BRISBANE VALLEY FLYER

MARCH - 2017

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.

The Antonov at Watts Bridge.

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Whether to Fly. Part 1 – Why get weather details before Flight

By Rob Knight

We have recently looked at the means by which a pilot might use their eyes and imagination to gain an on-going visual impression of the local wind currents in the vicinity of their aeroplane. This impression is local and on the spot, but what weather has actually been forecast?

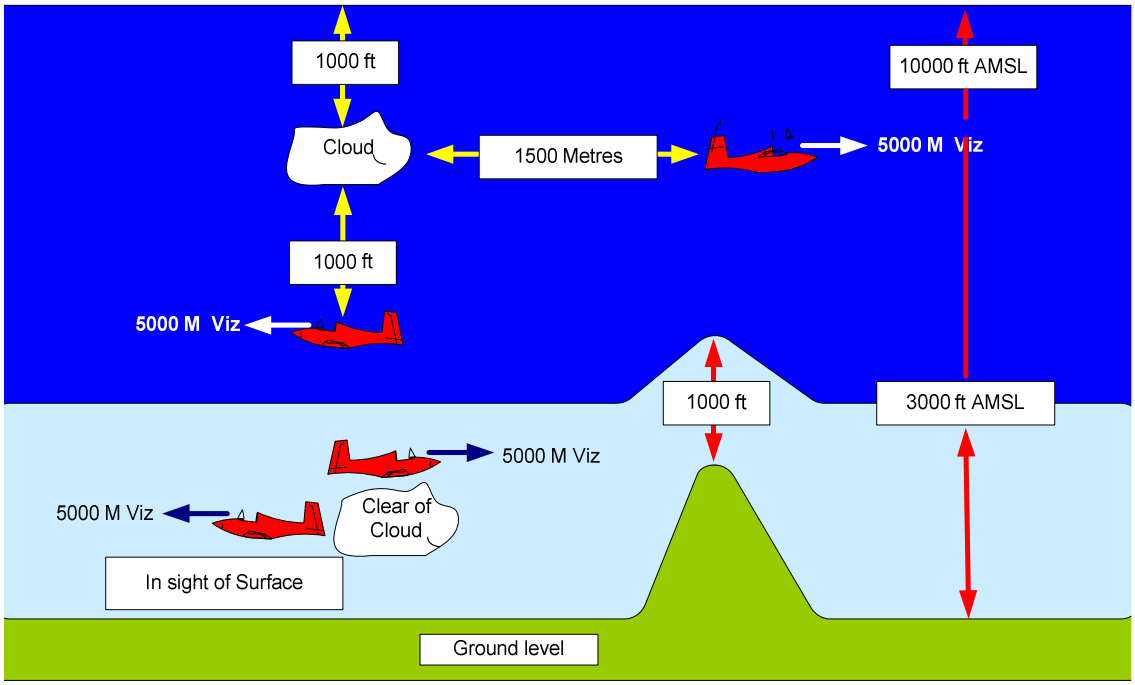
All VFR aircraft must operate under Visual Flight Rules, so all RA pilots must operate their aircraft solely in VMC (Visual Meteorological Conditions – the meteorological minima specified for visual rules flight). The specifics to these criteria are presented in two documents – CAR 172, and the VFRG which basically state that:

1. An aeroplane may not be operated if the Flight Visibility is lower than the minimum specified,
2. the aircraft may not be flown closer to cloud than is specified,
3. when flying below 2000 feet above ground or water, the pilot MUST be able to navigate by visible ground feature and not just by compass,
4. The aeroplane MUST be operated at subsonic speeds not greater than 250 knots IAS.

In dealing with items 1 and 2 as listed above, in simple terms, for aeroplanes, VFR flight must only be carried out when the weather conditions hazardous to operations are equal to or better than, the worst set of conditions prescribed by CASA. These specifications are of three weather limitations:

1. Flight Visibility *(**Flight visibility** is **defined** as the average forward horizontal distance, from the cockpit, at which prominent unlighted objects may be seen and identified)*.
2. The HORIZONTAL distance an aircraft is required to remain from cloud, and
3. The VERTICAL distance that an aeroplane is required to remain from cloud.

