BRISBANE VALLEY FLYER

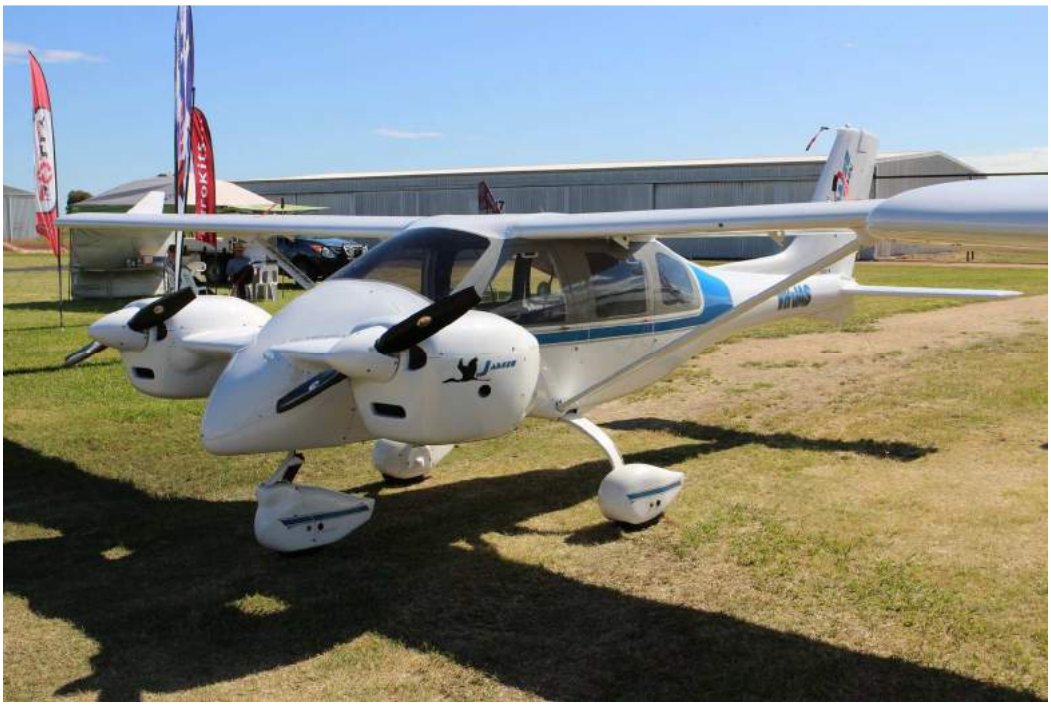
NOVEMBER- 2019

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.

Rob Knight (Editor) Tel: 0400 89 3632



2 on 1 Jabiru, at Watts

Peter Ratcliffe (Pres.)	0418 159 429	Ian Ratcliffe(Treasurer)	0418 728 328
Vern Grayson (Vice Pres.)	0418 728 328	Jackie Daley (Secretary)	0438 783 740

Risking Risk Management

By Rob Knight

Last month I looked at a series of aeroplane accidents that were each completely avoidable, and each pilot concerned would have vehemently defended their ability to manage risk, and assured all they were completely safe pilots. Yet each came to an untimely end because their actual ability to manage risks was markedly lower than their opinion of it. Their realistic ability played second fiddle to their ego, and ego is a poor co-pilot for any aviator in terms of longevity.

A major part of the problem lies in poor training. Not the stick and rudder handling, but rather the cerebral bits, where the brain is exercise in intelligently operating the aeroplane in flight, where mere bad decision can lead to unthought-of disasters. Some are obvious, like always flying above 500 feet AGL (usually never below 2000 feet AGL), carrying a reserve of fuel relevant to the flight and specific to its underlying terrain or water surface and any other hazardous conditions particular to that flight. Now, as it was when I learned to fly, a newly qualified pilot thinks that he/she doesn't need to think much, just follow the rules as given and they'd always be safe. Realistically most will, indeed carry this false philosophy right through their flying careers, but for others an awakening is waiting, sharp and poignant.

This lack of potential reality is 100% supported by the environment in which we train and in which we permanently operate. I freely admit that I too paid poor lip service to realistic safety potential issues until I got behind the controls of a crop duster. Suddenly, with too little height and none to spare, surrounded by higher terrain, in a heavy aeroplane with a similar glide to a steam locomotive, I had to modify my approach to flying to one that sought to minimise emergencies, not just plan how to handle them when/if they happened along. This was even in flight that is not involving low level operations, sometimes emergencies occur that leave too little time to think about a response. With margins so slim, I had to change my attitude towards flight from a casual, "Yeah, I reckon I could handle an engine failure", to one more akin to, "As I don't have height to spare, I must look for issues that increase the likelihood of an engine failure". I needed to become *proactive* towards managing risks, not *reactive* as my training had conditioned me to be.

But my training had been entirely uneventful. At no time had a hazard arisen that needed my intrepid instructor to even raise a sleepy eyebrow. In our complacency, while managing the risks involved in flying was always in the background, it was there merely as a habit and to demonstrate our good airmanship. We played at it; it was never to be taken too seriously. This is the same complacent state that I see most of the current pilots flying around now 5 decades after recognising my own affliction.

