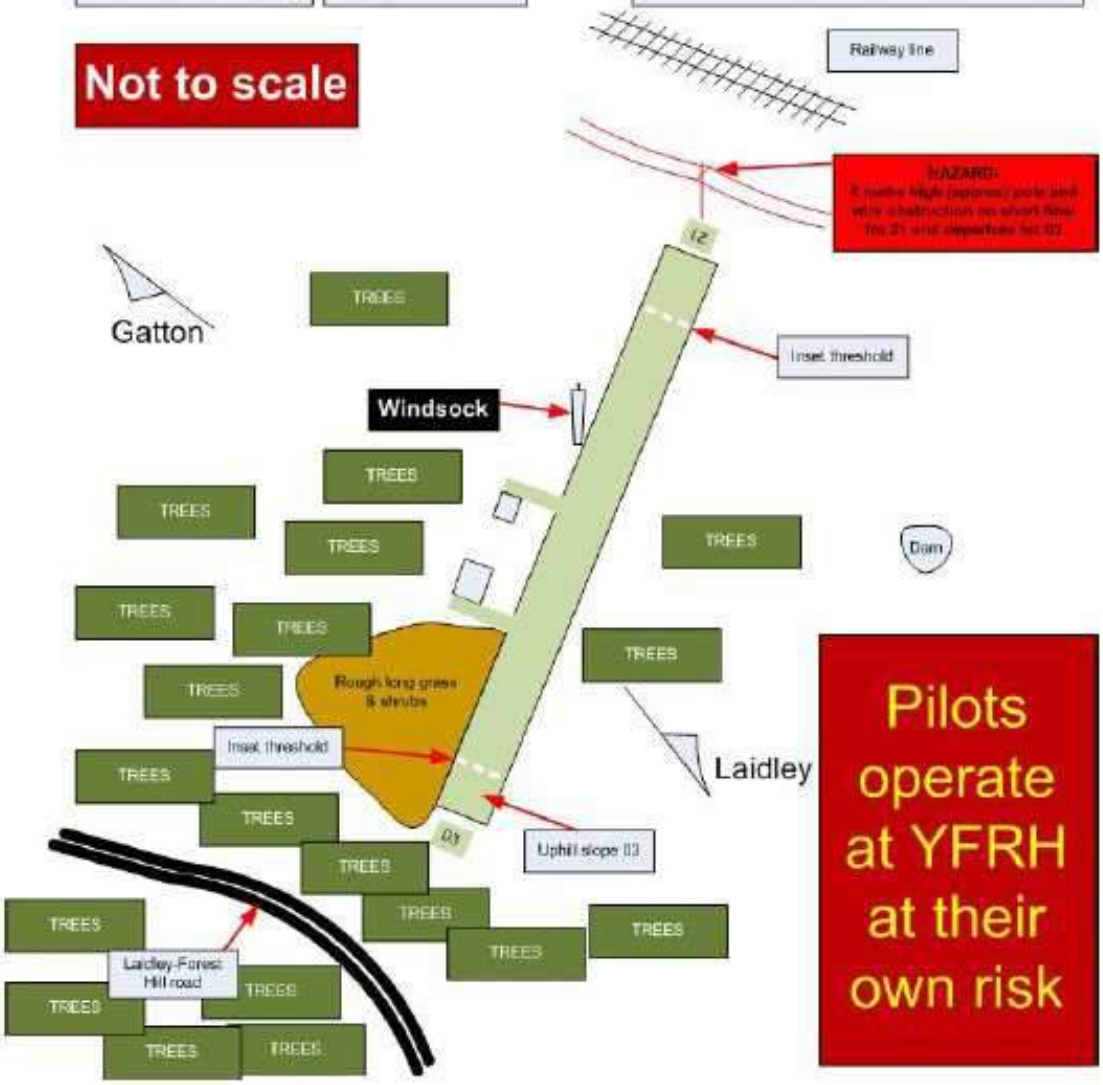
Forest Hill YFRH	CTAF	126.7	Elev:	333 ft	Unlicensed

Owner	Neville Wood
Contact	
Location:	27° 36' 18" S / 152° 22' 21" E
Surface	Grass
Location	1.22 nm ESE of Forest Hill village
Circuit Direction	All left hand
Available Runway	600 m / 1970 ft

Hazard List

- Airfield surrounded South end by trees up to 30 M
- Mechanical turbulence caused by proximity of trees
- Approach on runway 21 has power pole on centreline
- Beginning of runway 03 Slopes laterally down left to right

Not to scale



Pilots operate at YFRH at their own risk

GATTON AIRPARK

ELEV 460
FULL NOTAM SERVICE NOT AVBL

QLD UTC +10 YGAS
S 27 35.4 E 152 15.4 VAR 11 DEG E UNCR
AD OPR Gatton Airpark Body Corporate, C/O The Secretary, PO Box 64, Gatton, QLD, 4343. EMAIL aerobiz1@gmail.com. PH 0419 368 696.