Thus, essentially, VFR requirements specify just two things - the LOWEST Flight Visibility in which it is legal to fly, and the CLOSENESS an aeroplane may fly around clouds.



Visibility and cloud clearance minimums for VFR operation

Remember, though, that they also contain a directive that if you fly at or below 2000 feet above the earth's surface, you must be able to navigate by visual reference to the ground.

Let's look in more detail at the two sets of limitations. Note that I am not discussing any minima above 10000 ft.

As this table of minimums has variations according to height AGL (above ground or water) or AMSL (Above Mean Sea Level) at which the aeroplane is operating, let's simplify them.

1. If you are cruising in your aeroplane at or below 1000 feet AGL you must remain clear of cloud (no minimum distance) and ALWAYS have AT LEAST 5000 metres (5 km) of flight visibility.

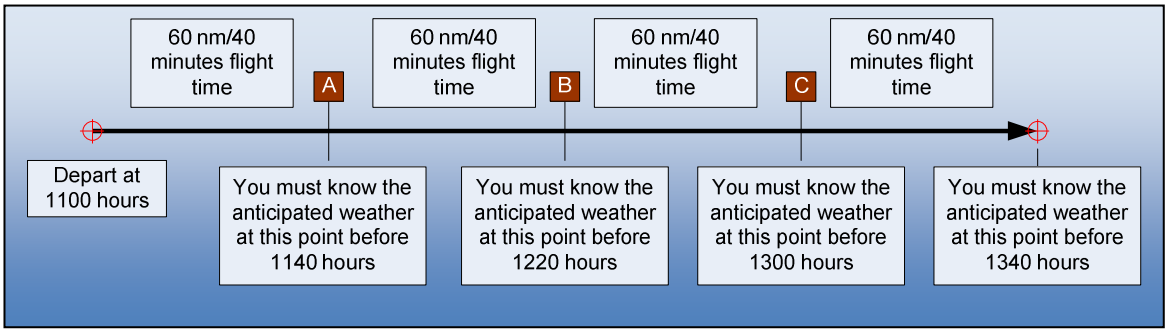
2. If you flying at or below 3000 feet AMSL (or above 3000 feet AMSL **BUT** are still closer than 1000 feet to the earth's surface the same minima applies as in paragraph 1 above.

3. BUT - if you are a higher flier still, and are cruising above 3000 feet AMSL **AND** are more than 1000 feet above the earth's surface, you **MUST** not fly so close to any clouds you encounter. Up here, cruising above 3000 feet AMSL **AND** more than 1000 feet above the earth's surface, you are required to stay at least 1500 metres away horizontally from cloud, and 1000 feet vertically. This is to ensure your safety should an aircraft operating under IFR (Instrument Flight Rules and allowed to fly in cloud), suddenly pop out of one and find you in the way. Being run over in flight is ABSOLUTELY NON HABIT FORMING.

Now, just a quick word of caution. 5000 meters is a very short distance in terms of flying time. At 70 knots this distance will be covered in just 138 SECONDS. Thus, when flying an aircraft at 70 knots in 5000 metres visibility, you can't see things that are just 138 seconds flying away. This is even more unhealthy than smoking a packet a day!

So what does a weather forecast have to do with all this? You will tell me that you can see the weather from on the ground before you leave and can see what the conditions are like from your cockpit in flight. In this you are absolutely correct insofar as it relates to local flying where you are remaining close to your departure aerodrome. But what if you are leaving on a flight covering hundreds of miles and several hours of flight time? Remember, you are operating under VFR so it is your responsibility to ensure that you have VMC conditions in any area in which you are flying. Consider, for instance, that you take-off on a flight to a destination 200 miles away in distance and 3 hours in flight time. It is YOUR responsibility to ensure that at each point along that intended route the weather will be VMC and so is suitable for VFR at the very time you reach that point. In other words, if you are departing at, say 10.00 hours, you would anticipate arriving at your half-way point, at 11.30 hours, so YOU must ascertain that the weather at that point and AT THAT TIME will be equal to or better than the minima we listed above. In other words, a quick check of the sky before you leave is simply not enough. You need to check the weather forecast (prediction) and look at a time line along your intended route. Aviation is unforgiving to the cautious and wary and deadly to the unknowing and careless.