My smug state of mind changed in the middle of a take-off on a steep sloping strip with a substantial drop-off at the end. I had 18 CWT (just under 1000 kg) of powdered lime in the hopper at my back and was sitting behind an 8.5 litre IO520F engine. With full throttle and airspeed rising and not enough strip to stop, a ewe ran out from scrub beside the runway. She died instantly, torn apart by the nosewheel, but her mass crushed the lower engine cowl upwards and it buckled inwards and partly crushing the flexible line from the air intake to the inlet manifold. Power dropped by about 40% and acceleration to normal flying speed ceased.

I opened the dump and the aircraft lightened but still had too little flying speed as I crossed the edge of the runway and fell off into the drop-off. Still dumping and trying to claw airspeed out of the air I let the sink continue. With the limited power available, as the hopper emptied I got the ASI up to 55 MPH (this was in 1970) and could fly level and even climb back to the end of the strip and land.

Now why am I telling you this? Because earlier that morning I had looked at the path of wild blackberry from where the ewe came, and wondered if there might be a maverick hiding there. Then I dismissed the thought.

"She'll be right, mate. If something comes out of there, I can handle it!" This is what I mean by being reactive – to react to an event and handle the issue afterwards. I could easily have had a fatal accident because I was complacent. Had I been proactive and found the sheep amongst the tangled mass of thorns before she ran out, it would have been far safer for me and I wouldn't have lost the rest of the day flying back to Hamilton with my nose all taped up to have the cowling repaired.

Another example, this time highlighted by someone else, occurred in Africa. A pilot was required to fly several people out to an island in a large lake some distance away The weather was absolutely clear and in the pilot's opinion there was no chance of anything adverse occurring. The usual procedure was to depart in the Cessna 206 with enough fuel to fly out and then return, plus 30 minutes. However, he was pressed to include all the passengers on the one flight so reduced the fuel load to arrive at the island with 45 minutes remaining and refuel to fly home. The departure was uneventful and the first sign of trouble was an inability to raise the Island airfield radio station. Getting closer, and now past his point of no return (not enough fuel to return) smoke could seen whilst the island was still below the horizon. Getting closer, the whole island seemed alight and on inspection, the airfield buildings were destroyed as was the fuel dump. He elected to try to fly back to land – a fatal error as, when the fuel was exhausted, the pilot had to ditch. Alas, no-one survived the crocodiles.

This is another case of reactive risk assessment. When the hazard appeared, he was not equipped for any alternative but to land on the island. Even with the fire it would have been survivable. He didn't assess all the risks, all the possible scenarios. Do you? He stopped looking for hazards he might be required to avoid and, instead, put his faith in luck. Relying on luck, my friend, is not a lucky thing to do in aviation.

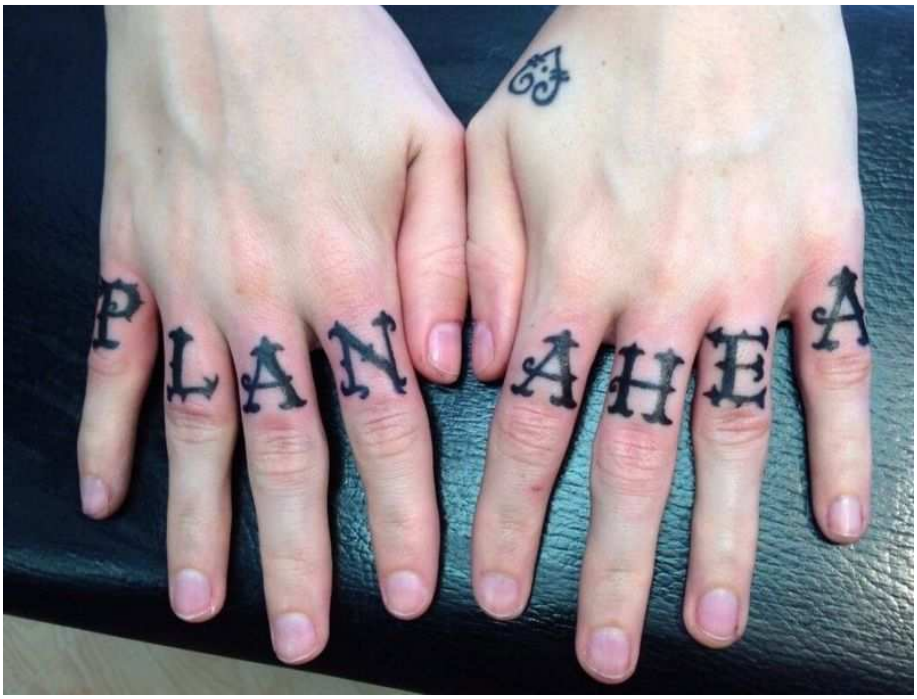
I guess you could say that the safest pilots don't wait for trouble – they actively look for it. Not to fly into it but to consider the operation seeking all discernable risks. Then, whilst they haven't a plane to fly, consider the options and select the best. They wouldn't assume that all the potential hazards are obvious, and some can be decidedly hidden.