REMARKS
1. This is a private residential airfield - PPR.
2. For airfield conditions, visitors please PH 0419 368 696, 0458 273 249 or 0401 296 943.

ATS COMMUNICATIONS FACILITIES
FIA BRISBANE CENTRE 121.2

LOCAL TRAFFIC REGULATIONS
RH Circuits RWY 19.

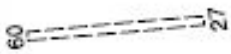
CTAF 126.7

ADDITIONAL INFORMATION
1. AD HR of OPR - HJ. Visiting MIL ACFT may OPR HO.
2. Animal hazard exists.

CHARTS RELATED TO THE AERODROME
WAC 3340.

KILCOY

ELEV 400
FULL NOTAM SERVICE NOT AVBL



QLD UTC +10 YKCY
S 26 58.3 E 152 33.9 VAR 11 DEG E UNCR
AD OPR Somerset Regional Council, PO Box 117, Esk, QLD, 4312. EMAIL mail@somerset.qld.gov.au. PH 0427 618 271 (Onsite Information). Council PH 07 5424 4000. FAX 07 5424 4099. Website www.kilcoyairfield.club.

PASSENGER FACILITIES
WC.

PHYSICAL CHARACTERISTICS
RWY 09/27. Grass. Slopes down to the west.

ATS COMMUNICATIONS FACILITIES
FIA BRISBANE CENTRE 129.0 On Ground

CTAF 126.7

ADDITIONAL INFORMATION
1. Avoid overflying noise sensitive house 1NM to the north of AD.
2. Following extended rain periods, parts of the AD SFC may become soft. Guidance should be sought from the OPR prior to use.
3. Visitor ACFT PRKG south of hangars and west of TWY.
4. HEL OPS: Hovering and parking S of hangars and E of TWY only. HEL to exercise extreme caution as rotor wash may dislodge RWY marker cones. EXCEPT in EMERG OPS HN with written permission from AD OPR only.

CHARTS RELATED TO THE AERODROME
WAC 3340.

AIP Australia 02 MAR 2017 FAC YWSG - 1

WATTS BRIDGE **ELEV 300**

FULL NOTAM SERVICE NOT AVBL

QLD UTC +10 YWSG
S 27 05.9 E 152 27.6 VAR 11 DEG E UNCR
AD OPR Watts Bridge Memorial Airfield Association, PO Box 98, Toogoolawah, QLD, 4313. EMAIL info@wattsbridge.com.au. PH 0427 699 239. Website www.wattsbridge.com.au.

REMARKS

1. PPR.
2. Commercial training operations, charges and/or conditions apply. Operators contact info@wattsbridge.com.au.

HANDLING SERVICES AND FACILITIES

AVGAS available - self serve swipe card - Mastercard and Visa card only.

ATS COMMUNICATIONS FACILITIES

FIA BRISBANE CENTRE 129.0 Circuit Area

CTAF 127.3

NOISE ABATEMENT PROCEDURES

1. Pilots are to operate aircraft with minimum audible and visual impact on the community.
2. Circuits or airwork not permitted before 0700 Local (except for departure and arrival).
3. Standard, recommended non towered joining procedures and circuit altitudes are required.

ADDITIONAL INFORMATION

1. The undershoot area to RWY 12 is being reclaimed and appears serviceable from the air. Gliders may use this area for winch launching. Touchdown should not be made until the Piano Keys ABM the primary windsock. White cross warning markers are displayed on the unserviceable area.
2. Low level aerobatic flying takes place to 5,000FT in the designated aerobatic box located SE of the airfield. Refer Watts Bridge Fly Neighbourly Map (point 6).
3. Non radio equipped ultralight, gyrocopters and gliders may be operating from the airfield.
4. Displaced threshold exists on both RWY 21 and RWY 12.
5. Avoid low level flight over farmhouses.
6. Consult www.wattsbridge.com.au for fly neighbourly requirements.
7. Intensive skydiving at Toogoolawah, 5NM NW of Watts Bridge.
8. Drainage ditches flank each TWY. Taxi on mown SFC and exit TWY to parking areas by marked access points only.

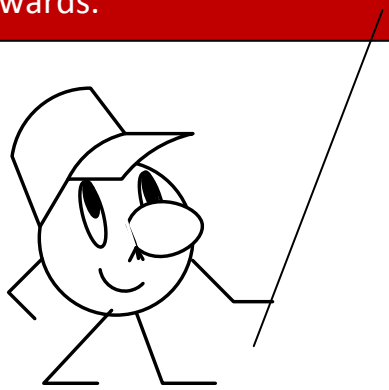
CHARTS RELATED TO THE AERODROME

WAC 3340.

Now you've got absolutely no excuse not to come along.