For clarification, let's look at a schematic of this as a time line. The flight is a straight line from Departure to Destination via checkpoints A, B, and C. For simplicity we'll assume that the groundspeed is 90 knots (1.5 nm/minute) for the duration of the flight. The distance over-all is 240 nm.



So what weather details should a pilot be seeking? Let's look logically at the entire operation. We need present weather details and future weather predictions for the departure and destination points and each point along the track for the time the aircraft will be in that vicinity. These details are contained in:

- METAR (Meteorological Aerodrome Report)
- SPECI (Special weather report: issued when one or more elements of weather become notably close to minimums or safety limits.
- TAF (Terminal Aerodrome Forecast) if available for either departure or destination aerodrome
- ARFOR (Area forecast) to cover the area or areas through which the track passes.

In the next issue we will be looking at how and from where we can acquire these documents, and how we can use them.

Happy Flying

A friend told the blonde man: "Christmas is on a Friday this year." The blonde man then said, "Let's hope it's not the 13th."

Piper High-Wings

Budd Davisson, *Plane and Pilot* Magazine,

"...and in the begining, there was the high wing Piper and He looked down and said...yeah, that's good, really good."

Cub to Colt and all the Rag- and-Tube Wonders Inbetween

Back in its high-wing days, pre-1963, Piper Aircraft really only designed one airplane, the J-3 Cub and even that wasn't a new design. Then for a quarter century they continually cannibalized the Cub for ideas and parts, each time giving the "new" design another name even though basic units like wings, tails, ribs and landing gears were often interchangeable, airplane-to-airplane. Old Bill Piper couldn't see designing a new part when something they already had on the shelf would work just as well.

The Piper family tree evolved in a very linear fashion with just one major branching-out taking place in 1948 when the PA-15 Vagabond came out. That fork in the road gave birth to two distinct families of Piper high-wing airplanes—the clan of the Long Wing and that of the Short Wing. It could logically be asked exactly what the definitions of Long and Short include. It's pretty simple—Long Wing Pipers all had wings a shade over 35 feet long while the Shorties ran a little over 29 feet. Regardless of which clan and airplane you're discussing, however, until the end of the Piper high-wing dynasty, none of them strayed far from the formula laid down by chief engineer, Walter Jamineau, with the J-3. With this design came the following innovations. Most had been used before but not all in one airplane-:

- Steel tube fuselage
- Bungee sprung "V" gear
- Fragile aluminum ribs made of riveted-together "T" shaped sections
- Trim via screw-jack moving forward edge of stabilizer up and down
- Steel, sealed struts

In the Beginning All Wings were Long

J-3 Cub

Although other engines were offered in the J-3, the 65 hp, Continental A-65 became the engine of choice and it made the J-3 a huge improvement over earlier Cub variants. On 65 hp, the airplane flies well, but the 85 hp conversions make a real airplane out of it. With a touchdown speed a little over 30 mph, the airplane is the standard for simplicity both in flying and in maintenance. One maintenance item worth noting, however, are the original expander tube brakes that can cost a fortune to overhaul. Also, most post-war Cubs have aluminum wing spars, not wood, and that's worth paying a premium.

With a 75 mph cruising speed, the Cub isn't going to take you very far very quickly, but you'll enjoy every second of it. The front seat is a little cramped and blind while the back seat is more or less comfortable with great side visibility. The airplane is made for sunset cruising with the side door open.

The Cub is one of the most expensive two-place classics you can buy, which is a function of its popularity. It's hard to believe it takes $20K to get into the game and even harder to believe we're seeing restored specimens fetching in excess of $40K. Since the airplane will fit into the new Sport Pilot category, the prices will just keep going up.