Before a cross-country flight, look along the track and LOOK for hazards that you've not identified before. Apart from the fairly obvious mechanical issues and the forecast crosswind at the destination, what else is there that I should consider. For example – will I be flying into the setting sun? If so I'd better give the windscreen an extra clean. In light of the earlier example and current drought conditions – are there any fires whose smoke could create VFR issues during the flight, and/or fires/smoke that could make an approach into the destination impossible, or delayed until after dark by a forecast wind change.

The time to find the problems is BEFORE you depart. Be proactive, don't wait for trouble to find you: you may not have the necessary resources to counter hazards when you meet them.

Be a pro, not a knee-jerk reactive.

Happy Flying



Think ahead - or not. It is YOUR choice

Members and visitors are invited to an information forum at the BVSAC club rooms on Sat 23rd Nov at 10.00 hours. Items for discussion will include but not be restricted to :-

1. Owner maintenance requirements and appropriate Aircraft Log Book entries.
2. The R.A.Aus Ops and Technical Manual.
3. Preparing for CASR Part 149. (Prepare for the worst, Hope for the best)
4. As this will be a closed session type of gathering, no information will be imparted to the Regulators. This is to foster the maximum benefit for those present. Please feel free to bring your Aircraft Log Books so that we can engage one on one. Remember, you are not the only one.
5. A gold coin donation will be for club coffee etc.

Kevin Walters. Pilot Examiner.

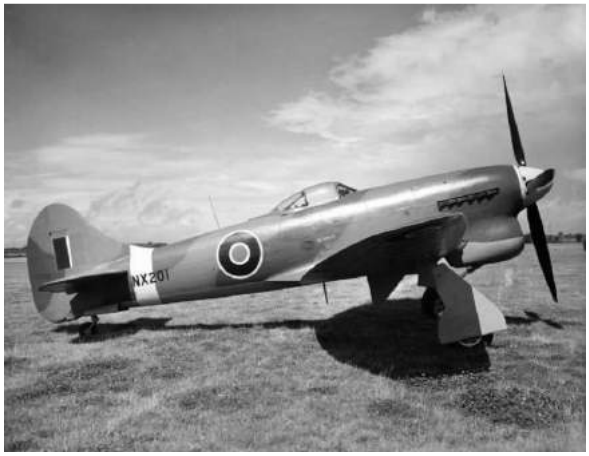
Testing for combat (A book teaser)

The famous English test pilot Eric Brown flew 487 different aircrafts (all versions of the Spitfire he flew counts as one aircraft!!). In his book "Testing for Combat" he remembers his flying and experience with, among others, the Tempest Mk. V.

Hawker Tempest V

"After the shaky start of the Typhoon it must have seemed improbable that there would be a Typhoon II, but this in fact was the designation of the design tendered by the Hawker company to meet Air Ministry Specification F.10/41, and which eventually became the Tempest.

Like the Typhoon, the basic design of the Tempest catered the alternative powerplants, and in this case three different engines were considered - the Napier Sabre, the Bristol Centaurus radial, and the Rolls-Royce Griffon. The first prototype to fly, on 2nd September 1942, was the Tempest V powered by a Sabre IIA of 2,180 hp.



Hawker Tempest V, 1944

The Tempest distinguishable from the Typhoon by its elliptical, thin-section wing, which necessitated the reduction of the amount of fuel carried in the wings. Consequently an extra fuel bay was inserted in the fuselage behind the engine, and this lengthening of the fuselage forward called for increased fin area aft. The end result was a sleek, powerful looking aeroplane of considerable aesthetic beauty.

The first production Tempest V flew on 21st June 1943, and the first machines entered operational service in April 1944. This turned out to be most timely, because the German V1 flying-bomb offensive was launched in June 1944. The V1 could attain a normal operational speed of 400 mph at heights usually between 1,000 and 2,500 ft. This severely taxed the interception capabilities of British fighters, and some bombs were getting through to London and beyond. I can vouch for this as my first home in Aldershot was completely demolished when a V1 impacted in the garden, seriously injuring our charlady, injuring my wife and killing our dog.

About mid-June a crash programme was initiated to improve the low-level performance of the Spitfire, Tempest V, and Mustang III by using a specially developed 150 octane aromatic fuel to give abnormally high power for strictly short bursts. The engine attrition rate would of course be high, but the urgency of the situation demanded drastic measures.
I was very involved in these exhilarating trials requiring high speed runs at ground level, during which the Spitfire XIV with its Griffon boosted to +19 lb reached 365 mph, the Tempest V with its Sabre boosted to +10 1/2 lb hit 405 mph, and the Mustang with its Merlin boosted to +25 lb actually attained 420 mph.
During these trials I was flying Tempest V JN735 on 26th July at just after 7 o´clock in the evening, and had completed a 5 min level run at 1,000 ft at +9 lb boost, 3,650 rpm, which the airscrew pitch

lever fully forward. I then climbed through cloud to 6,000 ft, where the second run was made under similar conditions, for it was known that the V1 could fly up to almost 10,000 ft.