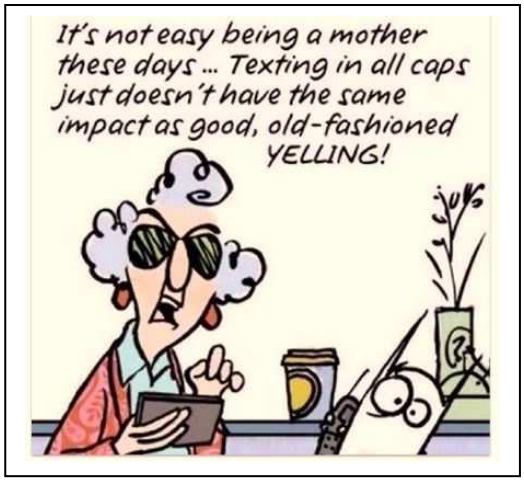
WARNING - Another OPEN CLASS

Rob Knight has agreed to run another open class after the May BVSAC Meeting. So sharpen your pencils, get out your questions, and come to the May meeting. It will be at the BVSAC Clubrooms at 10 am on May 5th. Sandy, the Club President, is organising a BBQ lunch afterwards.



FLY-INS Looming

14 May	Murgon Brekkie, Fly-In	Burnett Flyers
21-22 May	Caboolture	TAVAS Great War Flying Display
27 May	Rockhampton	Cessna 200 Series Fly In
06 May	Gympie Brekkie Fly-in	Gympie Aero Club
13 May	Gatton	7.30 Breakfast Fly-In
25 May	Thangool	Callide Dawson Flying Group Biennial Fly-In
26 May	Watts Bridge	Red Thunder & Warbirds Fly-In
03 June	Gympie Brekkie Fly-in	Gympie Aero Club

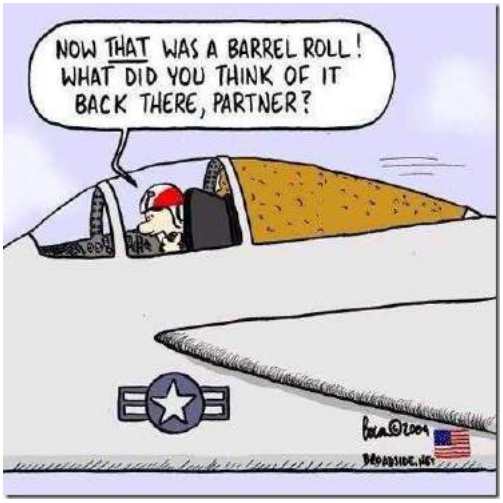


Mystery Aircraft (May Issue)

What's this?

Mystery Aircraft – Last Issue.

The one-off Curtiss XF14-C – competitor for tyhe rolls ,played by the HellCat and TigerCat. First flying in September 1943, The XF14C-2 performance was below manufacturer's guarantees, and with the tide of war in the Pacific running in favour of the USA, the altitude capability needs diminished so no orders were taken. Malcolm McKenzie takes the credit for identifying this extremely rare aircraft. Well done, Mal. Take a bow.



Gatton Airpark Breakfast Fly-in.

Sunday 13 May

Hot breakfast from 0730.
Everyone welcome. Come and check out the latest developments at the Airpark, or simply catch up with friends.
Bring your Mum!

Airfield details in ERSA or phone

0419 368 696

Keeping up with the Play

(Test yourself – how good are you, really?)

1. With the onset of an evening, the wind speed and wind direction usually changes. With this in mind, select the correct statement below.
   A. The wind decreases due to the reduced thermal activity and coriolus force causes the wind to veer.
   B. The wind speed decreases due to surface friction and the coriolus force causes the wind to back.
   C. The wind speed drops due to the decreasing air temperatures and surface topography causes the wind to veer.
   D. The wind speed drops due to the reducing pressure gradient and veers because of terrain factors.

2. For safe flight, the centre of gravity should be?
   A. Ahead of the Centre of Pressure.
   B. Behind the Centre of Pressure
   C. Coincident with the centre of pressure
   D. Adjacent to the Centre of pressure.

3. In regard to Centre of Pressure movement
   A. The Centre of Pressure is stationary on the chord line throughout flight
   B. The Centre of Pressure advances with decreasing angle of attack.
   C. The Centre of Pressure retreats with decreasing angle of attack.
   D. The Centre of Pressure advances with increasing angle of attack.

4. The force that turns an aeroplane.....
   A. Is produced by yaw.
   B. Is the horizontal component of lift.
   C. Is the vertical component of lift.
   D. Is centrifugal force.

5. When recovering from a wing drop stall, how much rudder is required?
   A. Sufficient to stop the wing dropping further
   B. Sufficient to unstall the wings.
   C. Sufficient to pull the nose back to the original reference point.
   D. Sufficient to stop any further yaw

1, A, 2, A, 3, D, 4, B, 5, D

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

Alas, due to the BVSAC Secretary being away, the minutes for the general meeting held on 7th April were not available at the time of publishing this issue.