J-4 Cub Coupe.

The J-4 is, a side-by-side Cub. Period. Everything else is the same. The engine was cowled in an effort for more speed, but they didn't get it. It's still an 80 mph airplane, but, like the Cub, it's only burning a little over four gallons an hour.

Although the Coupe appears the same as its peer group, the Luscombe, Aeronca Chief and Taylorcraft, there's one major difference (besides being slower): the visibility is much better. The wing is mounted just a little higher and it really improves the way the cockpit feels.

J-4 Cub Coupes have never been as popular as the J-3 and assuming both airplanes are the same quality, the J-4 will usually be priced a solid 20% lower than a Cub.

J-5 Cruisers

The J-5 Cruiser clan can be a little confusing because Piper used the same airframe and gave it two designations, J-5A, B, and C and then PA-12 Super Cruiser. In any case, the airplane is sometimes referred to as a "Fat Cub" because of the way the fuselage swells out as it passes the pilot to accommodate the supposedly two-people wide back seat. It was Piper's attempt to build a three-passenger airplane and they came close, as long as the back passengers are slim of butt and like each other a lot.

The J-5 moves the pilot to the front seat and jacks him up a little so he or she can almost see over the nose on the ground. Also, because the fuselage widens out, the shoulder/fanny room for the pilot is almost excessive—quite a shift from the tight-as-Spandex Cub. This is a real Big Guy airplane that changed quite a bit as it matured.

J-5A – 75 hp Continental, open cowled engine with the landing gear bungees hanging out in the wind. Wings and tail are pure Cub. Flies two people fine, but three on 75 hp is stretching it.

J-5B – Same as above but with 75 hp Lycoming, which is not exactly a powerhouse.

J-5C – A 1942 redesign of the airplane resulted in dramatic performance increases as the result of drag clean-ups including moving the landing gear bungees inside the fuselage and putting a full cowl on the much more powerful, 100 hp 0-235 Lycoming (basically the same as in a C-152). The cruising speed was increased to a solid 95-100 mph and the ability to carry three people became a reality. Only about 35 J-5C's were built before the war changed priorities, but the Navy bought about 100 J-5C's converted to ambulance duty under the military designation of HE-1.

J-5s have lagged far behind the Cub in price (hasn't everything?) but they are quickly closing the gap because so many have been re-engined with bigger (150 hp being the most common) engines and outfitted for bush duty. When a larger engine is coupled with the Cruiser's wide fuselage, you have a perfect platform for utilitarian flying.

PA-11
For some reason the PA-11 never had a cute name of it's own, possibly because it is nothing more than a J-3 with either a 65 hp or 90 hp Continental enclosed in a nicely streamlined cowl. The PA-11 is considered by many to be the ultimate pure Cub because with the big engine, it has terrific performance and cruises 90-95 mph, which is lightning quick compared to a J-3. They are commanding Cub prices-plus and they are worth it.

PA-12 Super Cruiser
The Super Cruiser is a post war refinement of the J-5C. Structurally, the major change was replacing the low carbon steel tubing in the fuselage with chrome-moly but the marketing department got in the act and gave the airplane a greatly redesigned cockpit and instrument panel. All sorts of minor refinements made it more finished looking, plus they moved the front seat back a few inches, which made the front pit positively roomy.

Here too, big engine conversions can drive the prices up to $35-$40K, but figure on the mid-twenties for a good airplane.

PA-14 Family Cruiser
The first serial-production, four-place Piper, the Family Cruiser took the J-5 concept of widening a single seat to 1 3/4 seat and applied it both front and rear making room for two skinny people to fit up front and in back. The airplane is pure Cub in everything it does but it has 115 horses to play with. Few of the airplanes were built and they are dearly loved by those who own them. Again, you see a lot of them all bushed-out with big engines, flaps added, fat tires, etc. None of them are cheap, since they start at $20-$25K.