The third run was made at 7,000 ft, at which height only +8 1/2 lb boost was obtainable at full throttle, and after 3 1/2 min I detected a slight smell of burning coming from the floor of the cockpit. A quick check of the engine instruments showed zero oil pressure and oil temperature, with the coolant temperature 108 C. Since the engine had never faltered I suspected oil gauge failures, but throttled back to -4 lb boost and 2,900 rpm and asked for an emergency homing on the R/T, which I was given. I flew on this course at the same height and low engine settings as before until I thought I was near base, when I decided to descend through the solid cloud (top 5,800 ft and base 2,300 ft). On entering the darkness of the cloud I could see the whole top engine cowling glowing hot between the two sets of exhausts, although this had been unapparent to me in the bright sunshine. However, the engine was still running, so I continued the descent, but before I broke cloud the engine began to misfire badly and the propeller started to overspeed. I immediately pulled the constant-speed lever back to the fully coarse stop, but the revs. reached 4,200 and then there was a loud bang in the engine, followed by a spray of oil which covered the windscreen.

In order to see out I had to undo my safety harness and peer round the opaque windscreen. The propeller had seized solid, and the fire under the cowling had now burst into intense white flames which were also creeping into the cockpit through the floor near the rudder pedals, so the underside must have been well alight too, a fact which was later confirmed by ground witnesses. The heat round my feet hastened my decision to abandon the aircraft.

I removed my helmet and trimmed the aircraft for level flight at 1,600 ft and 170 mph, then stood up on the seat and put my left leg over the port side of the cockpit before reaching inside to pull the stick hard over towards me, so that when the aircraft reached an angle of bank of about 60 degrees I could kick myself free. The altimeter had read 1,200 ft when I glanced at it as I grabbed the control column spade grip.

When I pulled the parachute ripcord I could see I was heading for open fields, but I was hardly ready for the touchdown because I was watching the Tempest, which hit the ground and exploded some 200 yards from a small pond into which I found myself deposited. From this point the drama gave away to sheer comedy.
The pond that received my unexpected visit was shallow and not particularly salubrious, so I moved as smartly as I could to its edge, only to find myself face to face with the only other occupant of the field - a very large unfriendly looking black bull. As I moved a few steps nearer it lowered its head and snorted through its ringed nose. Discretion being the better part of valour, I did a smart about turn and headed for the opposite side of the pond, but I had just got there when I realised that I had been beaten to it by my bovine acquaintance, who was determined to provide a personal reception service. There was nothing for it but to await deliverance in some form or another.
Alerted by the exploding aircraft, the local fire brigade and police soon arrived, but baulked at the sight of the bull. There was then a hiatus while the police found the owner, who appeared with a short rope which he passed through the animal´s nose ring and then gently led him off like a poodle. I may be wrong, but I could swear that the bull winked at me as he departed.

Although Britain´s first operational jet fighter, the Gloster Meteor I, was pressed into service to combat the "doodlebug menace", it was outflown at low level by the Tempest V, which accounted for 638 flying bombs out of the RAF´s total score of 1,771 destroyed during the period 13th June to 5th September 1944.
Our other great interest in the Tempest V at the RAE was in its high Mach number characteristics, and these proved to be very similar to those of the Typhoon, except that it had limiting Mach

number of 0.81 true and a critical Mach number of 0.83 true. At the latter speed the nose-down trim change was very strong, and a full-blooded pull was required to keep the dive angle constant until the altitude had fallen to about 15,000 ft, when recovery could be affected.

In our transonic research at the RAE we often exceeded the so-called critical Mach number, which was the limit advised to the Services as being that beyond which there was a grave risk of loss of control of the aircraft. In our case this was not a foolhardy venture, but a controlled step-by-step investigation into a region of risk, each step being analysed from the records obtained from special instruments carried in the aircraft. We were of course in a war situation and could not afford to take an excessive amount of time, so some of the steps were larger than would be made in peacetime, and this could increase the risk element

On 5th September 1944 I was carrying out a series of tests for the Aerodynamics Department in a Tempest V to measure the effect of drag at high speed by diving the aircraft through a timed altitude range of 2,000 ft, commencing at 7,000 ft and descending to 5,000 ft at steady speeds ranging from 390 mph to 525 mph indicated airspeed (IAS).

The last dive was started at 25,000 ft from a full-throttle level run, then bunting into a fairly shallow dive to 22,000 ft where MS gear was engaged, the throttle set full open, the airscrew pitch adjusted to fully fine to give 3,700 rpm, the elevator trimmed nose down, and the rudder trimmed to starboard in a position gauged from the previous dive to 470 mph.

At 12,000 ft I experienced slight buffeting at 515 mph IAS, and at 11,000 ft found myself rapidly overshooting the desired IAS at 525 mph. I began to ease back on the stick, but it was frozen solid, and even a strong two-handed pull had no effect. In fact I had a runaway situation on my hands, and the IAS kept on building up to a peak of 560 mph IAS at 9,000 ft, and maintained this speed to 5,000 ft. During this peak period the boost reached +9 lb/sq.in, but I dared not remove either of my hands from the stick to touch the throttle as the starboard wing was now drooping, presumably because the aircraft was out of trim on the rudder, and I had to make a really tough physical effort to keep the stick central laterally whilst maintaining maximum backward pressure all the time. It is truly surprising the strength you find when survival is a stake. To add to the critical atmosphere, the buffeting had become acute and seemed especially bad forward of the cockpit.

On passing through 5,000 ft the elevator started to bite and I could feel the nose rising almost imperceptibly at first, then more positively until it passed through the level flight position at about 1,500 ft. I have to admit to a feeling of considerable relief

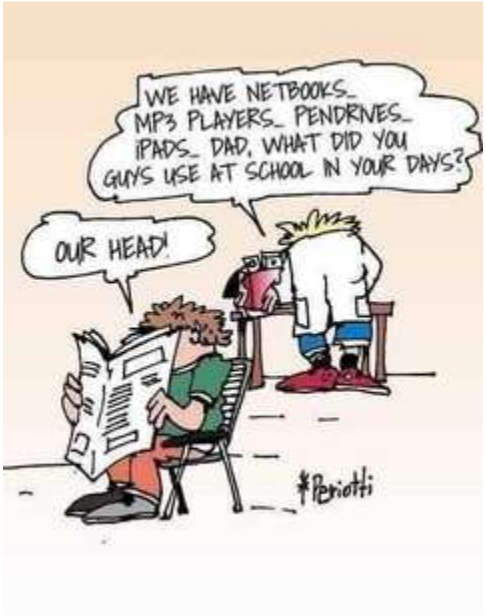
Examination of the aircraft after landing showed signs of strain in the region of the engine cowling. As this Tempest was fitted with a leading-edge pitot, the Aerodynamics Department calculated the true Mach number attained to be 0.87, which was the highest ever recorded on a Tempest. We certainly had not intended to go that far, but the best laid plans of mice and men...

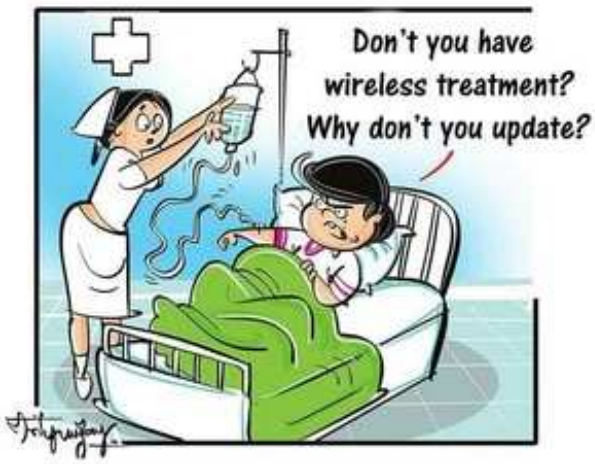
The Tempest V was a great aircraft to fly, having the main assets of a fighter with excellent harmony of control, a good rate of roll, and being stable directionally and laterally but slightly unstable

longitudinally. However, it had a very sharp stall without any warning whatsoever, and it was deficient in high-altitude performance. For landing, the aileron control was sluggish, and was the elevator control once the flaps and undercarriage were lowered, and the trim speed in the powered approach configuration was too high. Not a perfect aeroplane perhaps, but certainly a very good one indeed."

Specifications Tempest MkV:

Country of Origin: Great Britain
Crew: 1
Length: 33 ft 8 in (10.26 m)
Wingspan: 41 ft 0 in (12.49 m)
Height: 16 ft 1 in (4.90 m)
Weight: Empty: 9,250 lb (4,195 kg) Loaded: 11,400 lb (5,176 kg)
Powerplant: 1 × Napier Sabre IIA or IIB or IIC liquid-cooled H-24 sleeve-valve engine:, 2,180 hp (1,625 kW) Sabre IIA at + 9 lb/in² boost at 7,000 ft (2,133 m), 4,000 rpm
Performance
Maximum speed: 432 mph (695 km/h) Sabre IIA at 18,400 ft (5,608 m), Sabre IIB 435 mph at 19,000 ft (700 km/h at 5,791 m)
Range: 740 mi (1,190 km) 1,530 mi (2,462 km) with 90 gal (409 l) drop tanks
Service ceiling: 36,500 ft (11,125 m)
Rate of climb: 4,700 ft/min (23.9 m/s)
Armament
Guns:*4 × 20 mm (.79 in) Mark II Hispano cannons, 200 rpg. Later models used Mark V Hispano Cannons.*
Bombs: *2 × 500 lb (227 kg) or 1,000 lb (454 kg) bombs*