PA-18 Super Cub
First of all the PA-18 is out of sequence, but it is definitely of the long wing variety and, if there is an airplane as legendary as the J-3, it is the Super Cub. This is the very definition of utility and it is also the last of the long-wing Pipers. In it's earliest configurations it had 90 hp and no flaps and the only thing that separated it from the J-3 and PA-11 before was that the wing attach structure was moved from over the pilot's head to the outside of the fuselage giving more head room.

The 125 and 135 hp Super Cubs are well respected airplanes and hover in the $35-$45K range while the most common150 hp version with big flaps, can cost anything from $45K to $150K with several custom built examples hitting $250K (really!).

The airplanes hold their value so well because they do their job so well. At 105 mph cruise they are leisurely cross-country machines, but they are the airplane of choice for the utility pilot.

Now Enter the Short Wings

PA-15, PA-17 Vagabond
In 1947 it was Panic City in every airframe manufacturing plant and the order came down from Piper management to build the cheapest, two-place general-use airplane they could and to do it using nothing but materials already on hand and as little of that as possible. For that reason everything about the PA-15 Vagabond was made smaller and simpler. They even went so far as to use military surplus mag switches. The wings were minimized (six feet shorter), as was the fuselage, which gave birth to the short wing Piper

The name "Vagabond" is applied to two different Piper designations, the PA-15 and the PA-17. The airplanes are nearly identical and are almost naive in their low-tech approach to flight, but they are great fliers. The differences between the two included adding a right side control stick in the –17 as well as replacing the –15's ultra-simple, rigid landing gear with a more conventional bungee system. Originally equipped with the 65 hp Continental, many are seen with 75hp or 85 hp engines, which greatly improve the climb performance.

PA-16 Clipper
Where the Vagabond started the short-wing ball rolling, it is the Clipper, produced only in1949, that set the shape of things to come. A true four-place airplane with a right side door for the front and a left side door for the back, the little bugger moved right along on 115 hp. It still had sticks, rather than control yokes, and got most of its performance out of

its light weight. These are great buys because all but the super-restored birds sell for $16-$22K and a few even drop below $15K.

PA-20 Pacer

This is the Clipper gone one better. The engine became a 125 or 135 hp 0-290 Lycoming and the sticks were heaved in favor of a pair control yokes. The airplane grew flaps and Piper layered on some cosmetic cockpit treatments that gave it a more finished look.

With its short fuselage and higher-than-a-Cub touchdown speeds, the airplanes rapidly gained a reputation of being a little quick on the runway, but these days that doesn't seem to be a problem—each year dozens of Tri-Pacers get a "nosewheelectomy" to make them into Pacers because of their sporty appearance and handling.

The Pacer never got the 150/160 hp Lycoming of the Tri-Pacer so they are a little underpowered when loaded to gross, but that's as much a function of the environment, as the airplane: short wings don't like high density altitudes.

PA-22 Tri-Pacer

The ubiquitous PA22 Tri-Pacer

The Tri-Pacer is a solid, easy to fly airplane that in the 150-160 hp versions actually is a pretty good four-place airplane, although the backseat is a little small and dark. Their reputation is one of being fast on final, but that's not true. Yes, it is much faster than a Cessna but no different than a Cherokee. Also, it'll work out of a shorter field than many would believe.

It's a solid 125-130 mph cruiser with the bigger engines and if the air is even remotely smooth, you can put your hands in your lap and watch the countryside go by. $18-$25K buys all sorts of Tri-Pacers and none of them will disappoint so long as a thorough pre-buy inspection is done.

PA-22-l08 Colt

The Colt has to be one of the least known contemporary airplanes built. Essentially, a stripped down, two-place Tri-Pacer it is the Vagabond of the 1960's. In fact, it flies a lot like a Vagabond and is just as much fun. It has to be an exceptional Colt for it's price to be over $18K and you see them all the time in the $12-$14K range. Being a fabric airplane and one that isn't too popular at that, you can expect the lower range airplanes to be pretty doggy.

The Colt's 108 hp, 0-235 engine is a solid motor that with minimal care will run to TBO, so you can buy a Colt with a mid-time engine, fly it for a bunch of years and sell it for what you paid for it after flying its wings off.