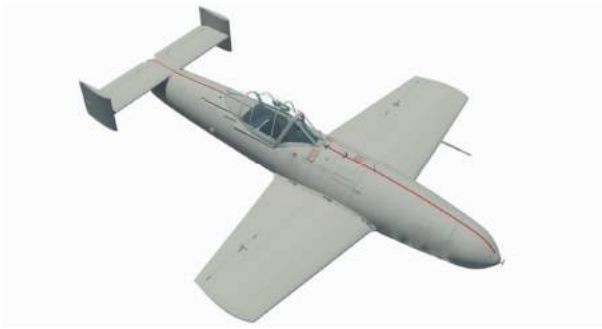


FLY-INS Looming

14 December 2019	YMRG Murgon	Brekkie with the Burnett Flyers
Jan 10-12 2020	YEVD Evans Head	The Great Eastern Fly In
8 March 2020	YCFN Clifton	Clifton Fly In (or Drive in) See ad elsewhere in this issue

Mystery Aircraft (This Issue)

What's this?

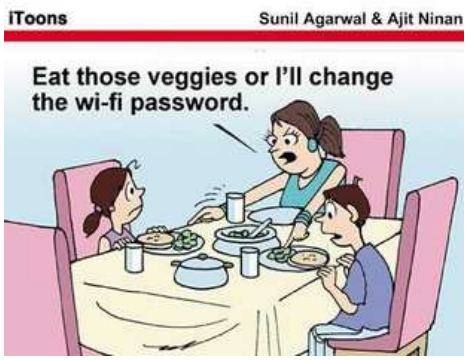


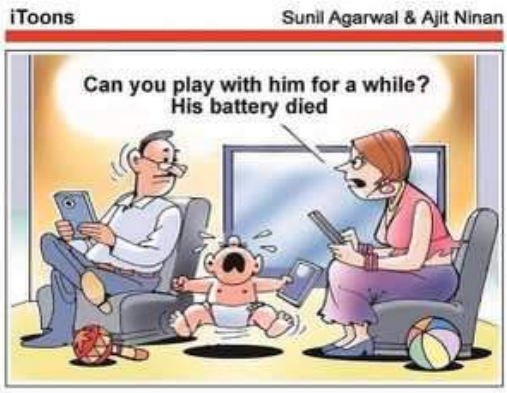
Mystery Aircraft (Last Issue)

The **Vought VE-7 "Bluebird"** was an early biplane of the United States. First flying in 1917, it was designed as a two-seat trainer for the United States Army, then adopted by the United States Navy as its very first fighter aircraft. In 1922, a VE-7 became the first plane to take off from an American aircraft carrier.

No takers this month.

Jokes





2020 CLIFTON FLY IN

On 8th March 2020 Lone Eagle Flying School invites you to Clifton Airfield to its Annual Fly-In at Clifton Airfield and to celebrate International Women In Aviation Week. This Fly In has become an iconic event in the region and is the premier attraction for all types of aviation in southern Queensland. See various types, shapes, sizes and models of recreational, ultralight and homebuilt aircraft including sport, vintage, general aviation and any other flying machine. Come late pm Saturday, 7th for sit down dinner, drinks and hangar talk. Fly or drive in, see ERSA. On field camping, bring your swag or caravan. Advise for catering. For more information follow us on

website : http://www.loneeagleflyingschool.org.au

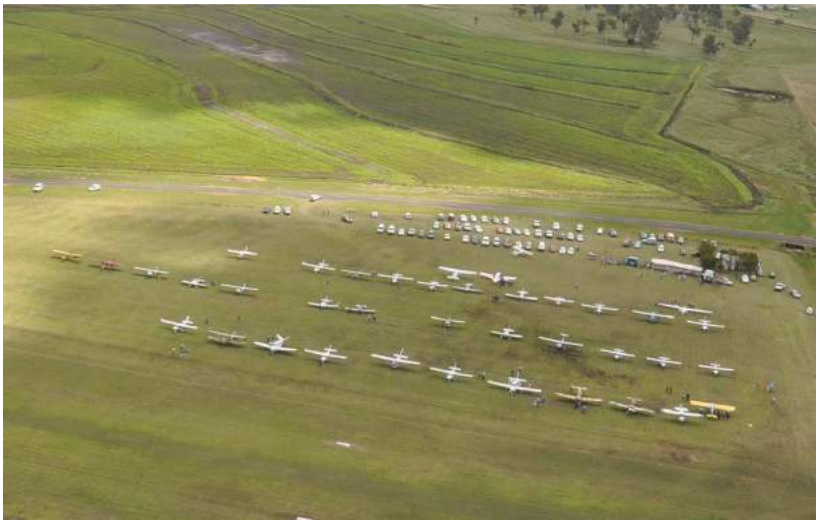
facebook : https://www.facebook.com/LoneEagleFlyingSchool/

email : admin@loneeagleflyingschool.org.au

phone : Trevor Bange 0429 378 370

Everyone is welcome,

Trevor Bange,



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

1. Define 'Flight Visibility", as it pertains to meteorological minimums for VFR flight?
   A. The distance from an aircraft to surrounding objects.
   B. The average ability to see objects at the minimum required distance from the aircraft at all times.
   C. The average forward horizontal distance, from the cockpit, at which prominent unlighted objects may be identified.
   D. The average visibility along the desired track at which prominent unlighted objects may be identified.