Summary-Do a careful inspection
All high-wing Pipers have steel tube airframes that are 40 to 60 years old and this is something to consider when buying one. If they were well taken care off, age is of no consequence, but the rag and tube Pipers all sat around as derelicts at some time in their lives. During that period of time moisture was continually trying to convert them to ferrous oxide. When doing the pre-buy inspection, hire an expert in the type to do the work.

The usual places for rust are at the rear of the fuselage in the taildraggers and inside the doorframes and in the strut carry-through in the belly of nose draggers. Also, these kinds of airplanes have lived in the land of the field mouse for decades and nesting mice can cause more damage then flying can.

So, when you decide you can't live without a high-wing Piper, try to find the best one available, or at the very least, do your best to determine the true condition of an airframe before buying it. There is no substitute for paranoia, when buying any airplane but on high-wing Pipers it will really pay off.

FLY-INS Looming

March 12	Clifton	Annual Clifton Breakfast / BBQ & Women in Aviation Flights.
March 12	Watts Bridge	Watts for Breakfast.
March 18	Childers	Bush Fliers Down Under Childers Bash.
March 18	Dunwich	Straddie Fly-in and Grand Breakfast.

Mystery Aircraft (March Issue)

What's this?

Mystery Aircraft (Last Issue)

This mystery aircraft is the Westland Wapiti. A two seat, general purpose aircraft, built in the UK and first flying in 1927, the Wapiti was supplied to numerous air forces including the RAAF in the late 1920s and 30s. Congratulations to Clive Arnold for correctly identifying this historic aircraft.

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

1. On climb-out you find that you are quickly overhauling a slower aeroplane ahead. Which of the following options depicts the most correct action to follow in order to overtake this aeroplane?
   A. Turn LEFT and overtake with the other aeroplane on your RIGHT.
   B. Turn RIGHT and overtake with the other aeroplane on your LEFT.
   C. Reduce your angle of climb and overtake beneath so you can ensure there is safe clearance between you and the other aeroplane above.
   D. Make an immediate turn in the circuit direction and climb away at 90° to the other aeroplane's flight path and so avoid confliction.
2. Whilst in a glide and experiencing a reducing tailwind wind gradient, which of the following is likely?
   A. Decreasing groundspeed and increasing IAS.
   B. Increasing IAS and increasing angle of glide.
   C. Increasing groundspeed and decreasing angle of glide.
   D. Increasing IAS and decreasing angle of glide.

3. An aeroplane is waiting for take-off behind another aeroplane. The runway is 1750 metres long and both aircraft have MTOW values less than 1900 kg. Which of the following is the earliest circumstance at which the second aeroplane may begin its take-off??
   A. When the first aeroplane is airborne and is at least 600 metres ahead.
   B. When the first aeroplane is airborne and is at least 1800 metres ahead.
   C. When the first aeroplane is airborne and climbing out.
   D. When the first aeroplane has begun its first turn after take-off.

4. With no flap applied, an aeroplane is being flown straight and level at its minimum level flight speed. With no change in its nose attitude, if flap is applied it will stall regardless of flaps decreasing the stall speed. Why?
   A. Because of the increase in drag experienced with the deployment of the flaps.
   B. Because flaps only decrease the stall speed when on approach.
   C. Because, with flap extended, the aeroplane will reach its critical angle at a lower nose attitude.
   D. Because the deployment of flaps diminishes the lift/drag ratio.

5. Experiencing a tailwind gradient whilst climbing out, which of the following is likely?
   A. Increasing rate of climb and decreasing angle of climb.
   B. Decreasing rate of climb and increasing angle of climb.
   C. Increasing rate of climb and increasing angle of climb.
   D. Decreasing rate of climb and decreasing angle of climb.

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

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

Hours engine & Airframe -0 320
Cruise 70-75 knots @ 15 l/hr

Fan cooled Rotax 503 DCDI
6 hours endurance

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¼ Share for sale - $4500
A share in a WB Drifter 582 is being offered. The aircraft is based at Lynfield west of Brisbane.
!/4share price of $4500 (includes hangarage
Contact Kev Walters Tel 0488 488 104

BRISBANE VALLEY SPORT AVIATION CLUB Inc

MINUTES OF THE FEBRUARY 2017GENERAL MEETING
MEETING LOCATION: Watts Bridge Memorial Airfield – BVSAC Clubrooms
MEETING DATE: 4 February 2017
MEETING OPENED: 1010 hrs

MEMBERS PRESENT: 15
APOLOGIES: Ian Ratcliffe
VISITORS: Nil
NEW MEMBERS: Nil

At the start of the meeting the President called for a minutes silence in remembrance of Watts Bridge member Peter Lynch, owner and pilot of the Grumman Mallard that crashed in Perth on 26 January.

MINUTES:

November 2016 meeting of the BVSAC Inc. (Note: there was no meeting in December or January)

Proposed: Peter Biddle. Seconded: Richard Faint. Acceptance motion carried.

PRESIDENT'S REPORT:

BVSAC Hangar

Storm damage to BVSAC hangar. Repairs to start next week.

Evidence of a break-in to the BVSAC hangar last week. Aircraft had been opened and moved. No damage or loss reported. Secretary to formally report the event to the Watts Bridge BoM.

Watts Bridge

New Board elected in November at AGM. Three new members – James Crocket (President), Tracy Hearn (Treasurer) and Mark Foy (Vice President). Liz Cook remains as Secretary and Peter Freeman as Maintenance.

Richard Faint will invite James Crocket to address BVSAC meeting in the near future.

Airshow

There will be no Brisbane Valley airshow this year as the BoM concentrates on membership and leasing arrangements.

There are plans for a fly-in later in the year along the lines of the 2015 Gathering of Eagles.

Discussion Forum

A Watts Bridge discussion forum is now available via the Watts Bridge website. Recommend all members register to view the members only area.

SECRETARY'S REPORT:

BVSAC Hangar

Insurance company has paid the claim for repairs. Cost of repairs is $7,700. Insurance company has paid $6,000 and has agreed to pay another $700 in respect to GST. The insurance policy has a $1,000 excess. Work to be done by local builder Kev Werner.

TREASURER'S REPORT:

Report for the 3 month period ending 31 January 2017.

Income included loan repayments from Watts Bridge BoM and insurance claim for hangar repairs.

Proposed by Priscilla Smith: Seconded by Peter Biddle.

- BVSAC ING account - $562.72
- BVSAC NAB account - $18813.10

The committee will meet to determine how the loan repayment from Watts Bridge will be paid to those members who contributed to the BVSAC loan.

AIRFIELD COUNCIL:

Nil to report

WBMA REPORT:

- Liz Cook thanked Richard Faint for his work on the Watts Bridge web site and forum.
- Runway working bee on Sunday 18 February at 1600hrs. Remove rocks from runway.

BUSINESS ARISING:

There was discussion on the proposed repairs to the BVSAC hangar.

GENERAL BUSINESS:

Peter Ratcliffe – The ride on mower used to mow around the hangar needs substantial repairs. The mower belongs to Sandy Walker but lives at the airfield.

Richard Faint proposed the following motion -

That the Club contribute to the repairs to the mower. Sandy Walker to obtain a quote for the repairs and provide to the Committee for consideration.

Seconded by Peter Ratcliffe and passed unanimously.

Mike Smith proposed the following motion in recognition of the work done by Rob Knight to produce the newsletter.

That the membership fee for Rob Knight be waived while he continues to produce the BVSAC newsletter.

Seconded by Richard Faint and passed unanimously.

Mark Purdie reminded everybody about the Watts for Breakfast next weekend.

NEXT MEETING: The next meeting will be on 4 March 2017 in the BVSAC Clubrooms at Watts Bridge at10:00AM. A BBQ lunch will follow the meeting.

MEETING CLOSED: There being no further business, the meeting was declared closed at 1110 hrs.
A BBQ lunch was held after the meeting.

--ooOOoo--

The new bib my granddaughter got me for Christmas