2. Back stick to increase the angle of attack is necessary to maintain height in a level turn. Why?
   A. Because the G loading makes the pilot and passengers weigh more.
   B. Because flying a circle path changes the disposition of the four forces acting in flight.
   C. Because extra lift to provide the acceleration necessary to turn is required.
   D. The back stick is necessary because an aeroplane's natural trims change to being nose heavy in a turn.

3. Which of the following best defines propeller slip?
   A. The difference between experimental pitch and geometrical pitch.
   B. The distance moved forward per propeller revolution compared to the geometric pitch.
   C. The actual distance advanced per propeller revolution.
   D. The difference between static pitch and experimental pitch.

4. During a run-up a pilot notices that there is no drop when switched to the left magneto. This may indicate which of the following?
   A. The right magneto is functioning perfectly.
   B. There is no fouling in the plugs powered by the left mag.
   C. The left magneto is functioning perfectly.
   D. The earth wire on the left magneto may be broken and the magneto is live.

5. An aeroplane's stall speed is decreased if which of the following occurs?
   A. Fuel is burned off.
   B. If it is flown into a head wind.
   C. If the controls are crossed.
   D. If the angle of attack is reduced.

See answers overleaf

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

If you have any problems with these questions, See Notes overleaf or call me (in the evening) and let's discuss it. Rob Knight.

1. No comment – read the definitions in the VFRG.

2. In a turn the lift has two job – to lift the aeroplane weight and the turn the aircraft. As the weight doesn't change, the lift must be increased and back stick increases the angle of attack and increases the lift.

3. Slip is the distance moved forward per propeller revolution compared to the geometric pitch.
   Alternatively:
   Geometric pitch is the theoretical distance a propeller should advance in one revolution; effective pitch is the distance it actually advances. Thus, geometric or theoretical pitch is based on no slippage, but actual or effective pitch includes propeller slippage in the air.
   See
   http://www.free-online-private-pilot-ground-school.com/propeller-aerodynamics.html
   or
   https://www.youtube.com/watch?v=0bP2MH3LqvI

4. If the earth wire on a magneto breaks, the magneto cannot stop providing current for a spark – you have a live mag. This will show as a no-drop situation because the left mag cannot be turned off.

5. As fuel burns the aircraft weight decreases. A decrease in weight will provide a decrease in stall speed.

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

Aircraft Parts and Tools

Item	Condition	Price
VDO Volt Readout instrument	Brand New	**$70.00**
Skystrobe Strobe light for Ultralight	NEW – IN BOX	**$75.00**
Altimeter – non-sensitive with subscale in "Hg.	Brand new	**$50.00**
Brand New ¼ drive Torque Wrench (SCA)	Brand New 60.00	**$60.00**

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

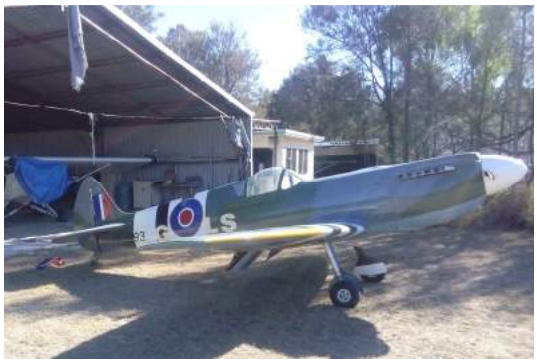
Pilot Equipment for Sale

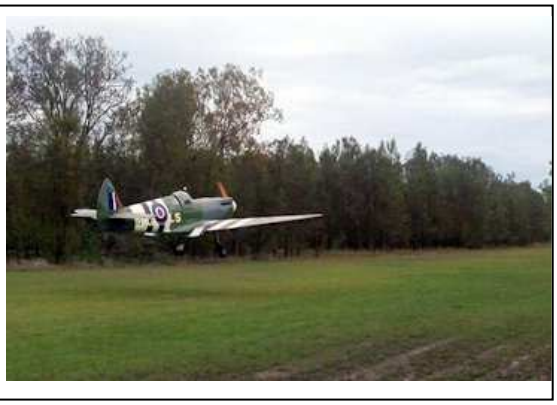
1 x used David Clarke Headset.	$POA
1 x brand new David Clarke headset	$POA
I x Garmin 196 GPS	$150.00
1 x used hand held Transceiver (Vertex VXA-220)	$150.00

Contact Julie Driver on Tel. 0421 369 328

Aircraft for sale

¾ scale replica Spitfire **$60,000**





Powered by a 6 cylinder engine, this delightful aircraft has good performance and low hours. Available for quick delivery.

It comes with a low flight time, excellent handling qualities, superb charisma, a brand new mechanical fuel pump and two jack stands.

For details contact Bill Watson. Tel., **0447 186 336**

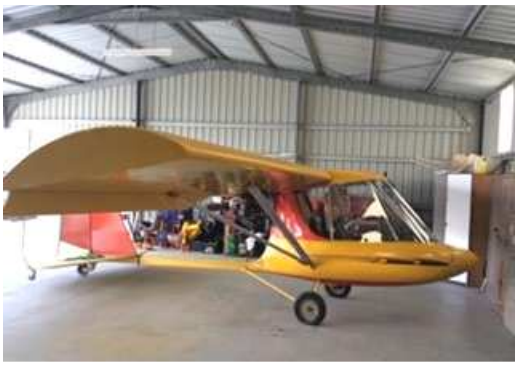
95-10 Shuttle Mk2 for Sale.

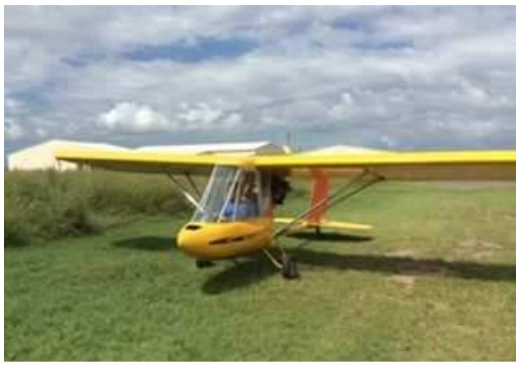
Not registered, and dismantled for storage.

Jabiru 1600 powered. Basic instruments & radio.

Sweet flying aircraft. Make a good project. $4000.00 O.N.O.

Ph. **0488 422 156** (Clyde Howard)





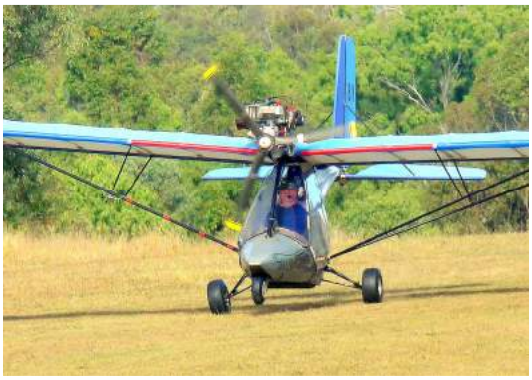
95-10 Colby Single seat aircraft for sale.

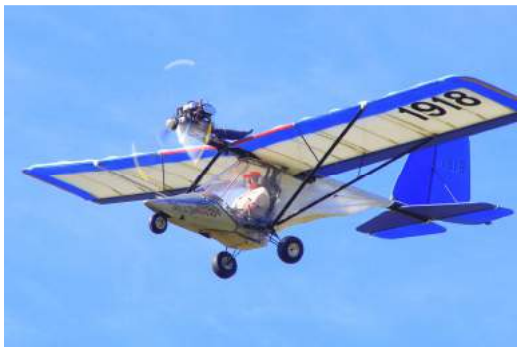
Airframe 202 hrs. Engine (503 SDCI) 37 hours on Rotax overhauled engine.

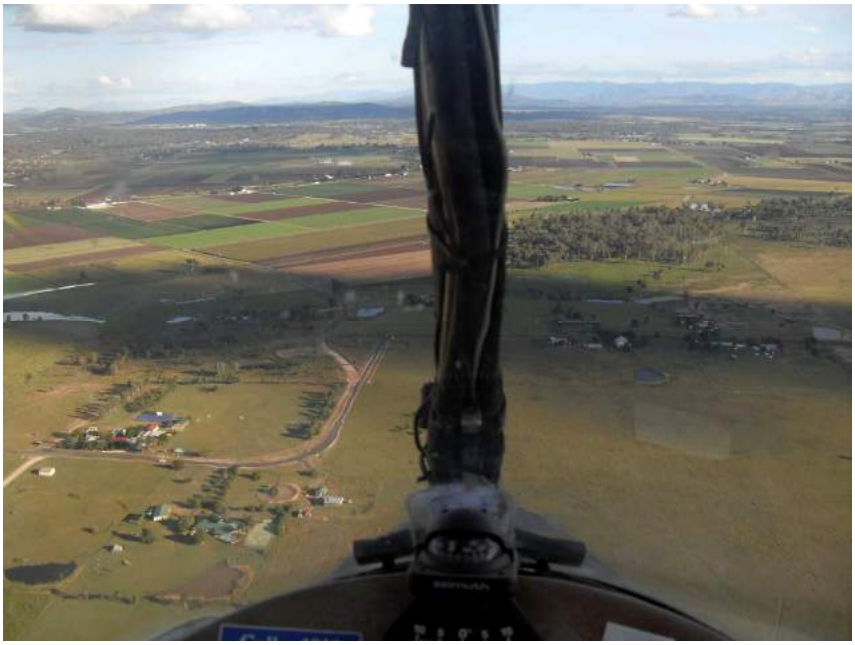
Instruments and radio. Registered and ready to fly away. Currently at Forest Hill. Could consider delivery for fuel cost.

Flying – ready to take home with you.

$5500.00 negotiable. Ph Rob on **0400 89 3632** for details.







The Lockyer Valley from the Colby